

STANDARD UTILITY AGREEMENT

U Number: **N/A** Utility ID: **U00014203**

District: San Antonio
Federal Project No.: NH 1702(809)
ROW CSJ: 0016-05-116
Highway Project Letting Date: 9/1/2026

County: Comal
Highway: IH 35
From: Guadalupe/Comal County Line
To: FM 1103

This Agreement by and between the State of Texas, acting by and through the Texas Transportation Commission, ("**State**"), and City of Schertz, ("**Utility**"), acting by and through its duly authorized representative, shall be effective on the date of approval and execution by and on behalf of the **State**.

WHEREAS, the **State** has deemed it necessary to make certain highway improvements as designated by the **State** and approved by the Federal Highway Administration within the limits of the highway as indicated above (the "**Highway Project**");

WHEREAS, the proposed Highway Project will necessitate the adjustment, removal, and/or relocation of certain facilities of the **Utility** as indicated in the following statement of work: Due to conflicts with the proposed I35 NEX Northbound Frontage Road paving, grading, and drainage improvements between centerline Sta. 1101+00 and Sta. 1105+00, the City of Schertz proposes to abandon their existing Riata Lift Station, portions of their existing 8-Inch Gravity Sewer Main, and portions of their existing 6-Inch Sewer Forcemain that are within the proposed TxDOT Right-of-Way. The existing City of Schertz utility infrastructure is currently located outside of the existing TxDOT Right-of-Way, within City of Schertz easement. The existing longitudinal utility improvements, the gravity sewer main and force main, total approximately 745 linear feet in length. The City of Schertz proposes to replace the existing lift station, gravity sewer main, and force main to be located outside of the proposed TxDOT Right-of-Way, within City of Schertz easement aquired for this project; and more specifically as shown in the **Utility's** plans, specifications and estimated costs, which are attached hereto as Attachment "A".

WHEREAS, the **State** will participate in the costs of the adjustment, removal, and relocation of certain facilities to the extent as may be eligible for State and/or Federal participation.

WHEREAS, the **State**, upon receipt of evidence it deems sufficient, acknowledges the **Utility's** interest in certain lands and facilities that entitle it to reimbursement for the adjustment, removal, and relocation of certain of its facilities located upon the lands as indicated in the statement of work above.

NOW, THEREFORE, BE IT AGREED:

The **State** will pay to the **Utility** the costs incurred in adjustment, removal, and relocation of the **Utility's** facilities up to the amount said costs may be eligible for **State** participation.

All conduct under this agreement, including but not limited to the adjustment, removal, and relocation of the facility, the development and reimbursement of costs, any environmental requirements, and retention of records will be in accordance with all applicable federal and state laws, rules and regulations, including, without limitation, the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act, 42 U.S.C. §§ 4601, et seq., the National Environmental Policy Act, 42 U.S.C. §§ 4321, et seq., the Buy America provisions of 23 U.S.C. § 313 and 23 CFR 635.410, as amended, Texas Transportation Code § 223.045, the Utility Relocations, Adjustments, and Reimbursements provisions of 23 CFR 645, Subpart A, and the Utility Accommodation provisions of 23 CFR 645, Subpart B.

Initial Date
TxDOT

Initial Date
Utility

The **Utility** shall supply, upon request by the **State**, proof of compliance with the aforementioned laws, rules, regulations, and guidelines prior to the commencement of the adjustment, removal, and relocation of the facility.

The Utility shall not commence any physical work, including without limitation site preparation, on the State's right of way or future right of way, until TxDOT provides the Utility with written authorization to proceed with the physical work upon TxDOT's completion and clearance of its environmental review of the Highway Project. Any such work by the Utility prior to TxDOT's written authorization to proceed will not be eligible for reimbursement and the Utility is responsible for entering any property within the proposed limits of the Highway Project that has not yet been acquired by TxDOT. This written authorization to proceed with the physical work is in addition to the authorization to commence work outlined below. Notwithstanding the foregoing, the provisions of this paragraph are required only when TxDOT has not obtained completion and clearance of its environmental review of the Highway Project prior to the execution of this Agreement by the State and the Utility.

The **Utility** shall comply with the Buy America provisions of 23 U.S.C. § 313, 23 CFR 635.410, as amended, and the Steel and Iron Preference provisions of Texas Transportation Code § 223.045 and, when products that are composed predominately of steel and/or iron are incorporated into the permanent installation of the utility facility, use domestically manufactured products. TxDOT Form 1818 (Material Statement), along with all required attachments, must be submitted, prior to the commencement of the adjustment, removal, and relocation of the facility, as evidence of compliance with the aforementioned provisions. Failure to submit the required documentation or to comply with the Buy America, and Steel and Iron Preference requirements shall result in: (1) the **Utility** becoming ineligible to receive any contract or subcontract made with funds authorized under the Intermodal Surface Transportation Efficiency Act of 1991; (2) the **State** withholding reimbursement for the costs incurred by the **Utility** in the adjustment, removal, and relocation of the **Utility's** facilities; and (3) removal and replacement of the non-compliant products.

The **Utility** agrees to develop relocation or adjustment costs by accumulating actual direct and related indirect costs in accordance with a work order accounting procedure prescribed by the **State**, or may, with the **State's** approval, accumulate actual direct and related indirect costs in accordance with an established accounting procedure developed by the **Utility**. Bills for work hereunder are to be submitted to the **State** not later than one (1) year after completion of the work. Failure to submit the request for final payment, in addition to all supporting documentation, within one (1) year after completion of the work may result in forfeiture of payment for said work.

When requested, the **State** will make intermediate payments at not less than monthly intervals to the **Utility** when properly billed. Such payments will not exceed 90 percent (90%) of the eligible cost as shown in each such billing. Intermediate payments shall not be construed as final payment for any items included in the intermediate payment.

The **State** will, upon satisfactory completion of the adjustment, removal, and/or relocation and upon receipt of final billing prepared in an approved form and manner and accounting for any intermediate payments, make payment in the amount of 90 percent (90%) of the eligible costs as shown in the final billing prior to audit and after such audit shall make an additional final payment totaling the reimbursement amount found eligible for **State** reimbursement.

Alternatively, the **State** agrees to pay the **Utility** an agreed lump sum of \$ N/A as supported by the attached estimated costs. The **State** will, upon satisfactory completion of the adjustments, removals, and relocations and upon receipt of a final billing, make payment to the **Utility** in the agreed amount.

Upon execution of this agreement by both parties hereto, the **State** will, by written notice, authorize the **Utility** to perform such work diligently and to conclude said adjustment, removal, and relocation by the stated completion date which is attached hereto in Attachment "C". The completion date shall be extended for delays caused by events outside the **Utility's** control, including an event of Force Majeure, which shall include a strike, war or act of war (whether an actual declaration of war is made or not), insurrection, riot, act of public enemy, accident, fire, flood or other act of God, sabotage, or other events, interference by the **State** or any other party with the **Utility's** ability to proceed with the work, or any other event in which the **Utility** has exercised all due care in the prevention thereof so that the causes of other events are beyond the control and without the fault or negligence of the **Utility**.

This agreement in its entirety consists of the following elements:

_____ Initial	_____ Date	_____ Initial	_____ Date
TxDOT		Utility	

Standard Utility Agreement – ROW-U-35;

- Plans, Specifications, and Estimated Costs (Attachment “A”);
- Accounting Method (Attachment “B”);
- Schedule of Work (Attachment “C”);
- Statement Covering Contract Work – ROW-U-48 (Attachment “D”);
- Utility Joint Use Agreement – ROW-U-JUA and/or Utility Installation Request – Form 1082 (Attachment “E”);
- Eligibility Ratio (Attachment “F”);
- Betterment Calculation and Estimate (Attachment “G”); and
- Proof of Property Interest – ROW-U-Affidavit (Attachment “H”).

All attachments are included herein as if fully set forth. In the event it is determined that a substantial change from the statement of work contained in this agreement is required, reimbursement therefore shall be limited to costs covered by a modification or amendment of this agreement or a written change or extra work order approved by the **State** and the **Utility**.

This agreement is subject to cancellation by the **State** at any time up to the date that work under this agreement has been authorized, and such cancellation will not create any liability on the part of the **State**. However, the **State** will review and reimburse the **Utility** for eligible costs incurred by the **Utility** in preparation of this Agreement.

The State Auditor may conduct an audit or investigation of any entity receiving funds from the **State** directly under this contract or indirectly through a subcontract under this contract. Acceptance of funds directly under this contract or indirectly through a subcontract under this contract acts as acceptance of the authority of the State Auditor, under the direction of the Legislative Audit Committee, to conduct an audit or investigation in connection with those funds. An entity that is the subject of an audit or investigation must provide the state auditor with access to any information the state auditor considers relevant to the investigation or audit.

The **Utility** by execution of this agreement does not waive any of the rights that the **Utility** may have within the limits of the law.

It is expressly understood that the **Utility** conducts the adjustment, removal, and relocation at its own risk, and that the **State** makes no warranties or representations regarding the existence or location of utilities currently within its right of way.

Initial Date
TxDOT

Initial Date
Utility

The signatories to this agreement warrant that each has the authority to enter into this agreement on behalf of the party represented.

UTILITY

EXECUTION RECOMMENDED:

Utility: City of Schertz
Name of Utility

Director of TP&D (or designee), San Antonio District

By: _____
Authorized Signature

Steve Williams, ICMA-CM, MPA, CGFO
Print or Type Name

Title: City Manager

Date: _____

THE STATE OF TEXAS

Executed and approved for the Texas Transportation Commission for the purpose and effect of activating and/or carrying out the orders, established policies or work programs heretofore approved and authorized by the Texas Transportation Commission.

By: _____
District Engineer (or designee)

Date: _____

Initial Date
TxDOT

Initial Date
Utility

Attachment "A"

Plans, Specifications, and Estimated Costs

All material items within cost estimate that must meet Buy America or Steel and Iron Preference Provision requirements must be indicated with an asterisk (*).

- Currently, **we do not have** Buy America required materials planned for this project. In the event that Buy America compliant materials are used during construction on this project, compliance documentation will be provided.
- There are non-domestic iron and steel materials in this project that fall under the De Minimus equation. Calculation showing the total cost does not exceed one-tenth of one percent (0.1 %) of the individual utility agreement amount or \$2,500.00, whichever is greater is required.
- We understand the Buy America Compliance Requirements and will supply the required documentation to TxDOT indicating compliance with this provision. The following documents will be supplied prior to installation of the materials:
 - 1) Form 1818 - Material Statement
 - 2) Material Test Reports or Certifications

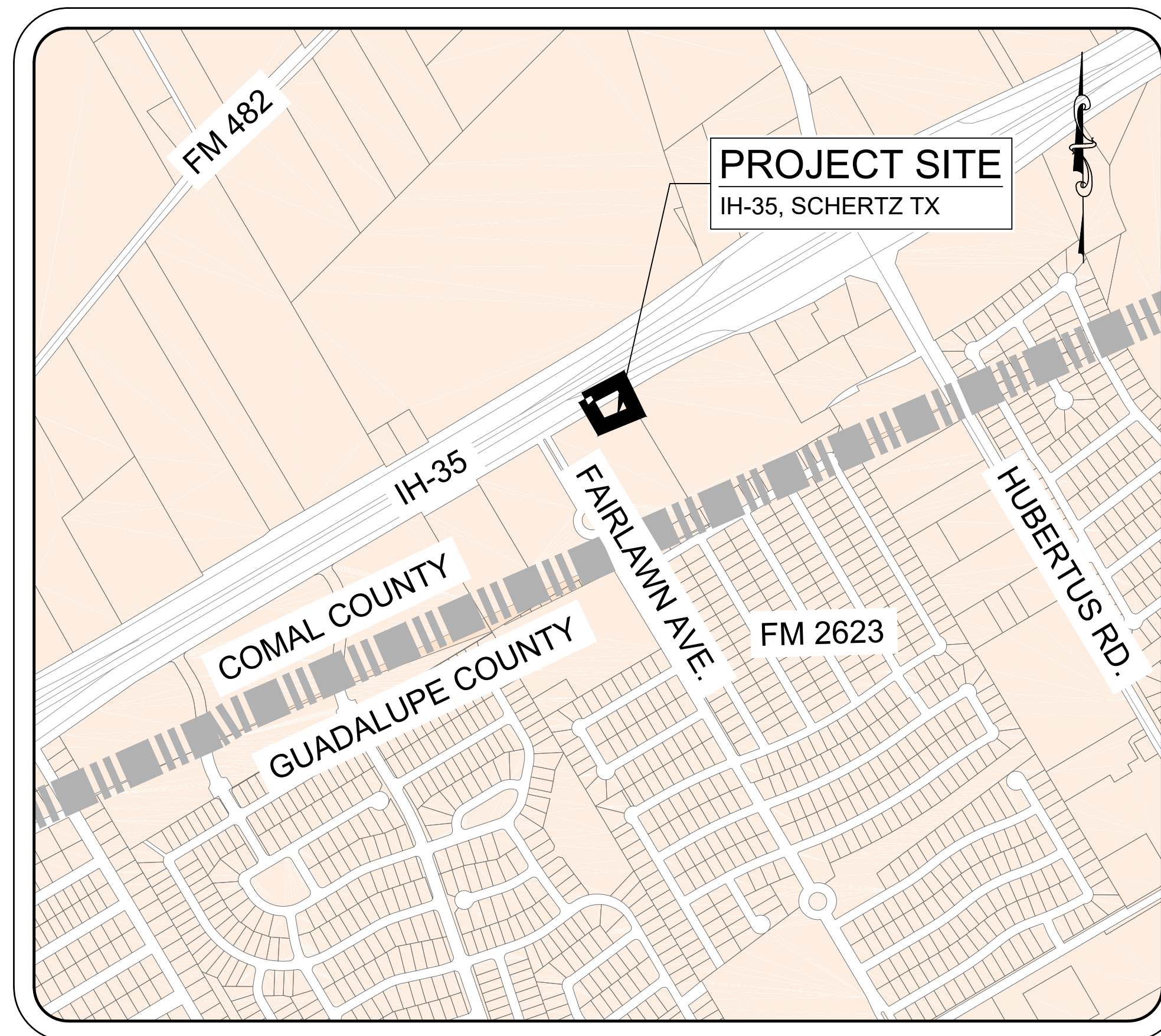
Initial Date
TxDOT

Initial Date
Utility

CONSTRUCTION PLANS FOR IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS 100% REVIEW SET

NOTES:

1. ENGINEERING STAMPED APPROVED CIVIL SHEETS MUST BE INCLUDED WHEN SENDING THE REVISED CONSTRUCTION PLANS.
2. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE CITY OF SCHERTZ ADOPTED CODES AND ORDINANCES EVEN IF NOT SPECIFICALLY MENTIONED OR IDENTIFIED WITHIN THIS DOCUMENT.
3. COMPLY WITH THE FOLLOWING:
 - 3.1. UNIFIED DEVELOPMENT CODE CITY CODE OF ORDINANCES CHAPTER 18 BUILDINGS AND BUILDING REGULATIONS.
4. PROVIDE A SPECIAL INSPECTIONS LETTER IN COMPLIANCE WITH THE 2012 INTERNATIONAL BUILDING CODE SECTIONS 1704-SPECIAL INSPECTIONS, CONTRACTOR RESPONSIBILITY AND STRUCTURAL OBSERVATIONS AND 1705-REQUIRED VERIFICATION AND INSPECTION.
5. USE ONLY PLANNING APPROVED SITE PLAN.



LOCATION MAP
N.T.S.

Sheet List Table	
Sheet Number	Sheet Title
COVER SHEET	
CS-1	COVER SHEET
GENERAL NOTES	
GN-1	GENERAL NOTES
GN-2	TCEQ GENERAL NOTES 1 OF 2
GN-3	TCEQ GENERAL NOTES 2 OF 2
DEMO SHEET	
DM-1	DEMO SHEET 1 OF 2
DM-2	DEMO SHEET 2 OF 2
LIFT STATION DESIGN	
LS-1	LIFT STATION SITE PLAN
LS-2	LIFT STATION GRADING, EROSION & SEDIMENTATION CONTROL PLAN
LS-3	DIMENSION CONTROL SHEET
LS-4	OFF-SITE 8" GRAVITY MAIN
LS-5	OFF-SITE 6" FORCE MAIN
LS-6	LIFT STATION PLAN VIEW SHEET
LS-7	LIFT STATION PROFILE VIEW SHEET
LS-8	WET WELL AND PIPING DETAILS SHEET 1 OF 3
LS-9	WET WELL AND PIPING DETAILS SHEET 2 OF 3
LS-10	WET WELL AND PIPING DETAILS SHEET 3 OF 3
LS-11	FLATWORK DETAILS
LS-12	DETAILS 1 OF 3
LS-13	DETAILS 2 OF 3
LS-14	DETAILS 3 OF 3
STRUCTURAL SHEETS	
S-1	WET WELL STRUCTURAL NOTES
S-2	WET WELL PLANS
S-3	WET WELL SECTION
ELECTRICAL SHEETS	
E-01	ELECTRICAL ABBREVIATIONS, LEGENDS, AND GENERAL NOTES
E-02	ELECTRICAL SITE PLAN - DEMOLITION
E-03	ELECTRICAL SITE PLAN - PROPOSED
E-04	ELECTRICAL ONE-LINE DIAGRAM
E-05	ELECTRICAL CONTROL AND SCHEMATICS DIAGRAMS
E-06	ELECTRICAL SCHEMATIC DIAGRAM
E-07	ELECTRICAL SCHEDULES
E-08	GENERATOR DETAILS SHEET 1
E-09	GENERATOR DETAILS SHEET 2
E-10	ELECTRICAL DETAILS SHEET 1
E-11	ELECTRICAL DETAILS SHEET 2
E-12	ELECTRICAL DETAILS SHEET 3
E-13	ELECTRICAL DETAILS SHEET 4



191 N. Union Ave NEW BRAUNFELS, TEXAS 78130 PH: (830) 214-0521
Texas Engineering Firm F-18712



DAVID KNEUPER P.E.
LICENSE NO. 96676
January 30, 2023



GENERAL NOTES

- CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND INDEMNITY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING FROM LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
- CONTRACTOR SHALL NOTIFY THE ENGINEER AND ALL RESPECTIVE GOVERNMENTAL OR UTILITY AGENCIES AFFECTED BY CONSTRUCTION 72 HOURS PRIOR TO STARTING CONSTRUCTION. ANY TIE-IN SHALL BE COORDINATED BY THE CONTRACTOR WITH THE PUBLIC WORKS DEPARTMENT, AT LEAST 48 HOURS IN ADVANCE.
- CONTRACTOR IS REQUIRED TO VERIFY PROJECT ELEVATIONS. "MATCH EXISTING" SHALL BE UNDERSTOOD TO SIGNIFY VERTICAL AND HORIZONTAL ALIGNMENT.
- ANY DISCREPANCY OR CONFLICT WITHIN THE DRAWINGS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. DISCREPANCIES OR CONFLICTS NOT BROUGHT TO THE ENGINEER'S ATTENTION AND CLARIFIED DURING BIDDING OF THE PROJECT WILL BE DEEMED TO HAVE BEEN BID OR PROPOSED IN THE MORE COSTLY MANNER, AND THE BETTER QUALITY OR GREATER QUANTITY OF THE WORK SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH ENGINEER'S INTERPRETATION. ALL ITEMS, WORK, AND IMPROVEMENTS SHOWN OR INDICATED IN THE CONSTRUCTION DOCUMENTS SHALL BE COMPLETED FOR THE PRICES BID, WHETHER OR NOT A SEPARATE PAY ITEM IS INCLUDED IN THE CONTRACT.
- THE CONTRACTOR SHALL MAINTAIN "AS-BUILT" DRAWINGS THROUGH THE COURSE OF CONSTRUCTION AND SHALL SUBMIT SAME TO THE ENGINEER FOR APPROVAL PRIOR TO FINAL ACCEPTANCE OF THE WORK BY OWNER.
- THE CONTRACTOR WILL SELECT, EMPLOY, AND PAY FOR SERVICES OF AN INDEPENDENT TESTING LABORATORY TO PERFORM INSPECTION AND TESTING IDENTIFIED IN THE PUBLIC WORKS TECHNICAL SPECIFICATION SECTION 01452. EMPLOYMENT OF A TESTING LABORATORY BY THE CONTRACTOR SHALL NOT RELIEVE CONTRACTOR OF ITS OBLIGATION TO PERFORM WORK IN ACCORDANCE WITH REQUIREMENTS OF CONTRACT DOCUMENTS. COPIES OF REPORTS TO BE SUBMITTED TO THE CITY FOR REVIEW.
- THE CONTRACTOR SHALL FURNISH ALL ASSISTANCE REQUIRED OF HIM BY ALL INSPECTORS IN OBTAINING SAMPLES AT THE EXPENSE OF THE CONTRACTOR.
- IF IN THE OPINION OF THE INSPECTOR, BASED ON TESTING SERVICE REPORTS AND INSPECTION, MATERIALS OR COMPACTION ARE BELOW THE SPECIFIED REQUIREMENTS THE CONTRACTOR SHALL CORRECT THE DEFICIENCY AND RE-TEST TO OBTAIN THE SPECIFIED PARAMETERS AT NO ADDITIONAL EXPENSE.
- DESIGN STANDARDS REQUIRED:
 - PROJECT CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS.
 - CITY OF SCHERTZ PUBLIC WORKS STANDARD CONSTRUCTION SPECIFICATIONS.
- UNLESS OTHERWISE SHOWN IN THESE PLANS, SIDEWALKS WILL BE CONSTRUCTED CONCURRENT WITH MAIN LOT STRUCTURE.
- ROUGH GRADING MUST BE DONE ON ALL LOTS PRIOR TO SUBDIVISION PRELIMINARY ACCEPTANCE.
- ALL PAVEMENTS, DRIVEWAYS, SIDEWALKS, CURBING, GUTTERS, FENCES, POLES, MAILBOXES, SIGNS, TREES, SHRUBBERY, LAWNS, SOD OR OTHER PROPERTY AND SURFACE STRUCTURES ON OR ADJACENT TO THE PROJECT SITE NOT SHOWN TO BE REMOVED IN PLANS, THAT ARE DAMAGED, DISTURBED, REMOVED OR DESTROYED BY THE CONTRACTOR DURING THE WORK SHALL BE REPLACED OR RETURNED TO A CONDITION EQUAL TO THAT BEFORE THE WORK BEGAN. CONTRACTOR TO SUPPORT AND KEEP INTACT STORM DRAINS AND INLET STRUCTURES. ANY DAMAGES INCURRED WILL BE AT CONTRACTOR'S EXPENSE.

UTILITIES

- DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, THE LOCAL GAS COMPANY, MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
- THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES INDICATED IN THESE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED, BUT SHALL BE INVESTIGATED AND VERIFIED BY THE CONTRACTOR BEFORE STARTING WORK. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGE TO, AND FOR MAINTENANCE AND PROTECTION OF THE EXISTING UTILITIES EVEN IF THEY ARE NOT SHOWN ON THE PLANS. CONTRACTOR SHALL CONTACT ANY UTILITIES ENCOUNTERED FORTY-EIGHT HOURS (48) HOURS PRIOR TO EXCAVATION OPERATION.
- THE FOLLOWING IS A LIST OF TELEPHONE NUMBERS OF THE UTILITY LOCATORS FOR THE VARIOUS UTILITIES THAT MAY BE ENCOUNTERED:

TEXAS ONE CALL	1-800-245-4545 (1-800-DIG-TESS)
C.C.M.A.	(210)-658-6241
CITY PUBLIC SERVICE	1-800-545-6005
CENTERPOINT ENERGY ENTEX.....	(210)-659-6788
G.V.E.C.	(210)-672-2871
NEW BRAUNFELS UTILITY.....	(830)-629-8400
TIME WARNER CABLE.....	(210)-352-4472
AT&T.....	1-800-829-5127
TXDOT NEW BRAUNFELS.....	1-800-644-4773
CITY OF SCHERTZ PUBLIC WORKS DEPT.....	(210)-619-1800
GREEN VALLEY WATER DISTRICT.....	(830)-914-2330
SCHERTZ SEGUIN LOCAL GOV'T CORP.....	(830)-401-2409
GREEN VALLEY TELEPHONE COMPANY.....	(830)-885-8277
GREEN VALLEY SPECIAL UTILITY DISTRICT.....	(830)-914-2330
- NO VALVES IN THE OWNER'S WATER DISTRIBUTION SYSTEM SHALL BE OPERATED BY THE CONTRACTOR WITHOUT PRIOR PERMISSION OF THE OWNER. THE CONTRACTOR SHALL NOTIFY THE OWNER WHEN A VALVE IS TO BE OPERATED AND SHALL ONLY OPERATE THE VALVE IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. COORDINATE ALL SHUTDOWN OF MAINS FOR TIE-INS WITH OWNER 72 HOURS PRIOR TO WORK BEING COMPLETED. THE CONTRACTOR SHALL INSPECT THE MATERIALS FOR DEFECTS AT THE TIME THEY ARE UNLOADED, AND ANY MATERIALS FOUND DEFECTIVE SHALL BE REMOVED FROM THE SITE. ALL WATER WORKS MATERIAL OR SCRAP OF WHATEVER NATURE REMOVED BY THE CONTRACTOR IN THE COURSE OF THE WORK SHALL REMAIN THE PROPERTY OF THE OWNER. SALVAGED MATERIALS

SHALL BE DELIVERED TO AND UNLOADED AT THE CITY PUBLIC WORKS DEPARTMENT BY THE CONTRACTOR UNDER OBSERVATION OF AND AT THE DIRECTION OF THE OWNER. ITEMS TOO HEAVY TO BE HANDLED MANUALLY WILL BE UNLOADED BY EQUIPMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MATERIALS UNTIL THEY HAVE BEEN TURNED IN TO THE OWNER AND UNTIL A RECEIPT FOR THEM HAS BEEN ISSUED BY THE OWNER.

- PLUG EXISTING SEWER BEFORE INSTALLING ANY NEW SEWER MAIN.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT EXISTING SANITARY SEWER LATERALS AND WATER SERVICES SHOWN IN PLANS. ANY REPAIRS TO BE MADE AT CONTRACTORS EXPENSE.
- PROVIDE BLUE PANTED "V" ETCHED IN CURB TO IDENTIFY VALVES. PROVIDE BLUE PANTED "X" ETCHED IN CURB TO IDENTIFY METER BOXES.
- NEW WATER MAINS TO BE PVC C900 DR14. UNLESS OTHERWISE SHOWN IN PLANS AND APPROVED BY PUBLIC WORKS OR ENGINEERING, HYDROSTATIC TESTING WILL BE PERFORMED UNDER THE SUPERVISION OF THE CITY INSPECTOR AT 200 PSI FOR 4 HOURS.
- CONTRACTORS SHOULD USE HTH FOR DISINFECTION OF WATER LINES (NOT CHLORINE INJECTION) UNLESS APPROVED OTHERWISE PRIOR TO ISSUANCE OF PERMIT.
- NEW WATERLINES SHALL BE TIED INTO EXISTING WATER SYSTEM UNDER THE SUPERVISION OF CITY PERSONNEL NO LATER THAN 14 DAYS AFTER PASSING BACTERIOLOGICAL TESTS.
- THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT NO OVERFLOWS OR SPILLAGE OF SEWER OCCURS. SHOULD THIS OCCUR, THE CONTRACTOR SHALL:
 - IDENTIFY THE SOURCE OF THE SPILL AND ATTEMPT TO ELIMINATE ANY ADDITIONAL SPILLAGE.
 - NOTIFY THE CITY OF SCHERTZ PUBLIC WORKS.
 - CONTAIN THE SPILL IN PLACE AND AVOID CONTAMINATION OF STREAMS.
 - DISINFECT THE AREA OF THE SPILL WITH A MIXTURE OF HTH CHLORINE AND WATER.
 - ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AND THE CITY OF SCHERTZ.
- CONTRACTOR TO PROVIDE NOTICE TO RESIDENTS OF SHUTDOWN OF MAIN. CONTRACTOR TO NOTIFY RESIDENTS OF WORK WITHIN THEIR PROPERTY AND OF THE RELOCATION OF METERS. ANY COMPLAINTS BY RESIDENTS ARE TO BE PASSED IMMEDIATELY TO THE CITY INSPECTOR OR TO THE MAIN PUBLIC WORKS OFFICE. TAKE APPROPRIATE MEASURES TO PROTECT EXISTING SANITARY SEWER LATERALS SHOWN IN PLANS. ANY REPAIRS TO BE MADE AT CONTRACTORS EXPENSE.
- ABANDONED CUSTOMER LINES SHALL BE CAPPED OR PLUGGED AT THE PROPERTY LINE.
- ASBESTOS PIPE REMOVAL AND DISPOSAL IS THE CONTRACTORS RESPONSIBILITY.

TREES & VEGETATION

- THE CONTRACTOR SHALL VERIFY WHICH TREES ARE TO BE SAVED AND PROTECTED PRIOR TO COMMENCING CONSTRUCTION. DURABLE FENCE PROTECTION BARRIERS SHALL BE INSTALLED AROUND ALL TREES TO BE SAVED WITH FENCE PLACEMENT A MINIMUM OF 10 FEET FROM TREE CANOPY OR THE DRIP LINE, WHICHEVER IS GREATER.
- THE CONTRACTOR SHALL NOT DISTURB AREAS AROUND EXISTING TREES TO BE SAVED.
- THE CONTRACTOR SHALL PROTECT EXISTING GRASS, LANDSCAPING AND TREES NOT IN DIRECT CONFLICT WITH PROPOSED IMPROVEMENTS DURING CONSTRUCTION. GRASSED AREAS DAMAGED DURING CONSTRUCTION SHALL BE RESTORED BY THE CONTRACTOR WITH TOPSOIL AND SODDED.
- THE CONTRACTOR SHALL REMOVE ALL VEGETATION, TREES, STUMPS, GRASSES, ORGANIC SOIL, DEBRIS, AND DELETERIOUS MATERIALS IN CONFLICT WITH IMPROVEMENTS.
- AFTER THE CONTRACTOR HAS REMOVED MATERIALS AS DESCRIBED ABOVE, HE SHALL STRIP SUITABLE TOPSOIL AND STOCKPILE FOR LANDSCAPING USE.
- THE CONTRACTOR SHALL EXERCISE EXTRA CARE TO AVOID DAMAGE TO TREES AND ORNAMENTAL SHRUBS PLANTED AND MAINTAINED BY PROPERTY OWNERS IN THE TERRACES FRONTING THEIR PROPERTY.
- CONTRACTOR SHALL COMPENSATE OWNER FOR DAMAGE TO TREES NOT SHOWN TO BE REMOVED IN PLANS.
- OAK TREES DAMAGED DURING CONSTRUCTION SHALL BE SEALED WITHIN SIX HOURS OF DAMAGE TO PREVENT INFECTION BY OAK WILT.

NPDES

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP), INCLUDING COMPLYING WITH ALL APPLICABLE REGULATIONS RELATED TO NPDES & TPDES, AND SUBMITTING REQUIRED NOTIFICATION OF INTENT AND TERMINATION. THIS IS TO BE PAID FOR UNDER "STORM WATER POLLUTION PREVENTION PLAN" ITEM.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SITE CONDITIONS DURING CONSTRUCTION AND UNTIL THE PROJECT IS ACCEPTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE STORMWATER POLLUTION PREVENTION PLAN, UNDERSTAND THE REQUIREMENTS FOR THE PLAN, AND SHALL BE RESPONSIBLE FOR IMPLEMENTING THE PLAN. THIS IS TO BE INCLUDED UNDER SECTION 01410 "STORM WATER POLLUTION PREVENTION PLAN". ALL FINES IMPOSED FOR NOT IMPLEMENTING OR MAINTAINING SWPPP MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

TRAFFIC

- THE CONTRACTOR SHALL PROVIDE ACCESS FOR RESIDENCES AND BUSINESSES.
- THE CONTRACTOR SHALL PROVIDE ACCESS FOR THE DELIVERY OF MAIL BY THE U.S. POSTAL SERVICE.
- THE CONTRACTOR WILL BE REQUIRED TO FURNISH BARRICADES, WARNING SIGNS, LIGHTS, FLARES, FLAGS, FLAGMEN, ETC. WHERE NECESSARY AND AS DIRECTED BY THE ENGINEER, PARTICULARLY IN THOSE AREAS OF IMMEDIATE WORK.

- BATTERY FLASHERS SHALL BE USED AND NUMBER SHALL BE EQUAL OR GREATER THAN INDICATED ON BARRICADING STANDARDS. WHEN A CLASS I BARRICADE PANEL OR CLASS II BARRICADE IS USED, EACH SHOULD BE EQUIPPED WITH A MINIMUM OF TWO (2) LIGHTS. ALL WARNING SIGNS NOT MOUNTED ON BARRICADES SHALL HAVE ONE (1) LIGHT.
- BATTERY FLASHERS SHALL CONFORM TO PART V, SECTION D, LIGHTING DEVICES, TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
- CONTRACTOR RESPONSIBLE FOR SUBMITTING A TRAFFIC CONTROL PLAN, PREPARED BY A REGISTERED PROFESSIONAL ENGINEER, TO THE CITY FOR APPROVAL 5 WORKING DAYS PRIOR TO COMMENCING WORK. PLAN SHOULD FOLLOW REQUIREMENTS OF TMUTCD, LATEST EDITION.
- ALL TRENCHING AND CUT PAVEMENT SHALL BE RESTORED SUCH THAT LOCAL ACCESS MAY BE RESUMED AS SOON AS POSSIBLE.
- RESTRICT TOTAL LENGTH OF DISTRIBUTED MATERIALS ALONG THE ROUTE OF CONSTRUCTION TO 1,000 LINEAR FEET UNLESS OTHERWISE APPROVED IN WRITING BY PUBLIC WORKS.
- MAINTAIN THROUGH TRAFFIC ALONG ANY PUBLIC ROADWAYS FOR THE DURATION OF THE PROJECT.
- COORDINATE SHUT DOWN ROAD WITH CITY OF SCHERTZ 5 DAYS PRIOR TO SHUTDOWN.

SITE RESTORATION:

- RESTORATION OF PROJECT AREA AFFECTED BY CONSTRUCTION ACTIVITIES IN PUBLIC AND PRIVATE PROPERTY, INCLUDING RIGHT-OF-WAYS AND EASEMENTS (TOPSOIL AND HYDROMULCH), PAVEMENT, DRIVEWAYS, DRAINAGE STRUCTURES, FENCES, LAWNS (TOPSOIL AND BLOCK SODDING), AND LANDSCAPING WILL BE COVERED BY SPECIFICATION AND BID ITEM "SITE RESTORATION".
- PAYMENT FOR RESTORATION OF PROJECT SITE DISTURBED BY UTILITY CONSTRUCTION OPERATIONS IS ON A LINEAR FOOT. MEASUREMENT WILL BE AS PROVIDED FOR CORRESPONDING UTILITY IN EACH SPECIFICATION SECTION. NO SEPARATE PAYMENT MADE FOR BRANCH PIPE, VALVES, SERVICES, YARD PIPING AND OTHER ASSOCIATED WORK FOR UTILITIES. MEASUREMENT FOR RESTORATION WITH MULTIPLE UTILITIES WITHIN THE SAME RIGHT-OF-WAY WILL BE ON A LINEAR FOOT BASIS FOR ONLY ONE UTILITY.
- PAYMENT INCLUDES REQUIRED SITE RESTORATION WITHIN THE RIGHT-OF-WAY OR EASEMENT REGARDLESS OF SIZE OR TYPE OF PIPE, METHOD OF CONSTRUCTION, PAVED OR UNPAVED AREAS OR THICKNESS AND WIDTH OF PAVEMENT.
- NO SEPARATE PAYMENT MADE FOR SITE RESTORATION FOR SERVICE CONNECTIONS OR YARD PIPING UNDER THIS SECTION. INCLUDE COST IN APPROPRIATE ITEM.
- ALL DISTURBED AREAS TO BE RE-VEGETATED TO 85% OF APPROVED GRASSES PRIOR TO THE ACCEPTANCE OF PERMIT CLOSEOUT.
- ROUGH GRADING, INCLUDING TREE REMOVAL MUST BE DONE ON ALL LOTS PRIOR TO SUBDIVISION PRELIMINARY ACCEPTANCE.

TXDOT NOTE:

- NO WORK AND NO STORAGE OF MATERIALS WILL BE PERFORMED IN TXDOT RIGHT-OF-WAY, UNLESS THE APPROPRIATE DENSITIES HAVE BEEN OBTAINED.
- ALL TXDOT REQUIRED PERMITS MUST BE OBTAINED AND PROVIDED BY THE CITY BY THE CONTRACTOR. ALL PERMITS FOR UTILITY WORK WITHIN THE TXDOT R.O.W. WILL BE OBTAINED AND PROVIDED TO THE CITY. ALL PLANS AND REQUIRED SUBMITTALS WILL BE PROVIDED BY THE CONTRACTOR AT REQUEST OF THE CITY.

CONTRACTOR REQUIREMENTS FOR SITE CLEARING, GRADING, AND EROSION CONTROL DESIGN AND CONSTRUCTION NOTES:

- NO DISTURBANCE OF PROPOSED CONSERVATION EASEMENTS, NATURAL BUFFERS, OR WATER BODIES IS PERMITTED. THE CONTRACTOR SHALL LOCATE THESE AREAS ON SITE AND BARRICADE THEM TO AVOID ANY UNAUTHORIZED CLEARING, BARRICADES AND OTHER PROTECTIVE FENCING ARE TO BE LOCATED AT THE DRIP LINE OF EXISTING NATIVE TREES OR A MINIMUM OF 10 FEET FROM TREE CANOPY OR THE DRIP LINE, WHICHEVER IS GREATER.
- SPECIMEN AND HISTORIC TREES, CONSERVATION EASEMENTS, NATURAL VEGETATION BUFFERS, AND SIMILAR AREAS MUST BE PROTECTED BY BARRICADES OR FENCING PRIOR TO CLEARING. BARRICADES ARE TO BE SET AT THE DRIP LINE OF THE TREES AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. BARBED WIRE IS NOT PERMITTED AS A PROTECTIVE BARRIER.
- WHERE A CHANGE OF GRADE OCCURS AT THE DRIP LINE OF A SPECIMEN TREE, SILT FENCES WILL BE REQUIRED DURING CONSTRUCTION AND RETAINING WALLS MUST BE INSTALLED PRIOR TO FINAL ACCEPTANCE BY THE CITY.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL PROTECTIVE VEGETATION BARRICADES AND EROSION CONTROL STRUCTURES AND MEASURES IN PLACE PRIOR TO THE COMMENCEMENT OF ANY EARTHWORK, INCLUDING PRELIMINARY GRUBBING. THESE MEASURES INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY CONSTRUCTION FENCES, SYNTHETIC JUTE BALES, WATTLES, & OR HAVE BEST MANAGEMENT PRACTICES (BMPs) AS REQUIRED, SILT FENCES, AND FLOATING TURBIDITY BARRIERS. FURTHER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL EROSION CONTROL DEVICES THROUGHOUT THE DURATION OF THE ENTIRE PROJECT. MAINTENANCE SHALL INCLUDE PERIODIC INSPECTION AND REMOVAL OF DEBRIS ABUTTING EROSION CONTROL DEVICES.
- PRIOR TO THE INSTALLATION OF ANY FILL MATERIALS ON SUBJECT SITE, SILT FENCES SHALL BE INSTALLED (1) ALONG SUBJECT SITE BOUNDARY AND PROPERTY LINES, (2) AT THE EDGE OF CONSERVATION EASEMENTS AND WETLANDS, (3) ADJACENT TO NATURAL LANDSCAPE BUFFERS, (4) AROUND THE PERIMETER OF EXISTING STORM WATER TREATMENT FACILITIES, AND (5) AT ANY ADDITIONAL AREAS THAT THE CITY DEEMS NECESSARY TO BE PROTECTED FROM POTENTIAL EROSION IMPACTS DURING CONSTRUCTION. THESE CONDITIONS SHALL APPLY IN ALL INSTANCES WHERE FILL MATERIAL IS BEING INSTALLED WITHIN 25 FEET OF ANY OF THE AFOREMENTIONED LOCATIONS. WHILE THESE ITEMS REPRESENT THE MINIMUM REQUIREMENTS, THE CITY RESERVES THE RIGHT TO IMPOSE ADDITIONAL PROTECTIVE MEASURES, AS DETERMINED DURING ACTUAL SITE VISITS CONDUCTED AS PART OF THE STANDARD REVIEW OF THE SITE THROUGHOUT PROJECT CONSTRUCTION.
- AT A MINIMUM, THE CONTRACTOR SHALL SEED AND/OR MULCH ALL DISTURBED

AREAS. 85% SUFFICIENT GRASS COVERAGE IS TO BE ESTABLISHED BEFORE PERMIT EXPIRATION.

- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR THROUGH SCHEDULING, TO MINIMIZE THE DISTURBANCE OF SITE AREAS THAT HAVE BEEN BROUGHT TO THEIR PROPOSED FINAL GRADE. WITHIN SEVEN (7) DAYS OF BRINGING A SUBJECT AREA TO ITS FINAL GRADE OR INACTIVITY IN CONSTRUCTION, THE CONTRACTOR SHALL INSTALL SEED AND MULCH OR SOD, AS REQUIRED. ANY PROJECT THAT IS INACTIVE FOR A PERIOD OF 30 DAYS OR MORE SHALL BE STABILIZED TO THE SATISFACTION OF THE CITY OF SCHERTZ.
- ONCE AN AREA IS SEEDED OR SODDED, IT MUST BE MAINTAINED BY THE CONTRACTOR TO ALLOW THE GRASS TO BECOME ESTABLISHED. IF THE GRASS IS NOT ESTABLISHED WITHIN TWO WEEKS THE CITY MAY REQUIRE THE CONTRACTOR TO RE-SEED OR A NON-VEGETATIVE OPTION MAY BE EMPLOYED.
- ABSOLUTELY NO BURYING OF CLEARED MATERIALS IS PERMITTED.
- THE REMOVAL OF ALL VEGETATION AND TOPSOIL ON THE FUTURE ROADWAY, PARKING AND BUILDING LOT AREAS IS REQUIRED TO BE COMPLETED PRIOR TO THE PLACEMENT OF FILL ON THOSE AREAS. THE TOPSOIL MAY BE TEMPORARILY STOCKPILED AND USED AS TOPSOIL OVER PROPOSED GREEN AREAS SUCH AS PLANT BEDS, SODDED AREAS, AND WHERE TREES ARE TO BE INSTALLED OR RELOCATED.
- A SIGNED, DATED, AND SEALED LETTER FROM A SOILS ENGINEER OR THE ENGINEER OF RECORD CERTIFYING THAT THE AREAS TO BE FILLED HAVE BEEN STRIPPED OF ORGANIC MATERIALS, MUST BE SUBMITTED TO THE CITY PRIOR TO FILLING.
- FILL MATERIAL IS TO BE PLACED IN ONE FOOT LIFTS AND COMPACTED TO THE APPROPRIATE DENSITY (95% FOR PAVED AREAS AND 95% FOR BUILDING PADS AND ALL OTHER AREAS AS PER ASTM D-698).
- DURING SUBDIVISION DEVELOPMENT WHEN FUTURE BUILDING LOTS ARE FILLED AS PART OF THE OVERALL SUBDIVISION IMPROVEMENTS, COMPACTION TEST REPORTS MUST BE PERFORMED ON THE BUILDING LOTS AT 300 FOOT INTERVALS. THESE TESTS ARE TO BE PERFORMED IN ONE-FOOT VERTICAL INCREMENTS. THE RESULTS OF THESE TESTS ARE TO BE SUBMITTED TO THE CITY UPON COMPLETION OF THE TESTS.
- IF ANY MUCK MATERIAL IS DISCOVERED, IT SHALL BE REQUIRED TO BE REMOVED AND REPLACED WITH A SUITABLE MATERIAL THAT IS PROPERLY BACKFILLED, COMPACTED AND TESTED USING AASHTO T-180 MODIFIED PROCTOR METHOD.
- STOCKPILING IS NOT GENERALLY PERMITTED BY THE CITY. WHEN ALLOWED, STOCKPILES SHALL NOT EXCEED SIX FEET IN HEIGHT MEASURED FROM THE ORIGINAL GRADE. AT A MINIMUM, STOCK PILES THAT WILL REMAIN IN PLACE IN EXCESS OF TWENTY DAYS SHOULD BE SEEDED AND MULCHED IMMEDIATELY UPON PLACEMENT OF THE FINAL LIFT.
- SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION AND THE IMPACT TO NEIGHBORING COMMUNITIES. ADEQUATE WATERING METHODS SHOULD BE EMPLOYED TO ALLOW DAILY COVERAGE OF THE ENTIRE LIMITS OF ALL AREAS THAT DO NOT HAVE AN ESTABLISHED VEGETATIVE COVER. METHODS TO BE EMPLOYED INCLUDE, BUT ARE NOT LIMITED TO, WATER TRUCKS, PERMANENT IRRIGATION SYSTEMS, TEMPORARY SPRINKLER SYSTEMS OPERATED BY PUMPING UNITS CONNECTED TO WET RETENTION PONDS, WATER CANNONS, TEMPORARY IRRIGATION SYSTEMS MOUNTED ATOP STOCKPILE AREAS, AND OTHER METHODS AS DEEMED NECESSARY BY THE CITY.
- ALL FILL MATERIALS LOCATED BENEATH STRUCTURES AND PAVEMENT SHALL CONSIST OF CLEAN GRANULAR SAND FREE FROM ORGANICS AND SIMILAR MATERIAL THAT COULD DECOMPOSE.
- ALL FILL TO BE PLACED IN LANDSCAPED AREAS SHALL HAVE A PH RANGE BETWEEN 5.5 AND 6.5, BE ORGANIC IN NATURE, FREE OF ROCKS AND DEBRIS, OR MATCH NATIVE EXISTING SOILS.
- OWNER/CONTRACTOR SHALL FILE A "NOTICE OF INTENT TO USE GENERAL PERMIT FOR STORM WATER DISCHARGE FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES" WITH THE TEXAS POLLUTION DISCHARGE ELIMINATION SYSTEM" IN COORDINATION WITH THE TEXAS COMMISSION OF ENVIRONMENTAL QUALITY. CONTRACTOR SHALL BE REQUIRED TO COMPLY WITH ALL PROVISIONS OF THE GENERIC PERMIT INCLUDING BUT NOT LIMITED TO:
 - PROVIDE SUCH EROSION AND SEDIMENT CONTROL MEASURES AS MAY BE NECESSARY TO PREVENT DISCHARGE OF POLLUTANTS FROM THE SITE FROM THE START OF CONSTRUCTION UNTIL THE FINAL GROUND COVER HAS BEEN ESTABLISHED.
 - WORK WITH CITY INSPECTORS TO MAKE WEEKLY INSPECTIONS/REPORTS OF THE CONDITION OF EROSION AND SEDIMENT CONTROL MEASURES.
 - WORK WITH CITY INSPECTORS TO MAKE INSPECTIONS/REPORTS OF THE CONDITION OF EROSION AND SEDIMENT CONTROL MEASURES WITHIN 24 HOURS OF EVERY RAINFALL EVENT EXCEEDING ONE-HALF INCH.
 - MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT CONSTRUCTION.
 - ADD EROSION AND SEDIMENT CONTROL MEASURES AS SITE CONDITIONS CHANGE.
 - REMOVE TEMPORARY EROSION/SEDIMENT CONTROL MEASURES AFTER SUBSTANTIAL RE-VEGETATION AND/OR PRIOR TO THE END OF THE PERMIT EXPIRATION.

POINT	EASTING	NORTHING	POINT ELEVATION	DESCRIPTION
1000	2208519.0360'	13774467.8130'	798.26'	BM 5 MAG NAIL
1001	2208412.7310'	13774647.2330'	800.88'	BM



IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS

NO.	REVISIONS	APPD.	DATE

SCALE:
 DATE: 30 January, 2023
 PROJECT NO: 8032-03
 DESIGNED BY: PND
 DRAWN BY: PND
 CHECKED BY: DK
 SHEET NO.
GN-1
 OF 36 SHEETS

I:\Projects\2023\IH-35 Riata Lift Station Relocation\DWG\IHS-35-RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS - NOTES.dwg

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
LIFT STATIONS AND FORCE MAINS
GENERAL CONSTRUCTION NOTES

1. THIS LIFT STATION AND/OR FORCE MAIN MUST BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S (TCEQ) EDWARDS AQUIFER RULES 30 TEXAS ADMINISTRATIVE CODE (TAC) §213.5(C), THE DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEMS 30 TAC CHAPTER 217, AND IF ACCEPTABLE TO THE CITY OF SCHERTZ ENGINEERING DEPARTMENT.
2. ANY MODIFICATION TO THE ACTIVITIES DESCRIBED IN THE REFERENCED LIFT STATION/FORCE MAIN SYSTEM APPLICATION FOLLOWING THE DATE OF APPROVAL MAY REQUIRE THE SUBMITTAL OF A LIFT STATION/FORCE MAIN SYSTEM APPLICATION TO MODIFY THIS APPROVAL, INCLUDING THE PAYMENT OF APPROPRIATE FEES AND ALL INFORMATION NECESSARY FOR ITS REVIEW AND APPROVAL.
3. PRIOR TO COMMENCING ANY REGULATED ACTIVITY, THE APPLICANT OR HIS AGENT MUST NOTIFY THE LOCAL REGIONAL OFFICE, IN WRITING, OF THE DATE ON WHICH THE REGULATED ACTIVITY WILL BEGIN.
4. UPON COMPLETION OF THE WET WELL EXCAVATION, A GEOLOGIST MUST CERTIFY THAT THE EXCAVATION HAS BEEN INSPECTED FOR THE PRESENCE OF SENSITIVE FEATURES AND THE CERTIFICATION MUST BE SUBMITTED TO THE APPROPRIATE REGIONAL OFFICE. FURTHER ACTIVITIES MAY NOT PROCEED UNTIL THE EXECUTIVE DIRECTOR HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY FROM THE LIFT STATION. CONSTRUCTION MAY CONTINUE IF THE GEOLOGIST CERTIFIES THAT NO SENSITIVE FEATURE OR FEATURES ARE PRESENT.
5. IF ANY SENSITIVE FEATURES ARE DISCOVERED DURING THE WASTEWATER LINE TRENCHING ACTIVITIES, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPLICANT MUST IMMEDIATELY NOTIFY THE APPROPRIATE REGIONAL OFFICE OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY OF THE FEATURE DISCOVERY. A GEOLOGIST'S ASSESSMENT OF THE LOCATION AND EXTENT OF THE FEATURE DISCOVERED MUST BE REPORTED TO THAT REGIONAL OFFICE IN WRITING WITHIN TWO WORKING DAYS. THE APPLICANT MUST SUBMIT A PLAN FOR ENSURING THE STRUCTURAL INTEGRITY OF THE SEWER LINE OR FOR MODIFYING THE PROPOSED COLLECTION SYSTEM ALIGNMENT AROUND THE FEATURE. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE EXECUTIVE DIRECTOR HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY WHILE MAINTAINING THE STRUCTURAL INTEGRITY OF THE LINE.
6. LIFT STATIONS SHALL BE DESIGNED TO WITHSTAND AND OPERATE DURING A 100-YEAR FLOOD EVENT AND SHALL BE ACCESSIBLE DURING A 25-YEAR FLOOD. ALL LIFT STATIONS SHALL BE INTRUDER-RESISTANT WITH A CONTROLLED ACCESS.
7. DRY WELL SUMP PUMPS:
 - (A) A DRY WELL MUST USE DUAL SUMP PUMPS, EACH WITH A MINIMUM CAPACITY OF 1,000 GALLONS PER HOUR AND CAPABLE OF HANDLING THE VOLUME OF LIQUID GENERATED DURING PEAK OPERATIONS.
 - (B) A PUMP MUST HAVE A SUBMERSIBLE MOTOR AND WATERTIGHT WIRING.
 - (C) A DRY WELL FLOOR MUST SLOPE TOWARD A SUMP SIZED FOR PROPER DRAINAGE.
 - (D) THE MINIMUM SUMP DEPTH IS 6.0 INCHES AND MUST PREVENT STANDING WATER ON A DRY WELL FLOOR UNDER NORMAL OPERATION.
 - (E) A SUMP PUMP MUST OPERATE AUTOMATICALLY BY USE OF A FLOAT SWITCH OR OTHER LEVEL-DETECTING DEVICE.
 - (F) A SUMP PUMP MUST USE SEPARATE PIPES CAPABLE OF DISCHARGING MORE THAN THE MAXIMUM LIQUID LEVEL OF AN ASSOCIATED WET WELL.
 - (G) A SUMP PUMP OUTLET PIPE MUST BE AT LEAST 1.5 INCHES IN DIAMETER AND HAVE AT LEAST TWO CHECK VALVES IN SERIES.
8. PUMP CONTROLS.
 - (A) A LIFT STATION PUMP MUST OPERATE AUTOMATICALLY, BASED ON THE WATER LEVEL IN A WET WELL.
 - (B) THE LOCATION OF A WET WELL LEVEL MECHANISM MUST ENSURE THAT THE MECHANISM IS UNAFFECTED BY CURRENTS, RAGS, GREASE, OR OTHER FLOATING MATERIALS.
 - (C) A LEVEL MECHANISM MUST BE ACCESSIBLE WITHOUT ENTERING THE WET WELL.
 - (D) WET WELL CONTROLS WITH A BUBBLER SYSTEM REQUIRE DUAL AIR SUPPLY AND DUAL CONTROLS.
 - (E) MOTOR CONTROL CENTERS MUST BE MOUNTED AT LEAST 4.0 INCHES ABOVE GRADE TO PREVENT WATER INTRUSION AND CORROSION FROM STANDING WATER IN THE ENCLOSURE.
 - (F) ELECTRICAL EQUIPMENT AND ELECTRICAL CONNECTIONS IN A WET WELL OR A DRY WELL MUST MEET NATIONAL FIRE PREVENTION ASSOCIATION 70 NATIONAL ELECTRIC CODE EXPLOSION PREVENTION REQUIREMENTS, UNLESS CONTINUOUS VENTILATION IS PROVIDED.
9. WET WELLS.
 - (A) A WET WELL MUST BE ENCLOSED BY WATERTIGHT AND GAS TIGHT WALLS.
 - (B) A PENETRATION THROUGH A WALL OF A WET WELL MUST BE GAS TIGHT.
 - (C) A WET WELL MUST NOT CONTAIN EQUIPMENT REQUIRING REGULAR OR ROUTINE INSPECTION OR MAINTENANCE, UNLESS INSPECTION AND MAINTENANCE CAN BE DONE WITHOUT STAFF ENTERING THE WET WELL.
 - (D) A GRAVITY PIPE DISCHARGING TO A WET WELL MUST BE LOCATED SO THAT THE INVERT ELEVATION IS ABOVE THE LIQUID LEVEL OF A PUMPS "ON" SETTING.
 - (E) GATE VALVES AND CHECK VALVES ARE PROHIBITED IN A WET WELL.
 - (F) GATE VALVES AND CHECK VALVES MAY BE LOCATED IN A VALVE VAULT NEXT TO A WET WELL OR IN A DRY WELL.
 - (G) PUMP CYCLE TIME, BASED ON PEAK FLOW, MUST EQUAL OR EXCEED THOSE IN THE FOLLOWING TABLE.

PUMP HORSEPOWER	MINIMUM CYCLE TIMES (MINUTES)
< 50	6
50-100	10
> 100	15

 - (A) AN EVALUATION OF MINIMUM WET WELL VOLUME REQUIRES THE FOLLOWING FORMULA:
WHERE:
 $V = \text{ACTIVE VOLUME (CUBIC FEET)}$
 $Q = \text{PUMP CAPACITY (GALLONS PER MINUTE)}$
 $T = \text{CYCLE TIME (MINUTES)}$
 $7.48 = \text{CONVERSION FACTOR (GALLONS/CUBIC FOOT)}$
10. WET WELL SLOPES.
 - (A) A WET WELL FLOOR MUST HAVE A SMOOTH FINISH AND MINIMUM SLOPE OF 10% TO A PUMP INTAKE.
 - (B) A WET WELL DESIGN MUST PREVENT DEPOSITION OF SOLIDS UNDER NORMAL OPERATING CONDITIONS.
 - (C) A LIFT STATION WITH GREATER THAN 5.0 MILLION GALLONS PER DAY FIRM PUMPING CAPACITY MUST HAVE ANTI-VORTEX BAFFLING.
11. DRY WELL ACCESS.
 - (A) AN UNDERGROUND DRY WELL MUST BE ACCESSIBLE.
 - (B) A STAIRWAY IN A DRY WELL MUST USE NON-SLIP STEPS AND CONFORM TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS WITH RESPECT TO RISE AND RUN.
 - (C) A LADDER IN A DRY WELL MUST MADE OF NON-CONDUCTIVE MATERIAL AND RATED FOR THE LOAD NECESSARY FOR STAFF AND EQUIPMENT TO DESCEND AND ASCEND.
12. VENTILATION SHALL BE PROVIDED FOR LIFT STATIONS, INCLUDING BOTH WET AND DRY WELLS.
13. HOISTING EQUIPMENT. A LIFT STATION MUST HAVE PERMANENT HOISTING EQUIPMENT OR BE ACCESSIBLE TO PORTABLE HOISTING EQUIPMENT FOR REMOVAL OF PUMPS, MOTORS, VALVES, PIPES, AND OTHER SIMILAR EQUIPMENT.
14. A FLOOR DRAIN FROM A VALVE VAULT TO A WET WELL MUST PREVENT GAS FROM ENTERING A VALVE VAULT BY INCLUDING FLAP VALVES, "P" TRAPS, SUBMERGED OUTLETS, OR A COMBINATION OF THESE DEVICES.
15. PUMPS.
 - (A) GENERAL REQUIREMENTS. A RAW WASTEWATER PUMP, WITH THE EXCEPTION OF A GRINDER PUMP, MUST:
 - (1) BE DESIGNED TO PREVENT CLOGGING;
 - (2) BE CAPABLE OF PASSING A SPHERE OF 2.5 INCHES IN DIAMETER OR GREATER; AND
 - (3) HAVE GREATER THAN 3.0 INCH DIAMETER SUCTION AND DISCHARGE OPENINGS.
 - (B) SUBMERSIBLE AND NON-SUBMERSIBLE PUMPS.
 - (1) A NON-SUBMERSIBLE PUMP MUST HAVE INSPECTION AND CLEANOUT PLATES ON BOTH THE SUCTION AND DISCHARGE SIDES OF EACH PUMPING UNIT THAT FACILITATE LOCATING AND REMOVING BLOCKAGE-CAUSING MATERIALS, UNLESS THE PUMP DESIGN

- (C) ACCOMMODATES EASY REMOVAL OF THE ROTATION ELEMENTS.
 - (2) A PUMP SUPPORT MUST PREVENT MOVEMENT AND VIBRATION DURING OPERATION.
 - (3) A SUBMERSIBLE PUMP MUST USE A RAIL-TYPE PUMP SUPPORT SYSTEM WITH MANUFACTURER-APPROVED MECHANISMS DESIGNED TO ALLOW PERSONNEL TO REMOVE AND REPLACE ANY SINGLE PUMP WITHOUT ENTERING OR DEWATERING THE WET WELL.
 - (4) SUBMERSIBLE PUMP RAILS AND LIFTING CHAINS MUST BE CONSTRUCTED OF A MATERIAL THAT PERFORMS TO AT LEAST THE STANDARD OF SERIES 300 STAINLESS STEEL.
- (C) LIFT STATION PUMPING CAPACITY. THE FIRM PUMPING CAPACITY OF A LIFT STATION MUST HANDLE THE EXPECTED PEAK FLOW.
- (D) PUMP HEAD CALCULATIONS.
 - (1) AN OWNER SHALL SELECT A PUMP BASED UPON ANALYSIS OF THE SYSTEM HEAD AND PUMP CAPACITY CURVES THAT DETERMINE THE PUMPING CAPACITIES ALONE AND WITH OTHER PUMPS AS THE TOTAL DYNAMIC-HEAD INCREASES DUE TO ADDITIONAL FLOWS PUMPED THROUGH A FORCE MAIN.
 - (2) THE PIPE HEAD LOSS CALCULATIONS, USING THE HYDRAULIC INSTITUTE STANDARDS, PERTAINING TO HEAD LOSSES THROUGH PIPES, VALVES, AND FITTINGS, MUST BE INCLUDED IN THE REPORT.
 - (3) THE SELECTED FRICTION COEFFICIENT (HAZEN-WILLIAMS "C" VALUE) USED IN FRICTION HEAD LOSS CALCULATIONS MUST BE BASED ON THE PIPE MATERIAL SELECTED.
 - (4) FOR A LIFT STATION WITH MORE THAN TWO PUMPS, A FORCE MAIN IN EXCESS OF ONE-HALF MILE, OR FIRM PUMPING CAPACITY OF 100 GALLONS PER MINUTE OR GREATER, SYSTEM CURVES MUST BE PROVIDED FOR BOTH THE NORMAL AND PEAK OPERATING CONDITIONS AT C VALUES FOR PROPOSED AND EXISTING PIPE.
 - (E) FLOW CONTROL.
 - (1) A LIFT STATION OR A TRANSFER PUMPING STATION LOCATED AT OR DISCHARGING DIRECTLY TO A WASTEWATER TREATMENT SYSTEM MUST HAVE A PEAK PUMP CAPACITY EQUAL TO OR LESS THAN THE PEAK DESIGN FLOW, UNLESS EQUALIZATION IS PROVIDED.
 - (2) A WASTEWATER TREATMENT SYSTEM WITH A PEAK FLOW THAT IS GREATER THAN 300,000 GALLON PER DAY MUST USE THREE OR MORE PUMPS, UNLESS DUPLEX, AUTOMATICALLY CONTROLLED, VARIABLE CAPACITY PUMPS ARE PROVIDED.
 - (F) SELF-PRIMING PUMPS.
 - (1) A SELF-PRIMING PUMP MUST BE CAPABLE OF PRIMING WITHOUT RELIANCE UPON A SEPARATE PRIMING SYSTEM, AN INTERNAL FLAP VALVE, OR ANY EXTERNAL MEANS FOR PRIMING.
 - (2) A SELF-PRIMING PUMP MUST USE A SUCTION PIPE VELOCITY AT LEAST 3.0 FEET PER SECOND BUT NOT MORE THAN 7.0 FEET PER SECOND, AND MUST INCORPORATE ITS OWN SUCTION PIPE.
 - (3) A SELF-PRIMING PUMP MUST VENT AIR BACK INTO THE WET WELL DURING PRIMING.
 - (G) VACUUM-PRIMING PUMPS.
 - (1) A VACUUM-PRIMED PUMP MUST BE CAPABLE OF PRIMING BY USING A SEPARATE POSITIVE PRIMING SYSTEM WITH A DEDICATED VACUUM PUMP FOR EACH MAIN WASTEWATER PUMP.
 - (2) A VACUUM-PRIMING PUMP MUST USE A SUCTION PIPE VELOCITY AT LEAST 3.0 FEET PER SECOND BUT LESS THAN 7.0 FEET PER SECOND AND MUST HAVE ITS OWN SUCTION PIPE.
 - (H) VERTICAL POSITIONING OF PUMPS. A RAW WASTEWATER PUMP MUST HAVE POSITIVE STATIC SUCTION HEAD DURING NORMAL ON-OFF CYCLING, EXCEPT A SUBMERSIBLE PUMP WITH "NO SUCTION" PIPES, A VACUUM-PRIMED PUMP, OR A SELF-PRIMING UNIT CAPABLE OF SATISFACTORY OPERATION UNDER ANY NEGATIVE SUCTION HEAD ANTICIPATED FOR THE LIFT STATION.
 - (I) INDIVIDUAL GRINDER PUMPS. A GRINDER PUMP SERVING ONLY ONE RESIDENTIAL OR COMMERCIAL STRUCTURE THAT IS PRIVATELY OWNED, MAINTAINED, AND OPERATED IS NOT SUBJECT TO THE RULES OF THIS CHAPTER.
 - (J) PUMP FOR LOW-FLOW LIFT STATION. A PUMP USED FOR A LIFT STATION WITH A PEAK FLOW OF LESS THAN 120 GALLONS PER MINUTE MUST BE SUBMERSIBLE AND INCLUDE A GRINDER.
16. PIPING.
 - (A) HORIZONTAL PUMP SUCTIONS.
 - (1) EACH PUMP MUST HAVE A SEPARATE SUCTION PIPE THAT USES AN ECCENTRIC REDUCER.
 - (2) PIPES IN A WET WELL MUST HAVE A TURNDOWN TYPE FLARED INTAKE.
 - (B) VALVES.
 - (1) THE DISCHARGE SIDE OF EACH PUMP FOLLOWED BY A FULL-CLOSING ISOLATION VALVE MUST ALSO HAVE A CHECK VALVE.
 - (A) A CHECK VALVE MUST BE A SWING TYPE VALVE WITH AN EXTERNAL LEVER.
 - (B) A VALVE MUST INCLUDE A POSITION INDICATOR TO SHOW ITS OPEN AND CLOSED POSITIONS, UNLESS A FULL-CLOSING VALVE IS A RISING-STEM GATE VALVE.
 - (2) A GRINDER PUMP INSTALLATION MAY USE A RUBBER-BALL CHECK VALVE OR A SWING-TYPE CHECK VALVE.
 - (3) A BUTTERFLY VALVE, TILTING-DISC CHECK VALVE, OR ANY OTHER VALVE USING A TILTING-DISC IN A FLOW PIPE IS PROHIBITED.
 - (C) PIPES.
 - (1) A LIFT STATION PIPE MUST HAVE FLANGED OR FLEXIBLE CONNECTIONS TO ALLOW FOR REMOVAL OF PUMPS AND VALVES WITHOUT INTERRUPTION OF THE LIFT STATION OPERATIONS.
 - (2) WALL PENETRATIONS MUST ALLOW FOR PIPE FLEXURE WHILE EXCLUDING EXFILTRATION OR INFILTRATION.
 - (3) PIPE SUCTION VELOCITIES MUST BE AT LEAST 3.0 FEET PER SECOND BUT NOT MORE THAN 7.0 FEET PER SECOND.
 17. EMERGENCY PROVISIONS FOR LIFT STATIONS.
 - (A) A COLLECTION SYSTEM LIFT STATION MUST BE EQUIPPED WITH A TESTED QUICK-CONNECT MECHANISM OR A TRANSFER SWITCH PROPERLY SIZED TO CONNECT TO A PORTABLE GENERATOR, IF NOT EQUIPPED WITH AN ONSITE GENERATOR.
 - (B) LIFT STATIONS MUST INCLUDE AN AUDIOVISUAL ALARM SYSTEM AND THE SYSTEM MUST TRANSMIT ALL ALARM CONDITIONS THROUGH USE OF AN AUTO-DIALER SYSTEM, SUPERVISORY CONTROL AND DATA ACQUISITION SYSTEM, OR TELEMETERING SYSTEM CONNECTED TO A CONTINUOUSLY MONITORED LOCATION.
 - (C) AN ALARM SYSTEM MUST SELF-ACTIVATE FOR A POWER OUTAGE, PUMP FAILURE, OR A HIGH WET WELL WATER LEVEL.
 - (D) A LIFT STATION CONSTRUCTED TO PUMP RAW WASTEWATER MUST HAVE SERVICE RELIABILITY BASED ON:
 - (1) RETENTION CAPACITY.
 - (A) THE RETENTION CAPACITY IN A LIFT STATION'S WET WELL AND INCOMING GRAVITY PIPES MUST PREVENT DISCHARGES OF UNTREATED WASTEWATER AT THE LIFT STATION OR ANY POINT UPSTREAM FOR A PERIOD OF TIME EQUAL TO THE LONGEST ELECTRICAL OUTAGE RECORDED DURING THE PAST 24 MONTHS, BUT NOT LESS THAN 20 MINUTES.
 - (B) FOR CALCULATION PURPOSES, THE OUTAGE PERIOD BEGINS WHEN A LIFT STATION PUMP FINISHED ITS LAST NORMAL CYCLE, EXCLUDING A STANDBY PUMP.
 - (1) ON-SITE GENERATORS. A LIFT STATION MAY BE PROVIDED EMERGENCY POWER BY ON-SITE, AUTOMATIC ELECTRICAL GENERATORS SIZED TO OPERATE THE LIFT STATION AT ITS FIRM PUMPING CAPACITY OR AT THE AVERAGE DAILY FLOW, IF THE PEAK FLOW CAN BE STORED IN THE COLLECTION SYSTEM.
 - (2) PORTABLE GENERATORS AND PUMPS.
 - (A) A LIFT STATION MAY USE PORTABLE GENERATORS AND PUMPS TO GUARANTEE SERVICE IF THE REPORT INCLUDES:
 - (3) THE STORAGE LOCATION OF EACH GENERATOR AND PUMP;
 - (4) THE AMOUNT OF TIME THAT WILL BE NEEDED TO TRANSPORT EACH GENERATOR OR PUMP TO A LIFT STATION;
 - (5) THE NUMBER OF LIFT STATIONS FOR WHICH EACH GENERATOR OR PUMP IS DEDICATED AS A BACKUP; AND
 - (6) THE TYPE OF ROUTINE MAINTENANCE AND UPKEEP PLANNED FOR EACH PORTABLE GENERATOR AND PUMP TO ENSURE THAT THEY WILL BE OPERATIONAL WHEN NEEDED.
 - (B) AN OPERATOR THAT IS KNOWLEDGEABLE IN OPERATION OF THE PORTABLE GENERATORS AND PUMPS SHALL BE ON CALL 24 HOURS PER DAY EVERY DAY.
 - (C) THE SIZE OF A PORTABLE GENERATOR MUST HANDLE THE FIRM PUMPING CAPACITY OF THE LIFT STATION.
 - (E) SPILL CONTAINMENT STRUCTURES.
 - (1) THE USE OF A SPILL CONTAINMENT STRUCTURE AS A SOLE MEANS OF PROVIDING SERVICE RELIABILITY IS PROHIBITED.
 - (2) A LIFT STATION MAY USE A SPILL CONTAINMENT STRUCTURE IN ADDITION TO ONE OF THE SERVICE RELIABILITY OPTIONS DETAILED IN THIS IN SUBSECTION (A) OF THIS SECTION.
 - (3) THE REPORT MUST INCLUDE A DETAILED MANAGEMENT PLAN FOR CLEANING AND MAINTAINING EACH SPILL CONTAINMENT STRUCTURE.
 - (4) A SPILL CONTAINMENT STRUCTURE MUST HAVE A LOCKED GATE AND BE SURROUNDED AN INTRUDER RESISTANT FENCE THAT IS 6.0 FEET HIGH CHAIN LINK, MASONRY, OR BOARD FENCE WITH AT LEAST THREE STRANDS OF BARBED WIRE OR 8.0 FEET HIGH CHAIN LINK, MASONRY, OR BOARD FENCE WITH AT LEAST ONE STRAND OF BARBED WIRE.
 - (F) A LIFT STATION MUST BE FULLY ACCESSIBLE DURING A 25-YEAR 24-HOUR RAINFALL EVENT.
 - (G) LIFT STATION SYSTEM CONTROLS MUST PREVENT OVER-PUMPING UPON RESUMPTION OF NORMAL POWER AFTER A POWER FAILURE. BACKUP OR STANDBY UNITS MUST BE ELECTRICALLY INTERLOCKED TO PREVENT OPERATION AT THE SAME TIME THAT OTHER LIFT STATIONS PUMPS ARE OPERATING ONLY ON THE RESUMPTION OF NORMAL POWER AFTER A POWER FAILURE.

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IH-35 RIATA LIFT STATION RELOCATION AND
OFFSITE SEWER IMPROVEMENTS

TCEQ GENERAL NOTES 1 OF 2

NO.	REVISIONS	APPD.	DATE

SCALE:
DATE: 30 January, 2023
PROJECT NO: 8032-03
DESIGNED BY: PND
DRAWN BY: PND
CHECKED BY: DK
SHEET NO.
GN-2
OF 36 SHEETS

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
ORGANIZED SEWAGE COLLECTION SYSTEM (SCS)
GENERAL CONSTRUCTION NOTES

- T = TIME FOR PRESSURE TO DROP 1.0 POUND PER SQUARE INCH GAUGE IN SECONDS
- K = 0.000419 X D X L, BUT NOT LESS THAN 1.0
- D = AVERAGE INSIDE PIPE DIAMETER IN INCHES
- L = LENGTH OF LINE OF SAME SIZE BEING TESTED, IN FEET
- Q = RATE OF LOSS, 0.0015 CUBIC FEET PER MINUTE PER SQUARE FOOT INTERNAL SURFACE

(C) SINCE A K VALUE OF LESS THAN 1.0 MAY NOT BE USED, THE MINIMUM TESTING TIME FOR EACH PIPE DIAMETER IS SHOWN IN THE FOLLOWING TABLE C.3:

Pipe Diameter (inches)	Minimum Time (seconds)	Maximum Length for Minimum Time (feet)	Time for Longer Length (seconds/foot)
6	340	398	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700	80	21.369
33	1870	72	25.856

- THIS ORGANIZED SEWAGE COLLECTION SYSTEM MUST BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S (TCEQ) EDWARDS AQUIFER RULES 30 TEXAS ADMINISTRATIVE CODE (TAC) §§213.5(C) AND 217.51 - 217.70 AND 30 TAC CHAPTER 217, SUBCHAPTER D, AND THE CITY OF SCHERTZ STANDARD SPECIFICATIONS.
- ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROPOSED REGULATED PROJECT MUST BE PROVIDED WITH COPIES OF THE SEWAGE COLLECTION SYSTEM PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS MUST BE REQUIRED TO KEEP ON-SITE COPIES OF THE PLAN AND THE APPROVAL LETTER.
- NO LATER THAN 48 HOURS PRIOR TO COMMENCING ANY REGULATED ACTIVITY, THE APPLICANT OR HIS AGENT MUST NOTIFY THE REGIONAL OFFICE, IN WRITING, OF THE DATE ON WHICH THE REGULATED ACTIVITY WILL BEGIN.
- ANY MODIFICATION TO THE ACTIVITIES DESCRIBED IN THE REFERENCED SCS APPLICATION FOLLOWING THE DATE OF APPROVAL MAY REQUIRE THE SUBMITTAL OF AN SCS APPLICATION TO MODIFY THIS APPROVAL, INCLUDING THE PAYMENT OF APPROPRIATE FEES AND ALL INFORMATION NECESSARY FOR ITS REVIEW AND APPROVAL.
- ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE INSTALLED PRIOR TO CONSTRUCTION, MUST BE MAINTAINED DURING CONSTRUCTION, AND MUST BE REMOVED WHEN SUFFICIENT VEGETATION IS ESTABLISHED TO CONTROL THE EROSION AND SEDIMENTATION AND THE CONSTRUCTION AREA IS STABILIZED.
- THE SEWER LINE TRENCH DETAILS SHOWING THE CROSS SECTION WITH THE DIMENSIONS, PIPE PLACEMENT, AND BACKFILL INSTRUCTIONS. ALL SEWER PIPES JOINTS MUST MEET THE REQUIREMENTS IN 30 TAC §§217.53(C) AND 217.65.

GRAVITY LINES MUST HAVE A SDR 35 OR LESS. PRESSURIZED SEWER SYSTEMS MUST HAVE PIPE WITH A MINIMUM WORKING PRESSURE RATING OF 150 PSI.

THE ASTM, ANSI, OR AWWA SPECIFICATION NUMBERS FOR THE PIPE(S) AND JOINTS ARE ASTM F679 PS1115 & ASTM D3034 SDR26.

THE PIPE MATERIAL, THE PRESSURE CLASSES, AND THE SDR AND/OR DR DESIGNATIONS ARE SDR-26.

- IF ANY SENSITIVE FEATURES ARE DISCOVERED DURING THE WASTEWATER LINE TRENCHING ACTIVITIES, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPLICANT MUST IMMEDIATELY NOTIFY THE APPROPRIATE REGIONAL OFFICE OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY OF THE FEATURE DISCOVERED. A GEOLOGIST'S ASSESSMENT OF THE LOCATION AND EXTENT OF THE FEATURE DISCOVERED MUST BE REPORTED TO THAT REGIONAL OFFICE IN WRITING WITHIN TWO WORKING DAYS. THE APPLICANT MUST SUBMIT A PLAN FOR ENSURING THE STRUCTURAL INTEGRITY OF THE SEWER LINE OR FOR MODIFYING THE PROPOSED COLLECTION SYSTEM ALIGNMENT AROUND THE FEATURE. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE EXECUTIVE DIRECTOR HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY WHILE MAINTAINING THE STRUCTURAL INTEGRITY OF THE LINE.
- SEWER LINES LOCATED WITHIN OR CROSSING THE 5-YEAR FLOODPLAIN OF A DRAINAGE WAY WILL BE PROTECTED FROM INUNDATION AND STREAM VELOCITIES WHICH COULD CAUSE EROSION AND SCOURING OF BACKFILL. THE TRENCH MUST BE CAPPED WITH CONCRETE TO PREVENT SCOURING OF BACKFILL, OR THE SEWER LINES MUST BE ENCASED IN CONCRETE. ALL CONCRETE SHALL HAVE A MINIMUM THICKNESS OF SIX (6) INCHES.
- BLASTING PROCEDURES FOR PROTECTION OF EXISTING SEWER LINES AND OTHER UTILITIES WILL BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION CRITERIA. SAND IS NOT ALLOWED AS BEDDING OR BACKFILL IN TRENCHES THAT HAVE BEEN BLASTED. IF ANY EXISTING SEWER LINES ARE DAMAGED, THE LINES MUST BE REPAIRED AND RETESTED.
- ALL MANHOLES CONSTRUCTED OR REHABILITATED ON THIS PROJECT MUST HAVE WATERTIGHT SIZE ON SIZE RESILIENT CONNECTORS ALLOWING FOR DIFFERENTIAL SETTLEMENT. IF MANHOLES ARE CONSTRUCTED WITHIN THE 100-YEAR FLOODPLAIN, THE COVER MUST HAVE A GASKET AND BE BOLTED TO THE RING. WHERE GASKETED MANHOLE COVERS ARE REQUIRED FOR MORE THAN THREE MANHOLES IN SEQUENCE OR FOR MORE THAN 1500 FEET, ALTERNATE MEANS OF VENTING WILL BE PROVIDED. BRICKS ARE NOT AN ACCEPTABLE CONSTRUCTION MATERIAL FOR ANY PORTION OF THE MANHOLE.

THE DIAMETER OF THE MANHOLES MUST BE A MINIMUM OF FOUR FEET AND THE MANHOLE FOR ENTRY MUST HAVE A MINIMUM CLEAR OPENING DIAMETER OF 30 INCHES. THESE DIMENSIONS AND OTHER DETAILS SHOWING COMPLIANCE WITH THE COMMISSION'S RULES CONCERNING MANHOLES AND SEWER LINE/MANHOLE INVERTS DESCRIBED IN 30 TAC §217.55.

IT IS SUGGESTED THAT ENTRANCE INTO MANHOLES IN EXCESS OF FOUR FEET DEEP BE ACCOMPLISHED BY MEANS OF A PORTABLE LADDER. THE INCLUSION OF STEPS IN A MANHOLE IS PROHIBITED.

- WHERE WATER LINES AND NEW SEWER LINE ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) (PIPE DESIGN) AND 30 TAC §290.44(E) (WATER DISTRIBUTION).
- WHERE SEWERS LINES DEVIATE FROM STRAIGHT ALIGNMENT AND UNIFORM GRADE ALL CURVATURE OF SEWER PIPE MUST BE ACHIEVED BY THE FOLLOWING PROCEDURE WHICH IS RECOMMENDED BY THE PIPE MANUFACTURER: NOT ALLOWED.
IF PIPE FLEXURE IS PROPOSED, THE FOLLOWING METHOD OF PREVENTING DEFLECTION OF THE JOINT MUST BE USED: NOT ALLOWED.
SPECIFIC CARE MUST BE TAKEN TO ENSURE THAT THE JOINT IS PLACED IN THE CENTER OF THE TRENCH AND PROPERLY BEDDED IN ACCORDANCE WITH 30 TAC §217.54.

- NEW SEWAGE COLLECTION SYSTEM LINES MUST BE CONSTRUCTED WITH STUB OUTS FOR THE CONNECTION OF ANTICIPATED EXTENSIONS. THE LOCATION OF SUCH STUB OUTS MUST BE MARKED ON THE GROUND SUCH THAT THEIR LOCATION CAN BE EASILY DETERMINED AT THE TIME OF CONNECTION OF THE EXTENSIONS. SUCH STUB OUTS MUST BE MANUFACTURED WYES OR TEES THAT ARE COMPATIBLE IN SIZE AND MATERIAL WITH BOTH THE SEWER LINE AND THE EXTENSION. AT THE TIME OF ORIGINAL CONSTRUCTION, NEW STUB-OUTS MUST BE CONSTRUCTED SUFFICIENTLY TO EXTEND BEYOND THE END OF THE STREET PAVEMENT. ALL STUB-OUTS MUST BE SEALED WITH A MANUFACTURED CAP TO PREVENT LEAKAGE. EXTENSIONS THAT WERE NOT ANTICIPATED AT THE TIME OF ORIGINAL CONSTRUCTION OR THAT ARE TO BE CONNECTED TO AN EXISTING SEWER LINE NOT FURNISHED WITH STUB OUTS MUST BE CONNECTED USING A MANUFACTURED SADDLE AND IN ACCORDANCE WITH ACCEPTED PLUMBING TECHNIQUES.

THE PRIVATE SERVICE LATERAL STUB-OUTS MUST BE INSTALLED AS SHOWN ON THE PLAN AND PROFILE SHEETS AND MARKED AFTER BACKFILLING.

TRENCHING, BEDDING AND BACKFILL MUST CONFORM WITH 30 TAC §217.54. THE BEDDING AND BACKFILL FOR FLEXIBLE PIPE MUST COMPLY WITH THE STANDARDS OF ASTM D-2321, CLASSES IA, IB, II OR III. RIGID PIPE BEDDING MUST COMPLY WITH THE REQUIREMENTS OF ASTM C 12 (ANSI A 106.2) CLASSES A, B OR C.

- SEWER LINES MUST BE TESTED FROM MANHOLE TO MANHOLE. WHEN A NEW SEWER LINE IS CONNECTED TO AN EXISTING STUB OR CLEAN-OUT, IT MUST BE TESTED FROM EXISTING MANHOLE TO NEW MANHOLE. IF A STUB OR CLEAN-OUT IS USED AT THE END OF THE PROPOSED SEWER LINE, NO PRIVATE SERVICE ATTACHMENTS MAY BE CONNECTED BETWEEN THE LAST MANHOLE AND THE CLEANOUT UNLESS IT CAN BE CERTIFIED AS CONFORMING WITH THE PROVISIONS OF 30 TAC §213.5(C)(3)(E).
- ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH 30 TAC §217.57. THE ENGINEER MUST RETAIN COPIES OF ALL TEST RESULTS WHICH MUST BE MADE AVAILABLE TO THE EXECUTIVE DIRECTOR UPON REQUEST. THE ENGINEER MUST CERTIFY IN WRITING THAT ALL WASTEWATER LINES HAVE PASSED ALL REQUIRED TESTING TO THE APPROPRIATE REGIONAL OFFICE WITHIN 30 DAYS OF TEST COMPLETION AND PRIOR TO USE OF THE NEW COLLECTION SYSTEM. TESTING METHOD WILL BE:
 - FOR A COLLECTION SYSTEM PIPE THAT WILL TRANSPORT WASTEWATER BY GRAVITY FLOW, THE DESIGN MUST SPECIFY AN INFILTRATION AND EXFILTRATION TEST OR A LOW-PRESSURE AIR TEST. A TEST MUST CONFORM TO THE FOLLOWING REQUIREMENTS:
 - LOW PRESSURE AIR TEST.
 - A LOW PRESSURE AIR TEST MUST FOLLOW THE PROCEDURES DESCRIBED IN AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) C-828, ASTM C-924, OR ASTM F-1417 OR OTHER PROCEDURE APPROVED BY THE EXECUTIVE DIRECTOR, EXCEPT AS TO TESTING TIMES AS REQUIRED IN TABLE C.3 IN SUBPARAGRAPH (C) OF THIS PARAGRAPH OR EQUATION C.3 IN SUBPARAGRAPH (B)(II) OF THIS PARAGRAPH.
 - FOR SECTIONS OF COLLECTION SYSTEM PIPE LESS THAN 36 INCH AVERAGE INSIDE DIAMETER, THE FOLLOWING PROCEDURE MUST APPLY, UNLESS A PIPE IS TO BE TESTED AS REQUIRED BY PARAGRAPH (2) OF THIS SUBSECTION.
 - A PIPE MUST BE PRESSURIZED TO 3.5 POUNDS PER SQUARE INCH (PSI) GREATER THAN THE PRESSURE EXERTED BY GROUNDWATER ABOVE THE PIPE.
 - ONCE THE PRESSURE IS STABILIZED, THE MINIMUM TIME ALLOWABLE FOR THE PRESSURE TO DROP FROM 3.5 PSI GAUGE TO 2.5 PSI GAUGE IS COMPUTED FROM THE FOLLOWING EQUATION:

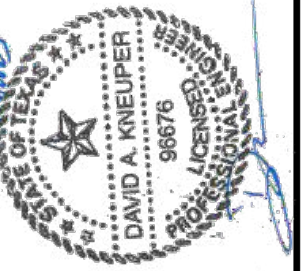
EQUATION C.3

WHERE:

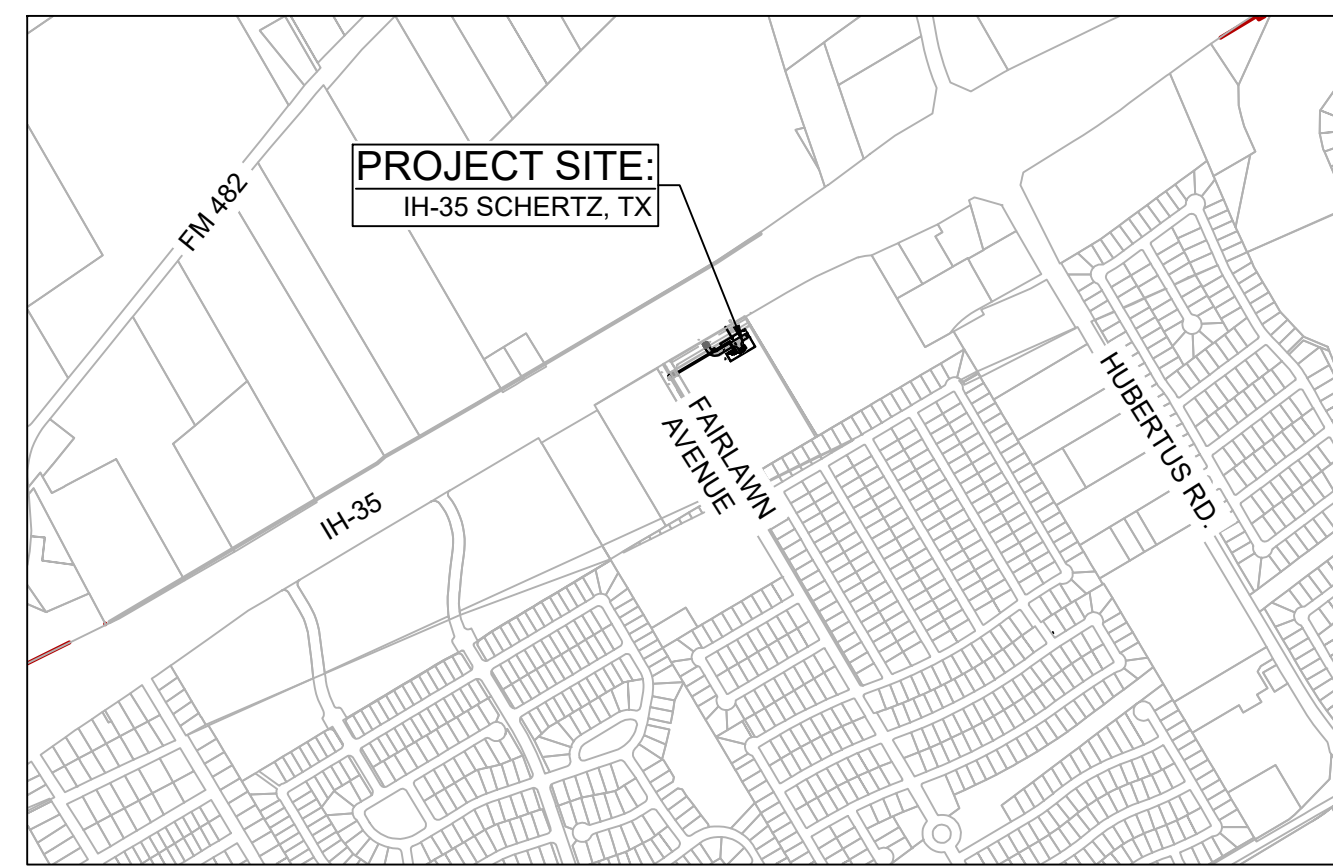
- AN OWNER MAY STOP A TEST IF NO PRESSURE LOSS HAS OCCURRED DURING THE FIRST 25% OF THE CALCULATED TESTING TIME.
 - IF ANY PRESSURE LOSS OR LEAKAGE HAS OCCURRED DURING THE FIRST 25% OF A TESTING PERIOD, THEN THE TEST MUST CONTINUE FOR THE ENTIRE TEST DURATION AS OUTLINED ABOVE OR UNTIL FAILURE.
 - WASTEWATER COLLECTION SYSTEM PIPES WITH A 27 INCH OR LARGER AVERAGE INSIDE DIAMETER MAY BE AIR TESTED AT EACH JOINT INSTEAD OF FOLLOWING THE PROCEDURE OUTLINED IN THIS SECTION.
 - A TESTING PROCEDURE FOR PIPE WITH AN INSIDE DIAMETER GREATER THAN 33 INCHES MUST BE APPROVED BY THE EXECUTIVE DIRECTOR.
- INFILTRATION/EXFILTRATION TEST.
 - THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH OF DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF 2.0 FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE.
 - AN OWNER SHALL USE AN INFILTRATION TEST IN LIEU OF AN EXFILTRATION TEST WHEN PIPES ARE INSTALLED BELOW THE GROUNDWATER LEVEL.
 - THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF TWO FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE, OR AT LEAST TWO FEET ABOVE EXISTING GROUNDWATER LEVEL, WHICHEVER IS GREATER.
 - FOR CONSTRUCTION WITHIN A 25-YEAR FLOOD PLAIN, THE INFILTRATION OR EXFILTRATION MUST NOT EXCEED 10 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT THE SAME MINIMUM TEST HEAD AS IN SUBPARAGRAPH (C) OF THIS PARAGRAPH.
 - IF THE QUANTITY OF INFILTRATION OR EXFILTRATION EXCEEDS THE MAXIMUM QUANTITY SPECIFIED, AN OWNER SHALL UNDERTAKE REMEDIAL ACTION IN ORDER TO REDUCE THE INFILTRATION OR EXFILTRATION TO AN AMOUNT WITHIN THE LIMITS SPECIFIED. AN OWNER SHALL RETEST A PIPE FOLLOWING A REMEDIATION ACTION.
 - IF A GRAVITY COLLECTION PIPE IS COMPOSED OF FLEXIBLE PIPE, DEFLECTION TESTING IS ALSO REQUIRED. THE FOLLOWING PROCEDURES MUST BE FOLLOWED:
 - FOR A COLLECTION PIPE WITH INSIDE DIAMETER LESS THAN 27 INCHES, DEFLECTION MEASUREMENT REQUIRES A RIGID MANDREL.
 - MANDREL SIZING.
 - A RIGID MANDREL MUST HAVE AN OUTSIDE DIAMETER (OD) NOT LESS THAN 95% OF THE BASE INSIDE DIAMETER (ID) OR AVERAGE ID OF A PIPE, AS SPECIFIED IN THE APPROPRIATE STANDARD BY THE ASTMS, AMERICAN WATER WORKS ASSOCIATION, UNI-BELL, OR AMERICAN NATIONAL STANDARDS INSTITUTE, OR ANY RELATED APPENDIX.
 - IF A MANDREL SIZING DIAMETER IS NOT SPECIFIED IN THE APPROPRIATE STANDARD, THE MANDREL MUST HAVE AN OD EQUAL TO 95% OF THE ID OF A PIPE. IN THIS CASE, THE ID OF THE PIPE, FOR THE PURPOSE OF DETERMINING THE OD OF THE MANDREL, MUST EQUAL BE THE AVERAGE OUTSIDE DIAMETER MINUS TWO MINIMUM WALL THICKNESSES FOR OD CONTROLLED PIPE AND THE AVERAGE INSIDE DIAMETER FOR ID CONTROLLED PIPE.
 - ALL DIMENSIONS MUST MEET THE APPROPRIATE STANDARD.
 - MANDREL DESIGN.
 - A RIGID MANDREL MUST BE CONSTRUCTED OF A METAL OR A RIGID PLASTIC MATERIAL THAT CAN WITHSTAND 200 PSI WITHOUT BEING DEFORMED.
 - A MANDREL MUST HAVE NINE OR MORE ODD NUMBER OF RUNNERS OR LEGS.
 - A BARREL SECTION LENGTH MUST EQUAL AT LEAST 75% OF THE INSIDE DIAMETER OF A PIPE.
 - EACH SIZE MANDREL MUST USE A SEPARATE PROVING RING.
 - METHOD OPTIONS.
 - AN ADJUSTABLE OR FLEXIBLE MANDREL IS PROHIBITED.
 - A TEST MAY NOT USE TELEVISION INSPECTION AS A SUBSTITUTE FOR A DEFLECTION TEST.
 - IF REQUESTED, THE EXECUTIVE DIRECTOR MAY APPROVE THE USE OF A DEFLECTOMETER OR A MANDREL WITH REMOVABLE LEGS OR RUNNERS ON A CASE-BY-CASE BASIS.
 - FOR A GRAVITY COLLECTION SYSTEM PIPE WITH AN INSIDE DIAMETER 27 INCHES AND GREATER, OTHER TEST METHODS MAY BE USED TO DETERMINE VERTICAL DEFLECTION.
 - A DEFLECTION TEST METHOD MUST BE ACCURATE TO WITHIN PLUS OR MINUS 0.2% DEFLECTION.
 - AN OWNER SHALL NOT CONDUCT A DEFLECTION TEST UNTIL AT LEAST 30 DAYS AFTER THE FINAL BACKFILL.
 - GRAVITY COLLECTION SYSTEM PIPE DEFLECTION MUST NOT EXCEED FIVE PERCENT (5%)
 - IF A PIPE SECTION FAILS A DEFLECTION TEST, AN OWNER SHALL CORRECT THE PROBLEM AND CONDUCT A SECOND TEST AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.

- ALL MANHOLES MUST BE TESTED TO MEET OR EXCEED THE REQUIREMENTS OF 30 TAC §217.58.
 - ALL MANHOLES MUST PASS A LEAKAGE TEST.
 - AN OWNER SHALL TEST EACH MANHOLE (AFTER ASSEMBLY AND BACKFILLING) FOR LEAKAGE, SEPARATE AND INDEPENDENT OF THE COLLECTION SYSTEM PIPES, BY HYDROSTATIC EXFILTRATION TESTING, VACUUM TESTING, OR OTHER METHOD APPROVED BY THE EXECUTIVE DIRECTOR.
 - HYDROSTATIC TESTING.
 - THE MAXIMUM LEAKAGE FOR HYDROSTATIC TESTING OR ANY ALTERNATIVE TEST METHODS IS 0.025 GALLONS PER FOOT DIAMETER PER FOOT OF MANHOLE DEPTH PER HOUR.
 - TO PERFORM A HYDROSTATIC EXFILTRATION TEST, AN OWNER SHALL SEAL ALL WASTEWATER PIPES COMING INTO A MANHOLE WITH AN INTERNAL PIPE PLUG, FILL THE MANHOLE WITH WATER, AND MAINTAIN THE TEST FOR AT LEAST ONE HOUR.
 - A TEST FOR CONCRETE MANHOLES MAY USE A 24-HOUR WETTING PERIOD BEFORE TESTING TO ALLOW SATURATION OF THE CONCRETE.
 - VACUUM TESTING.
 - TO PERFORM A VACUUM TEST, AN OWNER SHALL PLUG ALL LIFT HOLES AND EXTERIOR JOINTS WITH A NON-SHRINK GROUT AND PLUG ALL PIPES ENTERING A MANHOLE.
 - NO GROUT MUST BE PLACED IN HORIZONTAL JOINTS BEFORE TESTING.
 - STUB-OUTS, MANHOLE BOOTS, AND PIPE PLUGS MUST BE SECURED TO PREVENT MOVEMENT WHILE A VACUUM IS DRAWN.
 - AN OWNER SHALL USE A MINIMUM 60 INCH/LB TORQUE WRENCH TO TIGHTEN THE EXTERNAL CLAMPS THAT SECURE A TEST COVER TO THE TOP OF A MANHOLE.
 - A TEST HEAD MUST BE PLACED AT THE INSIDE OF THE TOP OF A CONE SECTION, AND THE SEAL INFLATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 - THERE MUST BE A VACUUM OF 10 INCHES OF MERCURY INSIDE A MANHOLE TO PERFORM A VALID TEST.
 - A TEST DOES NOT BEGIN UNTIL AFTER THE VACUUM PUMP IS OFF.
 - A MANHOLE PASSES THE TEST IF AFTER 2.0 MINUTES AND WITH ALL VALVES CLOSED, THE VACUUM IS AT LEAST 9.0 INCHES OF MERCURY.

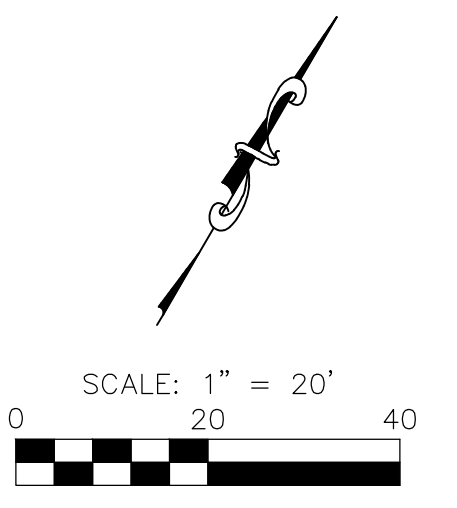
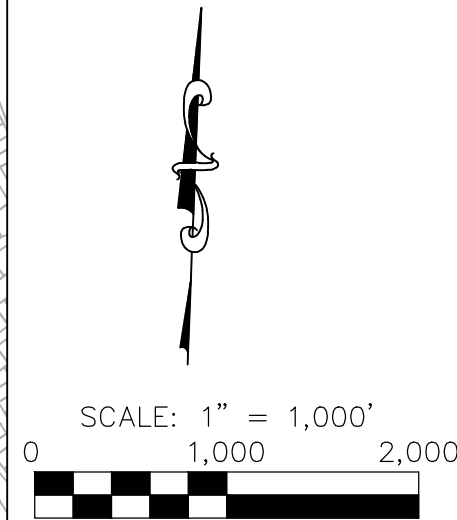
- ALL PRIVATE SERVICE LATERALS MUST BE INSPECTED AND CERTIFIED IN ACCORDANCE WITH 30 TAC §213.5(C)(3)(I). AFTER INSTALLATION OF AND, PRIOR TO COVERING AND CONNECTING A PRIVATE SERVICE LATERAL TO AN EXISTING ORGANIZED SEWAGE COLLECTION SYSTEM, A TEXAS LICENSED PROFESSIONAL ENGINEER, TEXAS REGISTERED SANITARIAN, OR APPROPRIATE CITY INSPECTOR MUST VISUALLY INSPECT THE PRIVATE SERVICE LATERAL AND THE CONNECTION TO THE SEWAGE COLLECTION SYSTEM, AND CERTIFY THAT IT IS CONSTRUCTED IN CONFORMITY WITH THE APPLICABLE PROVISIONS OF THIS SECTION. THE OWNER OF THE COLLECTION SYSTEM MUST MAINTAIN SUCH CERTIFICATIONS FOR FIVE YEARS AND FORWARD COPIES TO THE APPROPRIATE REGIONAL OFFICE UPON REQUEST. CONNECTIONS MAY ONLY BE MADE TO AN APPROVED SEWAGE COLLECTION SYSTEM.



NO.	REVISIONS	APPD.	DATE

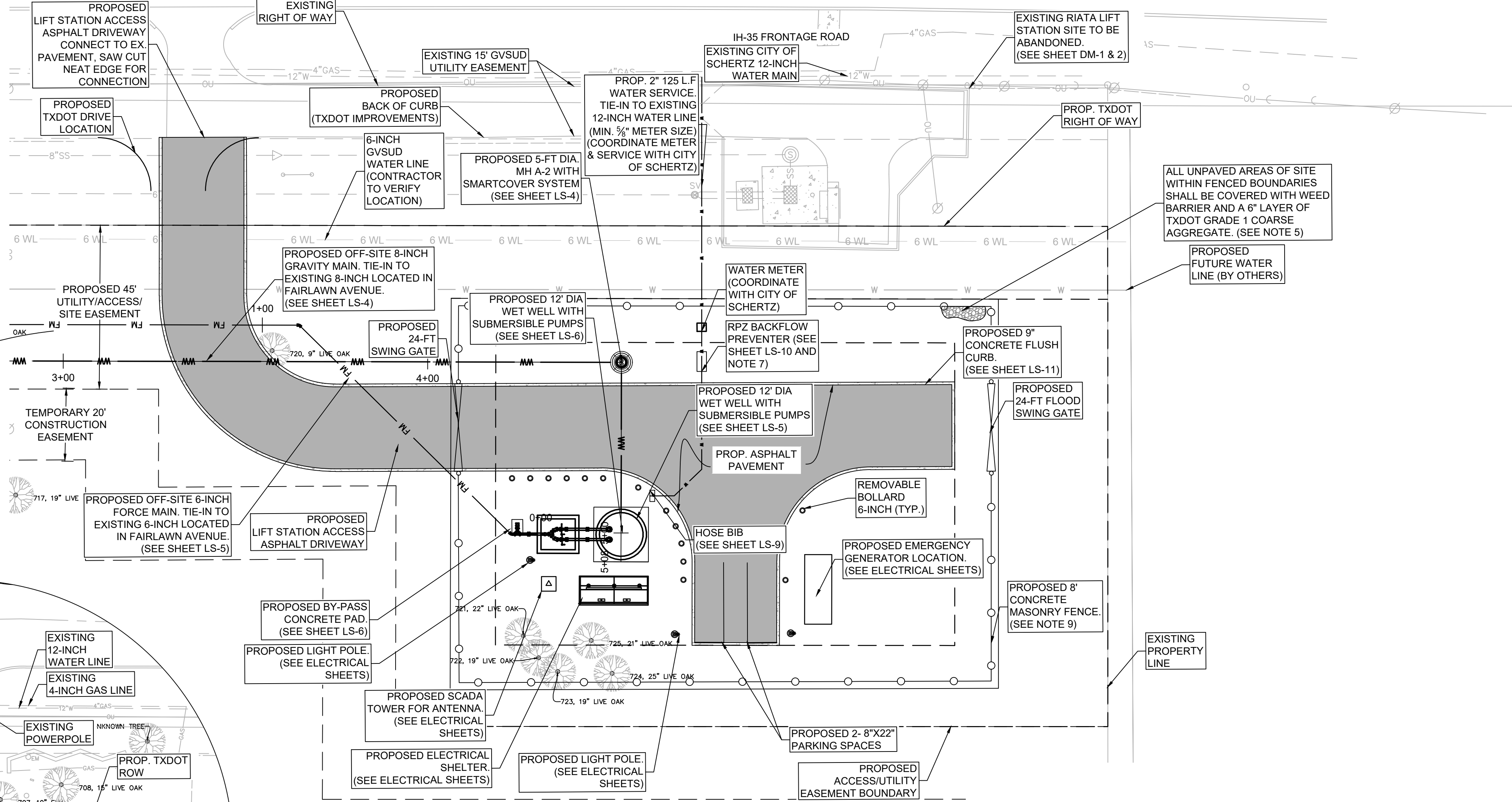


LOCATION MAP



LEGEND

- EXISTING MANHOLE
- PROPOSED BOLLARD
- PROPOSED LIGHTPOLE
- PROPOSED WASTEWATER LINE
- PROPOSED MASONRY CONCRETE FENCE
- PROPOSED WATER SERVICE
- ▒ COARSE AGGREGATE
- ASPHALT PAVEMENT

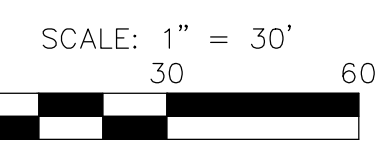
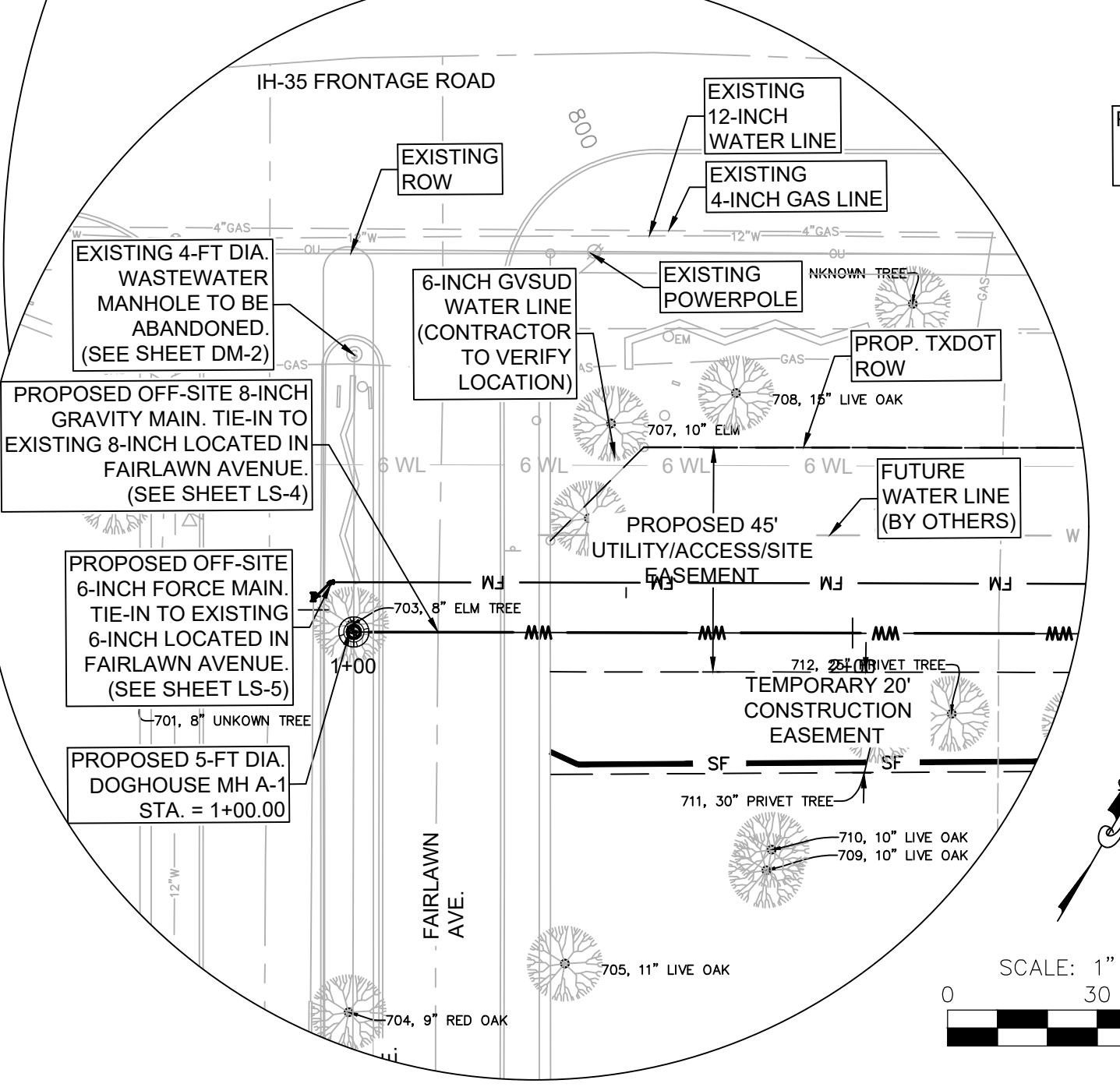


SITE INFORMATION:

LIFT STATION NUMBER/NAME: IH-35 RIATA LIFT STATION
 RELOCATION AND OFFSITE SEWER IMPROVEMENTS
 LOCATED AT: IH-35, SCHERTZ, TEXAS
 LATITUDE: N29° 37' 22.24" LONGITUDE: W98° 14' 37.41"
 LOCATED WITHIN 100-YR FLOODPLAIN?: NO
 LOCATED WITHIN EDWARDS AQUIFER?: NO

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING FEATURES DURING CONSTRUCTION. ANY FEATURES DAMAGED SHALL BE REPAIRED OR REPLACED AT CONTRACTOR'S EXPENSE.
2. UTILITIES SUCH AS WATER, ELECTRIC, GAS, FIBER OPTICS, AND TELECOMMUNICATIONS MAY EXIST WITHIN THE WORK AREA. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES SHOWN AND NOT SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO THE UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.
3. QUANTITIES SHOWN ARE ESTIMATES ONLY. CONTRACTOR TO VERIFY ALL QUANTITIES.
4. INSTALL PROTECTIVE REMOVABLE BOLLARDS. VERIFY LOCATION WITH CITY OF SCHERTZ INSPECTOR.
5. ALL UNPAVED AREAS OF SITE WITHIN FENCED BOUNDARIES SHALL BE COVERED WITH WEED BARRIER AND A 6" LAYER OF TXDOT GRADE 1 COARSE AGGREGATE.
6. 1" WOODFORD Y1 NON-FREEZE YARD HYDRANT WITH 50FT HEAVY DUTY RUBBER HOSE, BRASS ADJUSTABLE SPRAY NOZZLE, AND MCMaster-CARR 53325K33 HOSE RACK.
7. PROVIDE WATTS 009 RPZ BACKFLOW PREVENTER WITH BRASS PIPE/FITTINGS/VALVES, INSULATED AND HEATED ALUMINUM ENCLOSURE, AND CAST-IN-PLACE REINFORCED CONCRETE PAD.
8. INSTALL PIPE UNIONS INSIDE ENCLOSURE ON EACH SIDE OF RPZ ASSEMBLY. MINIMUM CLEARANCE INSIDE THE ENCLOSURE SHALL BE 12" BELOW, 3" ABOVE, AND 6" SIDES. PROVIDE LICENSED FIELD TESTING CERTIFICATION FOR RPZ.
9. CONTRACTOR SHALL INSTALL AN 8-FOOT TALL STANDARD LIMESTONE COLOR VERTI-CRETE (MODEL VC-4-8) MASONRY CONCRETE FENCE AND GATE OR APPROVED EQUAL. SEE SHEET LS-9, SEE DETAIL 18.
10. ALL ELECTRICAL FOR LIFT STATION TO BE SERVED USING UNDERGROUND ONLY. SEE ELECTRICAL SHEETS FOR DETAILS.

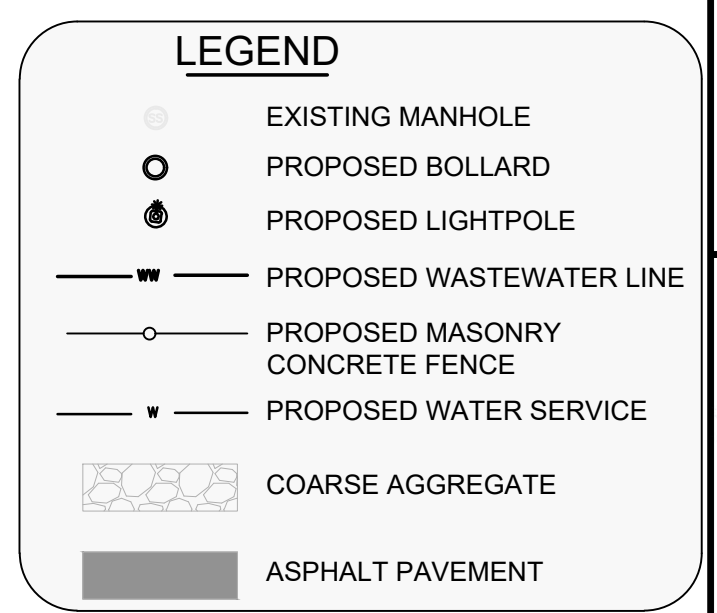
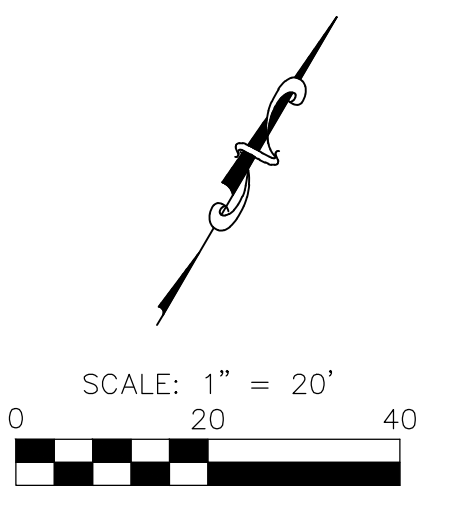


CITY OF SCHERTZ SITE PLAN CHECKLIST	
OWNER	CITY OF SCHERTZ
LAND USE	1400 SCHERTZ PARKWAY, SCHERTZ, TEXAS 78154
PROPOSED LAND USE	COMMERCIAL
ZONING	PUBLIC UTILITY INFRASTRUCTURE
SUBDIVISION NAME	RIATA SUBDIVISION
LOT AREA (ACREAGE)	0.91 AC
LOT AREA (SQUARE FEET)	39,728 FT ²
BUILDING AREA (SQUARE FEET)	366 FT ²
BUILDING HEIGHT (FEET)	9.5
SITE IMPERVIOUS COVER PERCENTAGE	21.8%
TOTAL SITE IMPERVIOUS COVER	8,468 FT ²
TOTAL PARKING	2



IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS
 LIFT STATION SITE PLAN

NO.	REVISIONS	APPD.	DATE

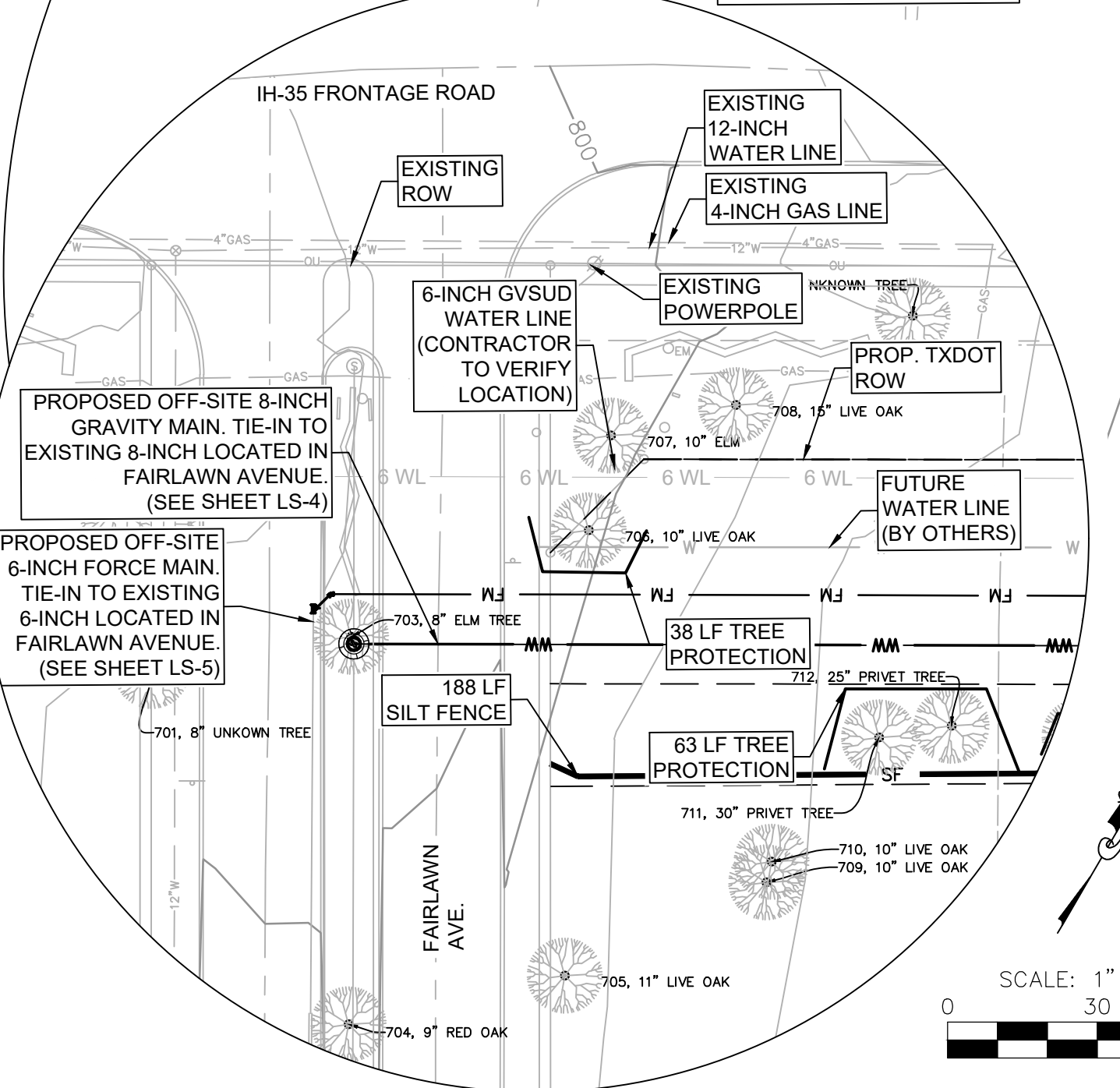
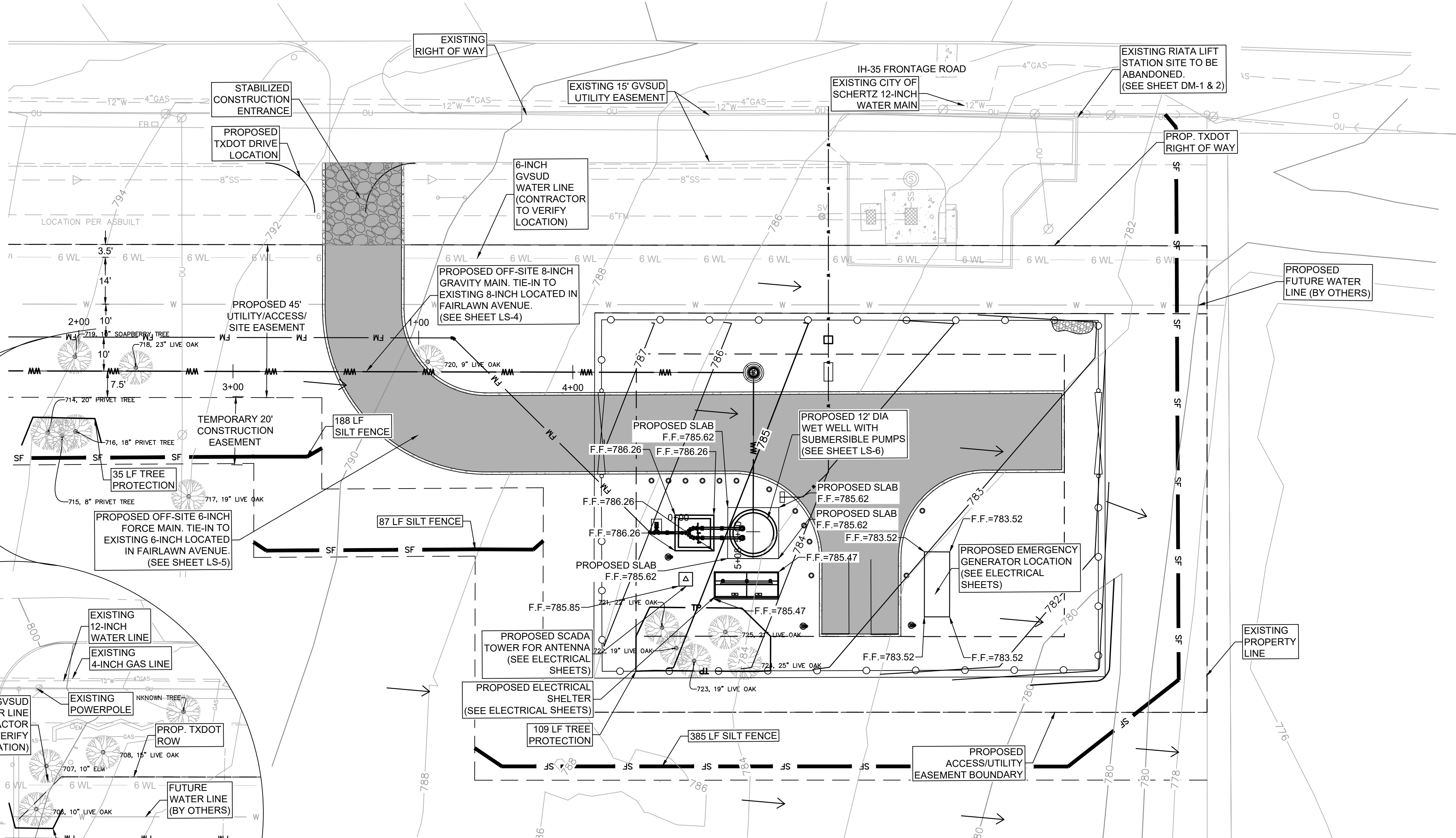


SITE INFORMATION:

LIFT STATION NUMBER/NAME: IH-35 RIATA LIFT STATION
 LOCATION AND OFFSITE SEWER IMPROVEMENTS
 LOCATED AT: IH-35, SCHERTZ, TEXAS
 LATITUDE: N29° 37' 22.24" LONGITUDE: W98° 14' 37.41"
 LOCATED WITHIN 100-YR FLOODPLAIN?: NO
 LOCATED WITHIN EDWARDS AQUIFER?: NO

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING FEATURES DURING CONSTRUCTION, ANY FEATURES DAMAGED SHALL BE REPAIRED OR REPLACED AT CONTRACTOR'S EXPENSE.
2. UTILITIES SUCH AS WATER, ELECTRIC, GAS, FIBER OPTICS, AND TELECOMMUNICATIONS MAY EXIST WITHIN THE WORK AREA. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES SHOWN AND NOT SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO THE UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.
3. QUANTITIES SHOWN ARE ESTIMATES ONLY. CONTRACTOR TO VERIFY ALL QUANTITIES.
4. INSTALL PROTECTIVE REMOVABLE BOLLARDS. VERIFY LOCATION WITH CITY OF SCHERTZ INSPECTOR.
5. ALL UNPAVED AREAS OF SITE WITHIN FENCED BOUNDARIES SHALL BE COVERED WITH WEED BARRIER AND A 6" LAYER OF TXDOT GRADE 1 COARSE AGGREGATE.
6. 1" WOODFORD Y1 NON-FREEZE YARD HYDRANT WITH 50FT HEAVY DUTY RUBBER HOSE, BRASS ADJUSTABLE SPRAY NOZZLE, AND MCMASTER-CARR 53325K33 HOSE RACK.
7. PROVIDE WATTS 009 RPZ BACKFLOW PREVENTER WITH BRASS PIPE/FITTINGS/VALVES, INSULATED AND HEATED ALUMINUM ENCLOSURE, AND CAST-IN-PLACE REINFORCED CONCRETE PAD.
8. INSTALL PIPE UNIONS INSIDE ENCLOSURE ON EACH SIDE OF RPZ ASSEMBLY. MINIMUM CLEARANCE INSIDE THE ENCLOSURE SHALL BE 12" BELOW, 3" ABOVE, AND 6" SIDES. PROVIDE LICENSED FIELD TESTING CERTIFICATION FOR RPZ.
9. CONTRACTOR SHALL INSTALL AN 8-FOOT TALL STANDARD LIMESTONE COLOR VERTI-CRETE (MODEL VC-4.2-8) MASONRY CONCRETE FENCE AND GATE OR APPROVED EQUAL. SEE SHEET LS-9, SEE DETAIL 18.
10. ALL ELECTRICAL FOR LIFT STATION TO BE SERVED USING UNDERGROUND ONLY. SEE ELECTRICAL SHEETS FOR DETAILS.



Point Tree Table

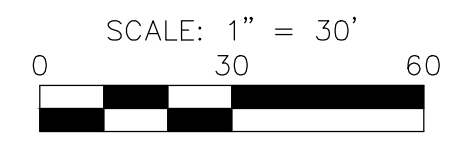
Point #	Description	Remove
700	10" REDBUD	NO
701	8" UNKOWN TREE	NO
702	8" RED OAK	NO
703	8" ELM TREE	YES
704	9" RED OAK	NO
705	11" LIVE OAK	NO
706	10" LIVE OAK	NO
707	10" ELM	NO
708	15" LIVE OAK	NO
709	10" LIVE OAK	NO

Point Tree Table

Point #	Description	Remove
710	10" LIVE OAK	NO
711	30" PRIVET TREE	NO
712	25" PRIVET TREE	NO
713	9" UNKNOWN TREE	NO
714	20" PRIVET TREE	NO
715	8" PRIVET TREE	NO
716	18" PRIVET TREE	NO
717	19" LIVE OAK	NO
718	23" LIVE OAK	YES
719	10" SOAPBERRY TREE	YES

Point Tree Table

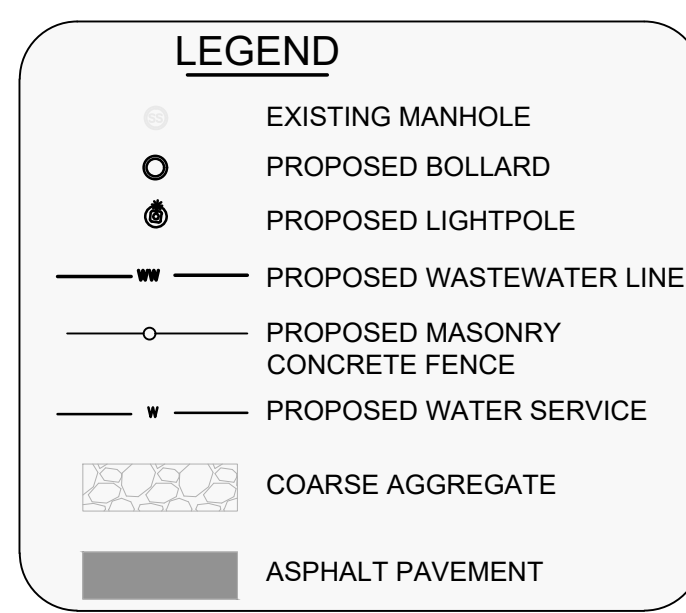
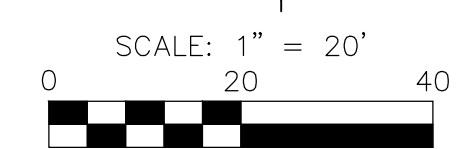
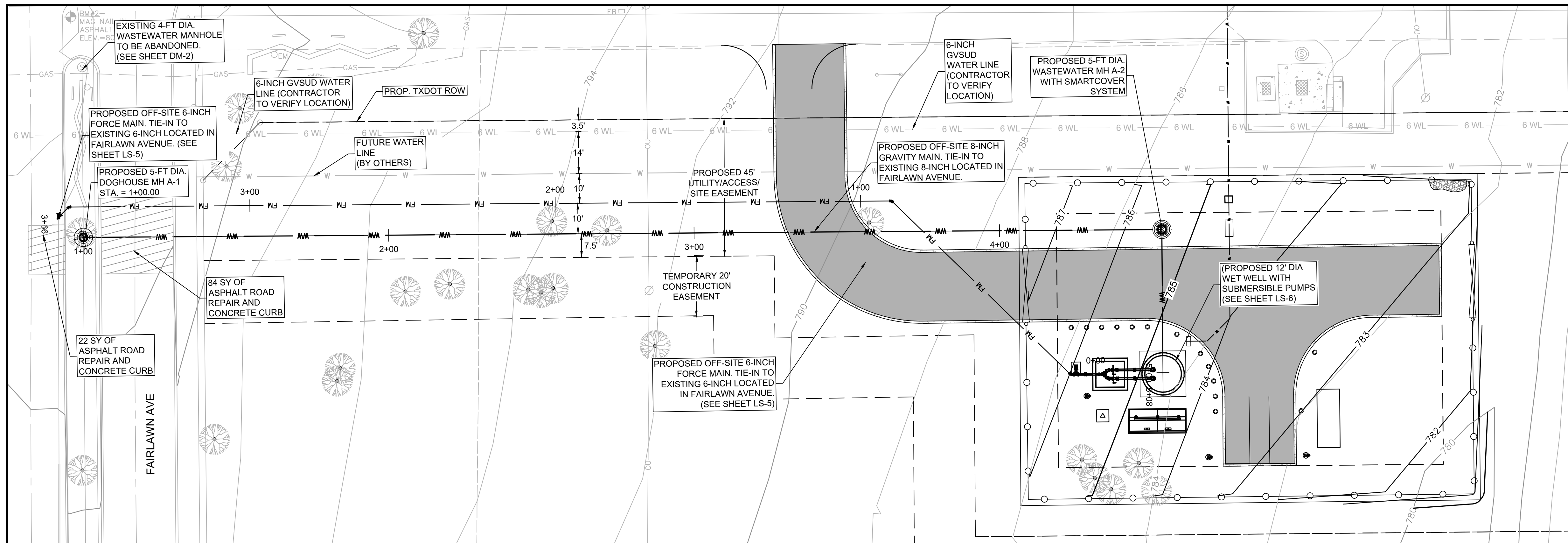
Point #	Description	Remove
720	9" LIVE OAK	YES
721	22" LIVE OAK	NO
722	19" LIVE OAK	NO
723	19" LIVE OAK	NO
724	25" LIVE OAK	NO
725	21" LIVE OAK	NO



IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS
 LIFT STATION GRADING, EROSION & SEDIMENTATION CONTROL PLAN

NO.	REVISIONS	APPD.	DATE

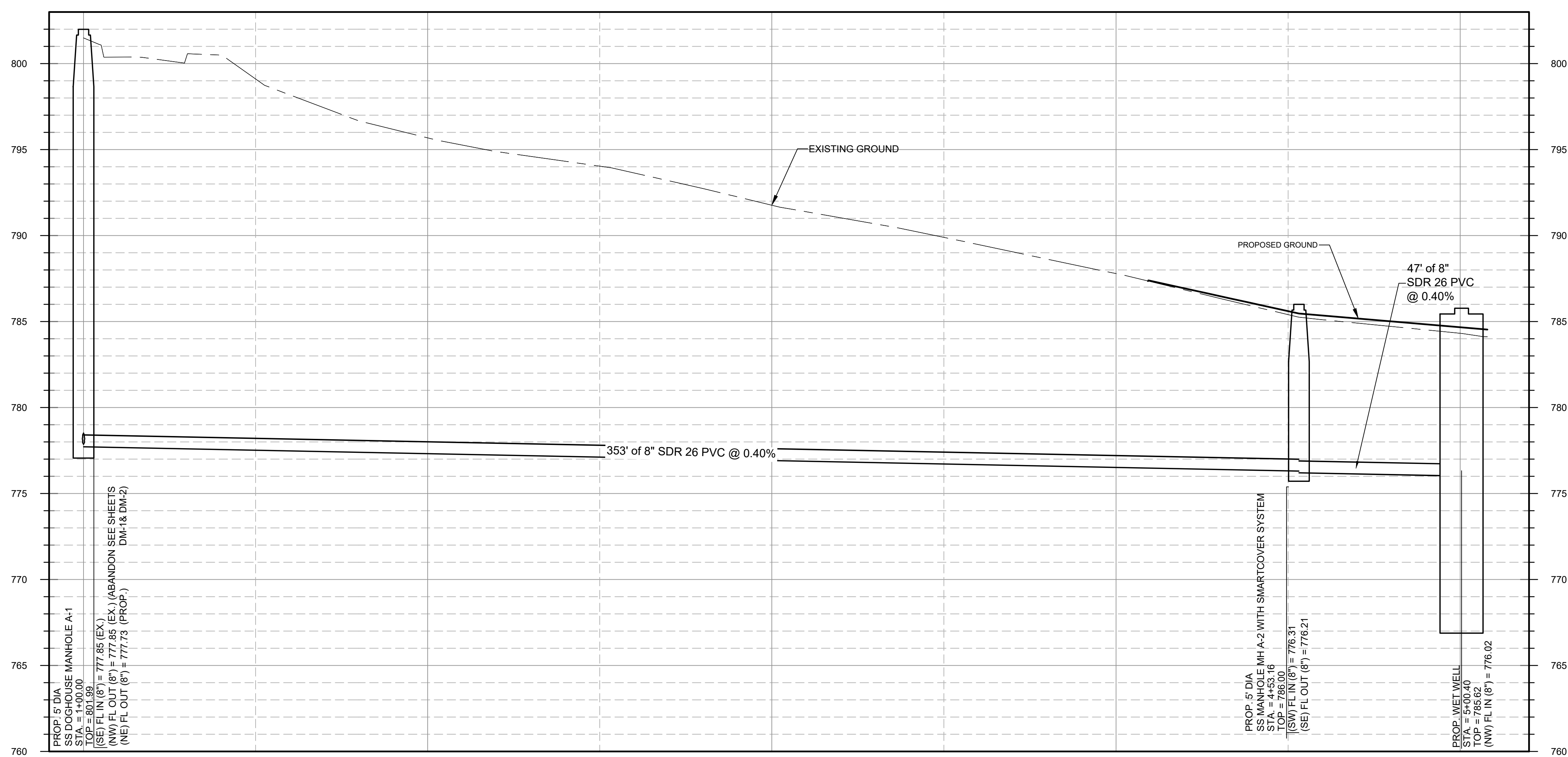
SCALE:
 DATE: 01 February, 2023
 PROJECT NO: 2032-03
 DESIGNED BY: PND
 DRAWN BY: PND
 CHECKED BY: DK
 SHEET NO.
LS-2
 OF 36 SHEETS



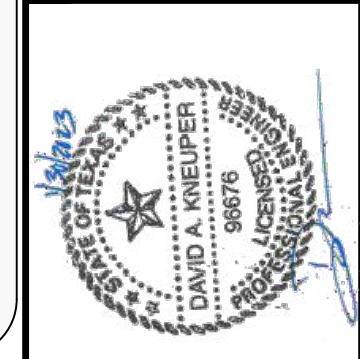
SITE INFORMATION:
 LIFT STATION NUMBER/NAME: IH-35 RIATA LIFT STATION
 RELOCATION AND OFFSITE SEWER IMPROVEMENTS
 LOCATED AT: IH-35, SCHERTZ, TEXAS
 LATITUDE: N29° 37' 22.24" LONGITUDE: W98° 14' 37.41"
 LOCATED WITHIN 100-YR FLOODPLAIN?: NO
 LOCATED WITHIN EDWARDS AQUIFER?: NO

NOTES:

1. OPEN CUT AND REPAIR ASPHALT & GRAVEL DRIVES PER DETAILS, MATCH EXISTING MATERIAL
2. CONTRACTOR TO JOINT RESTRAIN ALL CONNECTION INTO EXISTING LINES, VALVES & FITTINGS.
3. CONTRACTOR TO FIELD VERIFY DEPTH, LOCATION, MATERIAL TYPE, AND SIZE OF EXISTING WASTEWATER LINES.
4. CONTRACTOR RESPONSIBLE FOR ALL FENCING REPAIR.
5. ALL CONSTRUCTION ACTIVITIES TO REMAIN WITHIN THE PERMANENT AND TEMPORARY EASEMENTS AND RIGHT-OF-WAY.



OFF-SITE 8" GRAVITY MAIN PROFILE VIEW



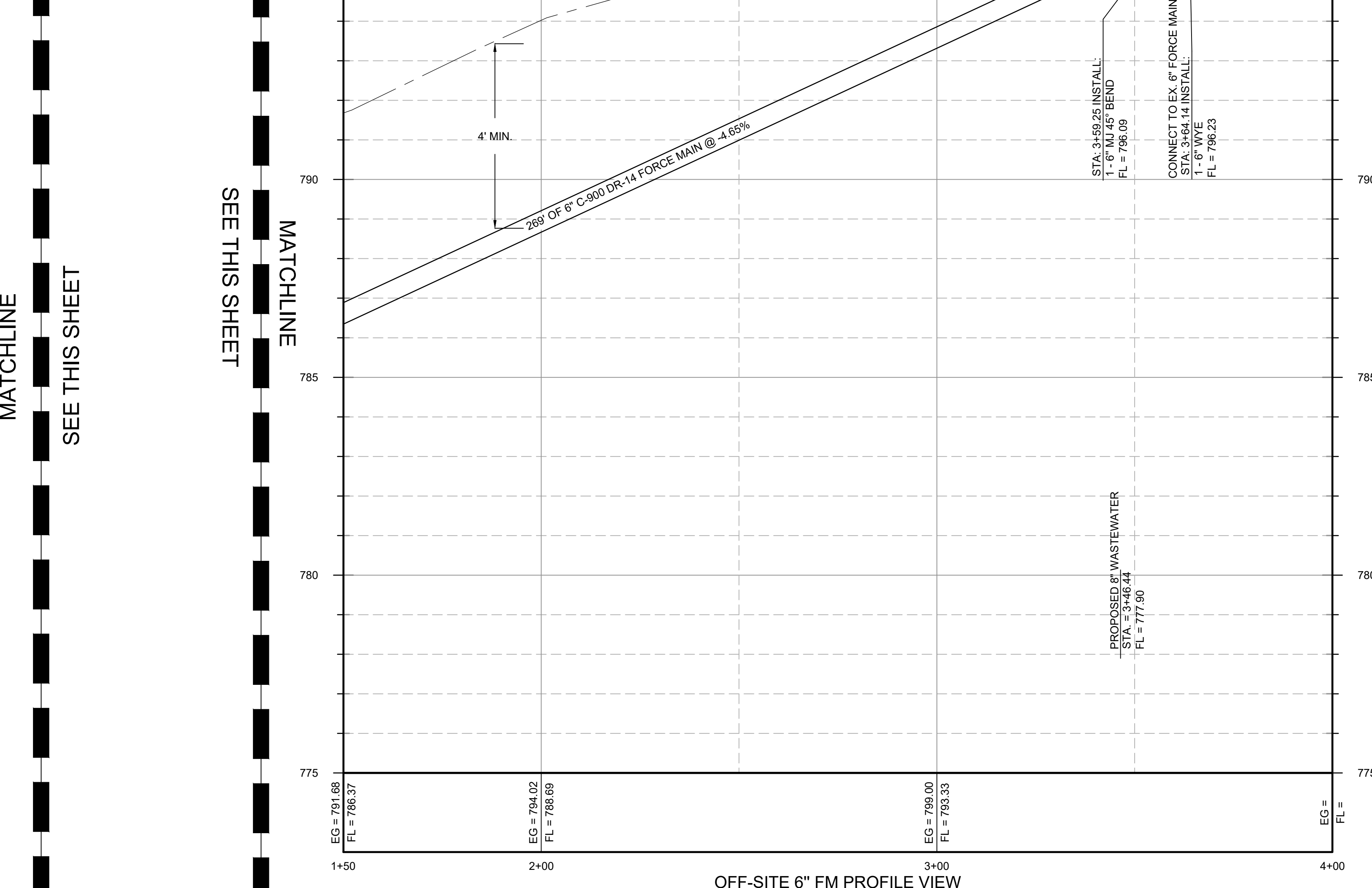
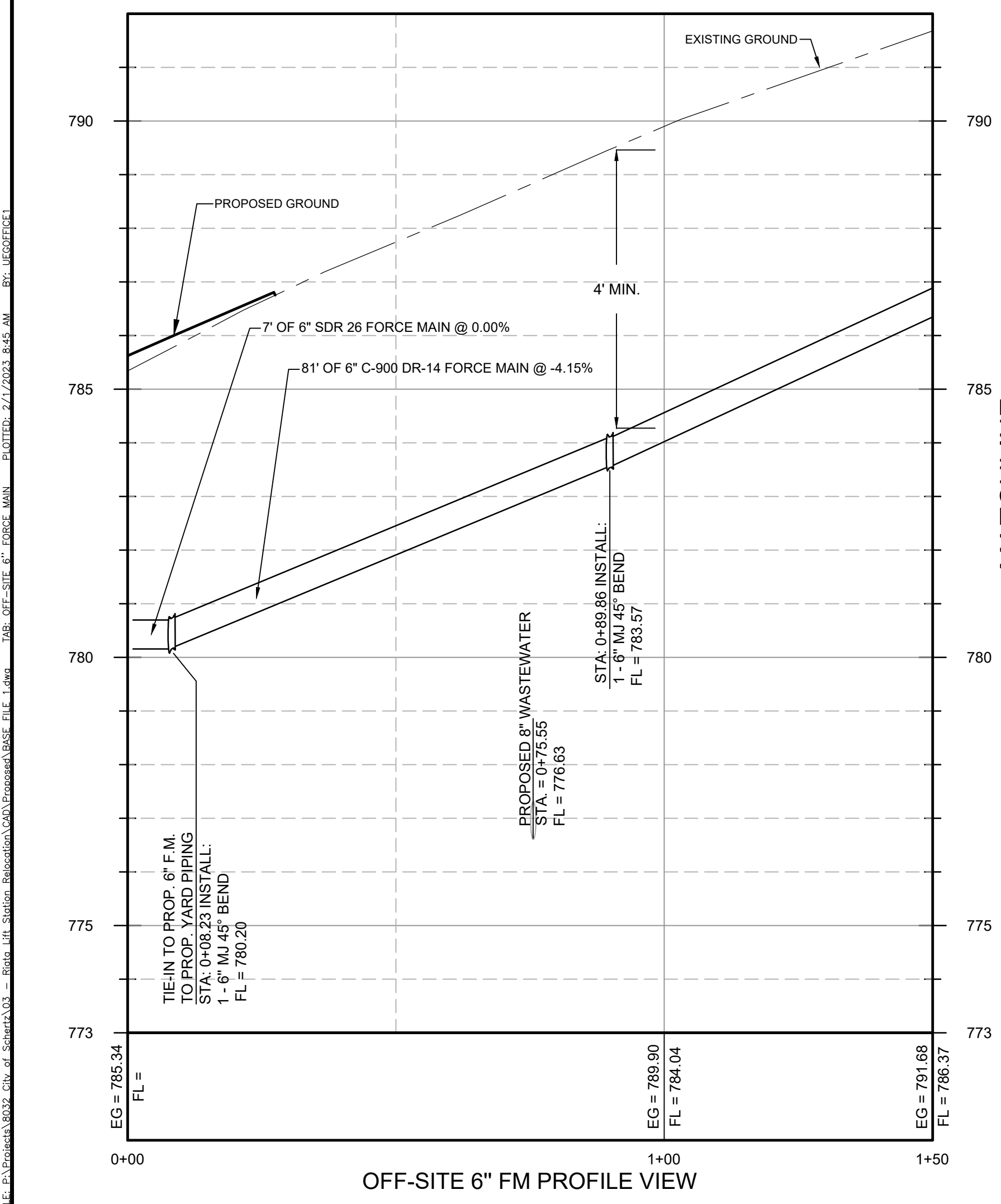
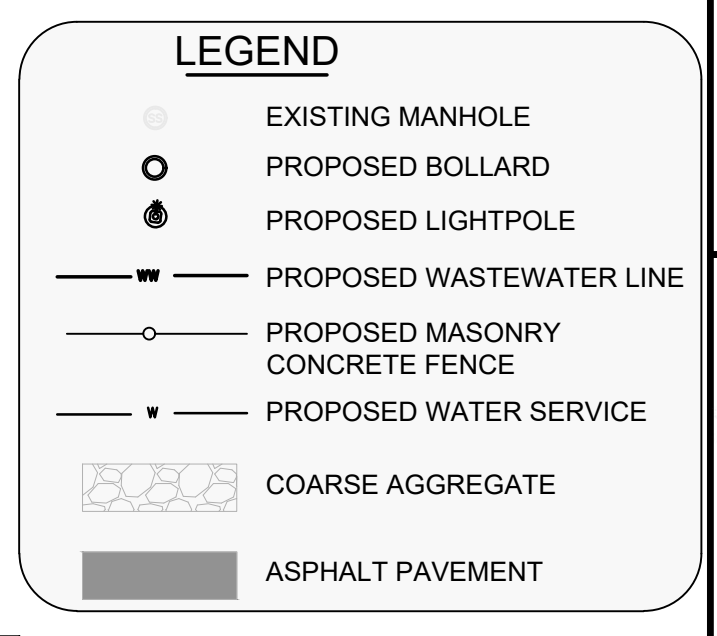
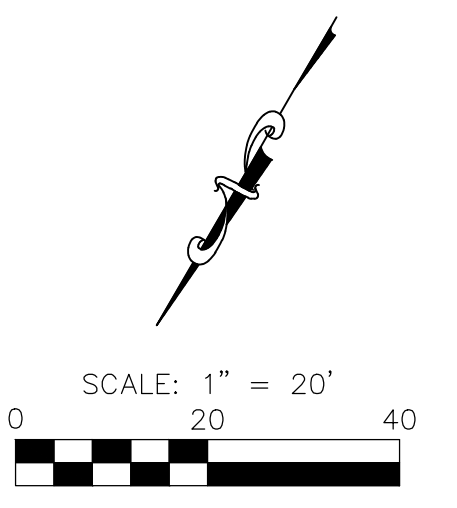
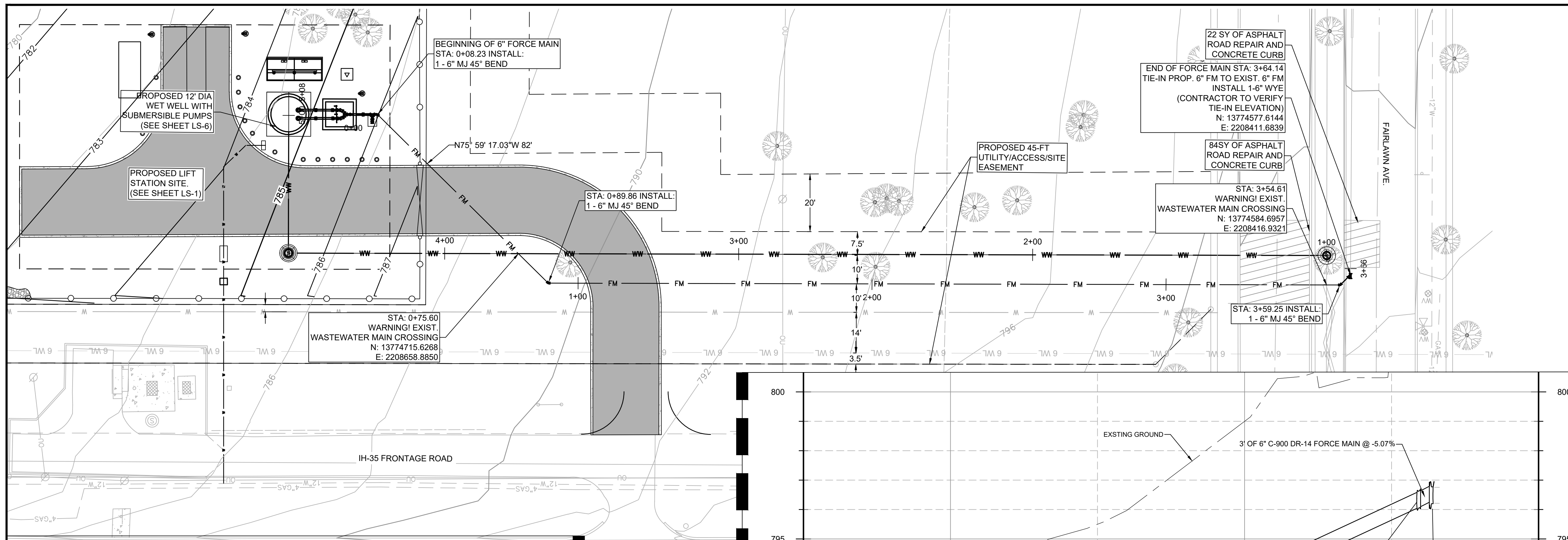
IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS

OFF-SITE 8" GRAVITY MAIN

NO.	REVISIONS	APPD.	DATE

SCALE:
 DATE: 01 February, 2023
 PROJECT NO: 2032-03
 DESIGNED BY: PND
 DRAWN BY: PND
 CHECKED BY: DK
 SHEET NO.
LS-4
 OF 36 SHEETS

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SITE INFORMATION:

LIFT STATION NUMBER/NAME: IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS
 LOCATED AT: IH-35, SCHERTZ, TEXAS
 LATITUDE: N29° 37' 22.24" LONGITUDE: W98° 14' 37.41"
 LOCATED WITHIN 100-YR FLOODPLAIN?: NO
 LOCATED WITHIN EDWARDS AQUIFER?: NO

- NOTES:**
- OPEN CUT AND REPAIR ASPHALT & GRAVEL DRIVES PER DETAILS, MATCH EXISTING MATERIAL.
 - CONTRACTOR TO JOINT RESTRAIN ALL CONNECTION INTO EXISTING LINES, VALVES & FITTINGS.
 - CONTRACTOR TO FIELD VERIFY DEPTH, LOCATION, MATERIAL TYPE, AND SIZE OF EXISTING WASTEWATER LINES.
 - CONTRACTOR RESPONSIBLE FOR ALL FENCING REPAIR.
 - ALL CONSTRUCTION ACTIVITIES TO REMAIN WITHIN THE PERMANENT AND TEMPORARY EASEMENTS AND RIGHT-OF-WAY.
 - CONTRACTOR TO INSTALL DEFLECTIONS AT BENDS PER MANUFACTURERS RECOMMENDATIONS TO MAINTAIN PROFILE GRADE.
 - FORCE MAIN SHALL BE C-900, DR-14 PVC PIPE (GREEN) SEWER PIPE.
 - PLUG VALVES SHOULD HAVE A VALVE BOX PER CIT OF SCHERTZ STANDARD WATER VALVE BOX DETAIL EXCEPT LIDS.

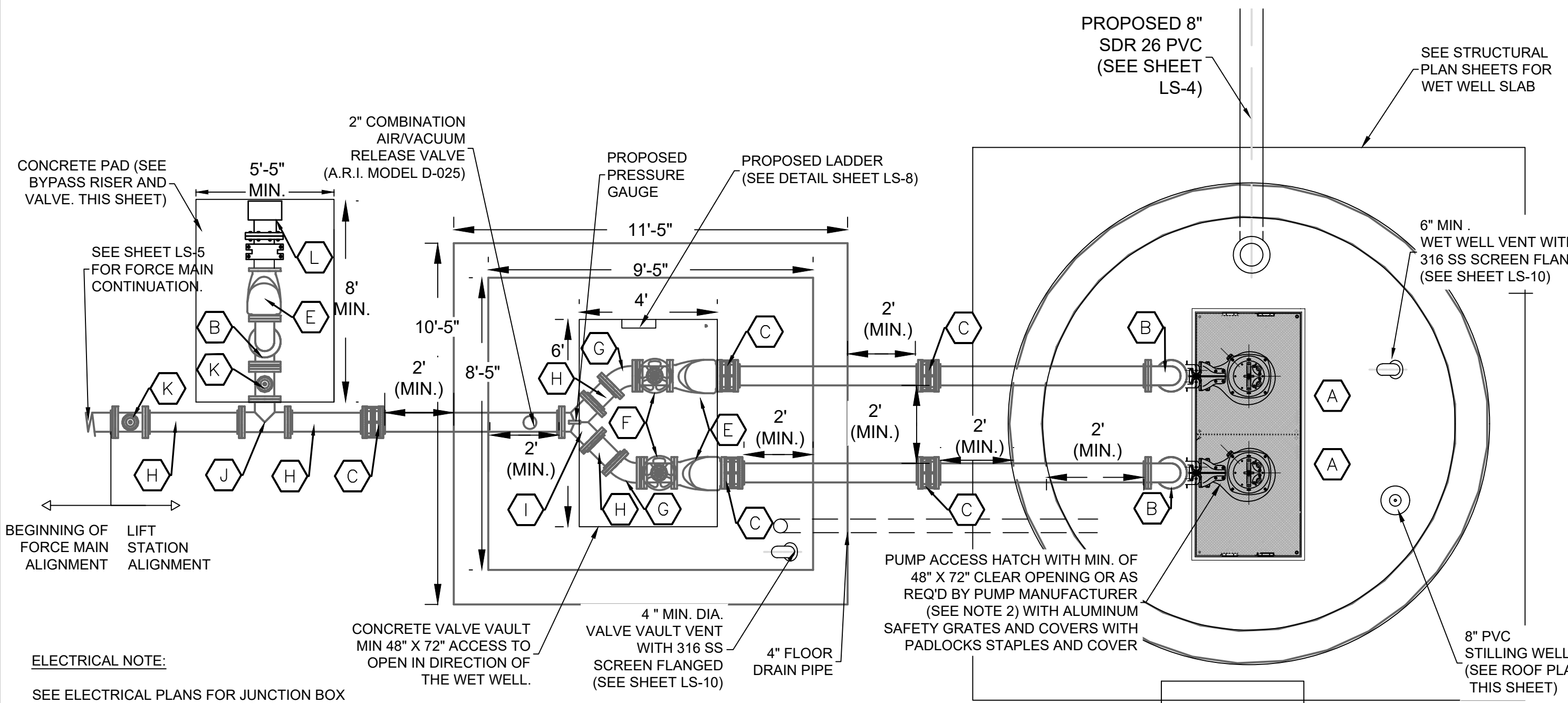
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IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS

OFF-SITE 6" FORCE MAIN

NO.	REVISIONS	APPD.	DATE



PLAN VIEW @ GRADE

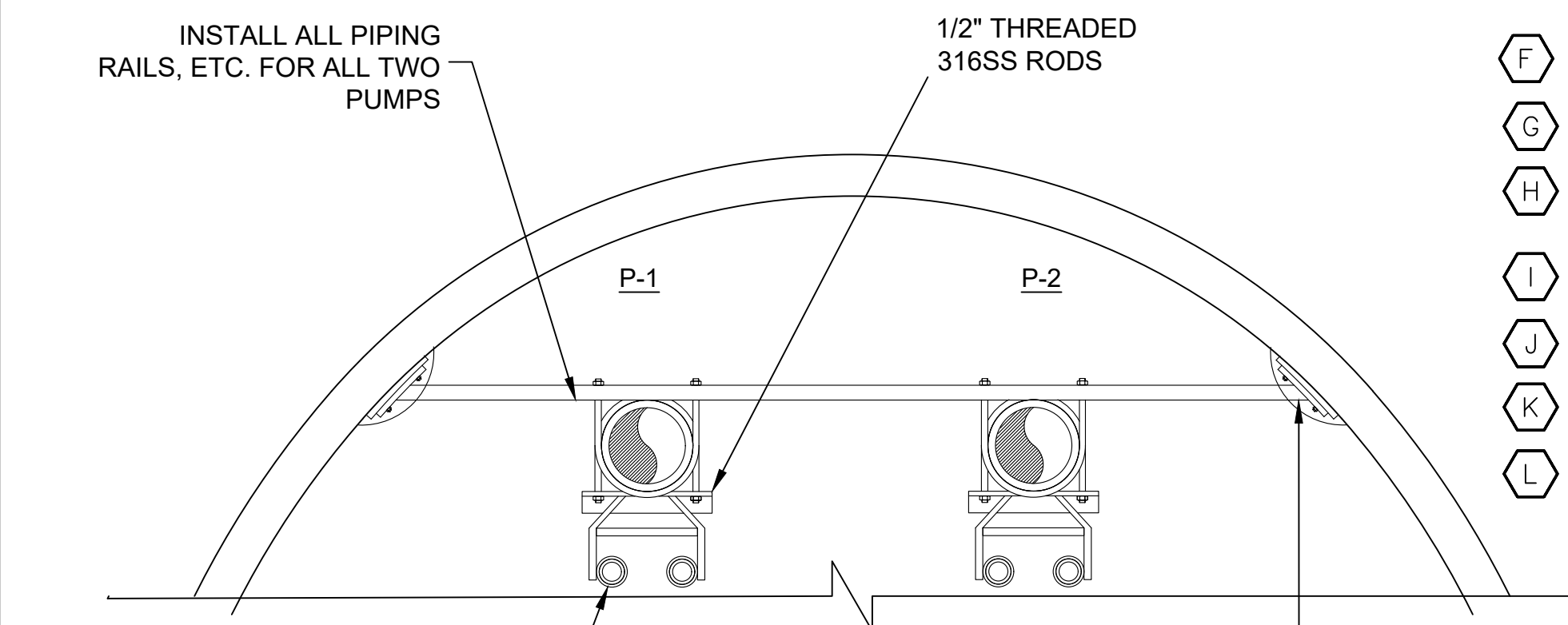
ELECTRICAL NOTE:
SEE ELECTRICAL PLANS FOR JUNCTION BOX LOCATION AND DETAILS. CONTRACTOR TO COORDINATE FINAL JUNCTION BOX LOCATIONS WITH ENGINEER AND OWNER PRIOR TO INSTALLATION.
INSTALL SEAL OFF FITTINGS WITH 3M-2123 FOR ALL CONDUITS. ROUTE WET WELL IN SLAB (NOT EXPOSED). STUBUP FROM SLAB WITH PVC COATED GRS FACTORY 90-BENDS, BELL END ADAPTERS AT HATCH.

NOTES:

- SAND BLAST AND LINE INTERIOR OF WET WELL TO BE COATED PER CITY OF SCHERTZ SPECIFICATION OR APPROVED EQUAL (CALCIUM ALUMINATE).
- THE ACCESS COVERS SHALL BE A MINIMUM OF 48 INCH BY 72 INCH. PUMP SUPPLIER SHALL PROVIDE DIMENSIONS OF ACCESS OVER THE WET WELL TO ENSURE COMPATIBILITY WITH SUPPLIED EQUIPMENT. THE ACCESS FRAME AND COVER TO THE VAULT SHALL BE CONSTRUCTED OF ALUMINUM THREAD PLATE AND SHALL BE WATERTIGHT (GASKET). THE DOORS SHALL OPEN TO 90° AND AUTOMATICALLY LOCK. THE LIFTING HANDLES, HANDLES, HINGES AND ALL FASTENING HARDWARE SHALL BE ALUMINUM OR STAINLESS STEEL, TYPE 316. ACCESS COVER ON VALVE VAULT SHALL BE A MINIMUM OF 48 INCH BY 72 INCH.
- PUMP SUPPLIER SHALL PROVIDE DIMENSIONS OF THE 316 STAINLESS STEEL GUIDE RAILS TO ENSURE COMPATIBILITY WITH SUPPLIED EQUIPMENT. THE PUMP SHALL BE EASILY REMOVED FOR INSPECTION OR SERVICE. PERSONNEL SHALL HAVE NO REASON TO ENTER THE WET WELL. GUIDE RAILS SHALL BE SUPPORTED EVERY 10 FEET WITH 316 STAINLESS STEEL SUPPORTS.
- ALL HARDWARE AND FASTENERS USED SHALL BE CONSTRUCTED OF 316 SERIES STAINLESS STEEL. GUIDE BRACKETS FOR EACH PUMP MUST BE SUPPLIED BY THE PUMP MANUFACTURER TO ENSURE COMPATIBILITY WITH SUPPLIED EQUIPMENT.
- EACH PUMPING UNIT SHALL BE PROVIDED WITH A STAINLESS STEEL LIFTING CHAIN. LIFTING CHAIN SHALL EXTEND A MINIMUM 10-FT ABOVE WET WELL.
- A 316 STAINLESS STEEL FLOAT MOUNTING ASSEMBLY SHALL BE PROVIDED. THE FLOATS SHALL BE MOUNTED AWAY FROM THE WET WELL INLET, ANY CONTROL WIRING, AND THE PUMPS TO MINIMIZE DISTURBANCE. LEVEL SETTINGS ARE SHOWN ON THIS SHEET.
- IN THE WET WELL AND VALVE VAULT ALL STATIONARY PIPING USED SHALL BE CLASS 54 DUCTILE IRON WITH FIELD APPLIED TWO PART EPOXY PAINT COATING. ALL HARDWARE MUST BE 316 SERIES STAINLESS STEEL WITH ANTI-SEIZE COMPOUND AND NO PAINT.
- PUMP/MOTOR DATA (1 PUMP RUNNING 1 STAND-BY):
Q= 424 GPM RPM= 3505 RPM
H= 121 FT V= 200V-3 PHASE
HP= 23 HP IMPELLER DIA.= 6 29/32"
- THE 6" WYE SHALL HAVE 1/4 INCH TAP WITH STAINLESS STEEL OR BRONZE BALL VALVES. PRESSURE GAUGES SHALL BE INSTALLED (0-100 PSI).
- IN THE VAULT ALL DISCHARGE LINES SHALL HAVE ADEQUATE THRUST SUPPORT MEMBERS AT EACH FITTING. WHERE POSSIBLE, LONG RADIUS 90 DEGREE BENDS SHALL BE USED.
- THE DISCHARGE LINE FROM EACH PUMP SHALL BE FITTED WITH A CHECK VALVE AND A PLUG VALVE, WITH THE CHECK VALVE ON THE PUMP SIDE OF THE PLUG VALVE. WHEN NECESSARY, AIR RELEASE VALVE(S) SHALL BE INSTALLED DOWNSTREAM OF THE PLUG VALVES.
- THE VALVE VAULT SHALL BE SIZED LARGE ENOUGH TO PROVIDE AT LEAST 2 FOOT OF CLEARANCE AROUND ALL APPURTENANCES. THE COVERS SHALL BE ABLE TO BE SECURED BY A PADLOCK USING A HEAVY DUTY HASP. THE VAULT SHALL BE COATED WITH THE SAME COATINGS AS THE WET WELL. ALL PIPING SHALL BE COATED WITH COAL TAR EPOXY.
- THE VALVE VAULT SHALL HAVE A DRAIN TO THE WET WELL. THE DRAIN SHALL BE A 4 INCH DIAMETER AND BE FITTED WITH A FLAP VALVE OR A BACK-FLOW PREVENTER AND A TRAP TO PREVENT GASES OR WATER FROM ENTERING THE VALVE VAULT. THE OPENING TO THE DRAIN SHALL BE COVERED WITH A STAINLESS STEEL SCREEN.
- BOTTOM OF WET WELL SHALL HAVE A MINIMUM SLOPE OF 10 PERCENT TO THE PUMP INTAKES AND SHALL HAVE A SMOOTH FINISH.
- SEAL WET WELL WALL PENETRATIONS WITH NON-SHRINK GROUT AND PSX BOOTS.
- ALL PIPING, FITTINGS, AND VALVES SHALL BE RESTRAINED.
- VAULT SHALL HAVE A STAINLESS STEEL SAFETY LADDER INSTALLED AS INDICATED ON SHEET LS-7. MAXIMUM RUNG SPACING OF 12 INCHES WITH 316 STAINLESS STEEL HARDWARE AND COATING OR BARRIER BETWEEN DISSIMILAR MATERIALS.
- CASSION METHOD IS ACCEPTABLE. CONTRACTOR TO DESIGN AND SUBMIT TO ENGINEER/OWNER, SEE GEOTECHNICAL REPORT FOR SOIL/GROUNDWATER INFORMATION.
- ALL ELECTRICAL FOR LIFT STATION TO BE SERVED USING UNDERGROUND ONLY.
- LATERAL SUPPORT UNISTRUT CHANNEL SIZING:
PIPE SIZE: STRUT SIZE: PLATE SIZE: BOLT SIZE:
4" & 6" 2.5" X 2.5" 6" X 8" 3/8"
- PRE-CAST WET WELL WALLS SHALL BE WRAPPED. CONTRACTOR SHALL PROVIDE THE MANUFACTURER'S WRAP SUBMITTAL TO THE CITY FOR REVIEW AND APPROVAL. WRAPS SHALL BE A MINIMUM OF 9-INCHES WIDE.

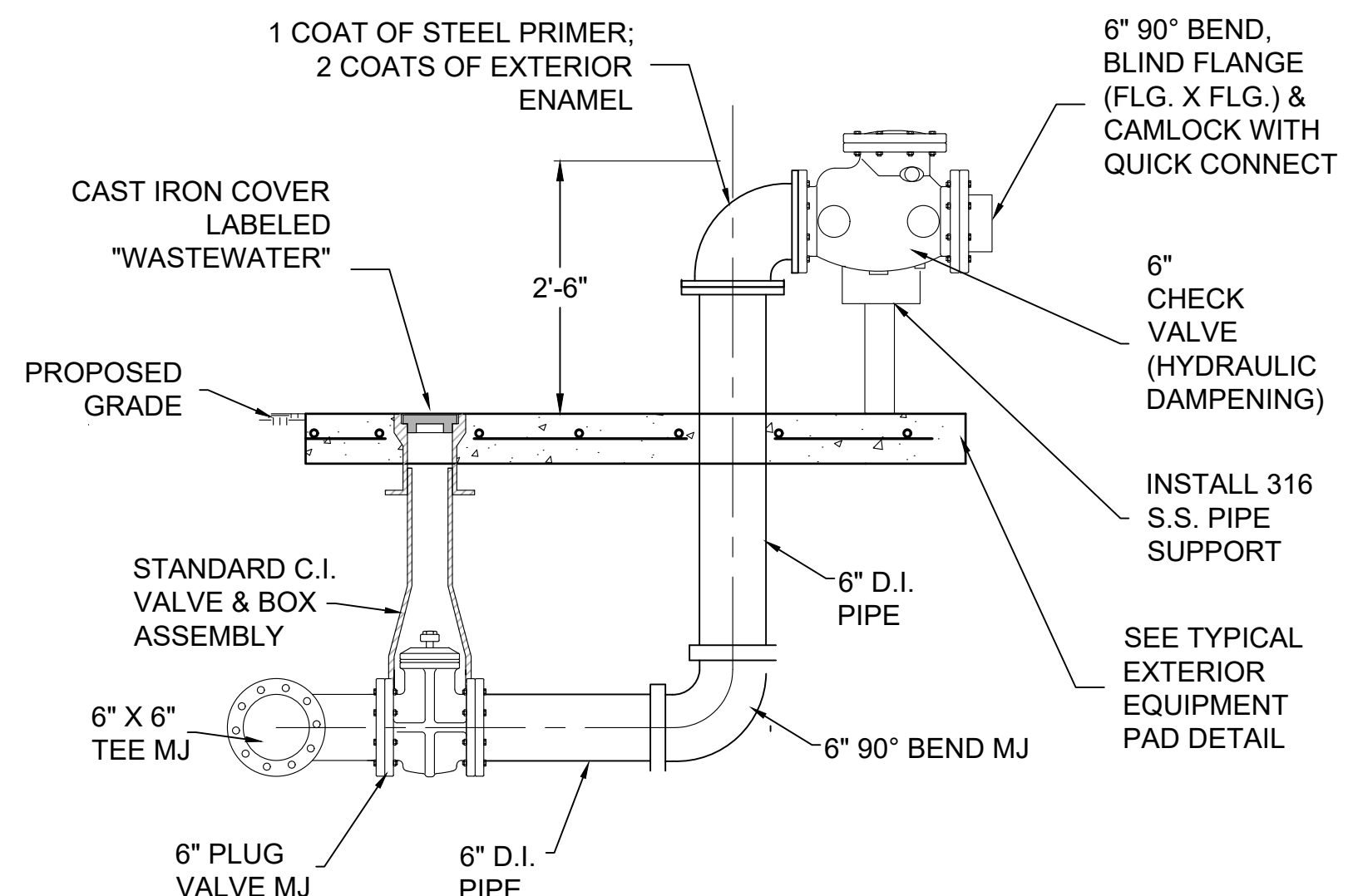
DESCRIPTION

- A IH-35 RIATA LIFT STATION DESIGN PUMPS: SUPPLY 2 ITT FLYGT HIGH EFFICIENCY SUBMERSIBLE PUMP MODEL NP3153 SH 3~274, 23 HP, 3505 RPM 6 29/32" IMPELLER, NO EQUIVALENT. INSTALL 2 PUMPS WITH 2 MIX FLUSH VALVES THIS CONTRACT, AND INSTALL PIPING, RAILS, ETC FOR 2 PUMPS.
- B 6" 90° BEND
- C 6" FLEX COUPLING W/ RESTRAINTS
- D 6" X 4" REDUCER
- E 6" CHECK VALVE (HYDRAULIC DAMPENING) (VERIFY FLOW DIRECTION WITH INSPECTOR PRIOR TO INSTALLATION)
- F 6" PLUG VALVE
- G 6" 45° BEND
- H 6" CLASS 54 DUCTILE, LENGTH AS REQUIRED
- I 6" X 6" WYE
- J 6" TEE
- K 6" PLUG VALVE W/ BOX
- L 6" EMERGENCY BYPASS W/ 316SS QUICK COUPLER AND PLUG

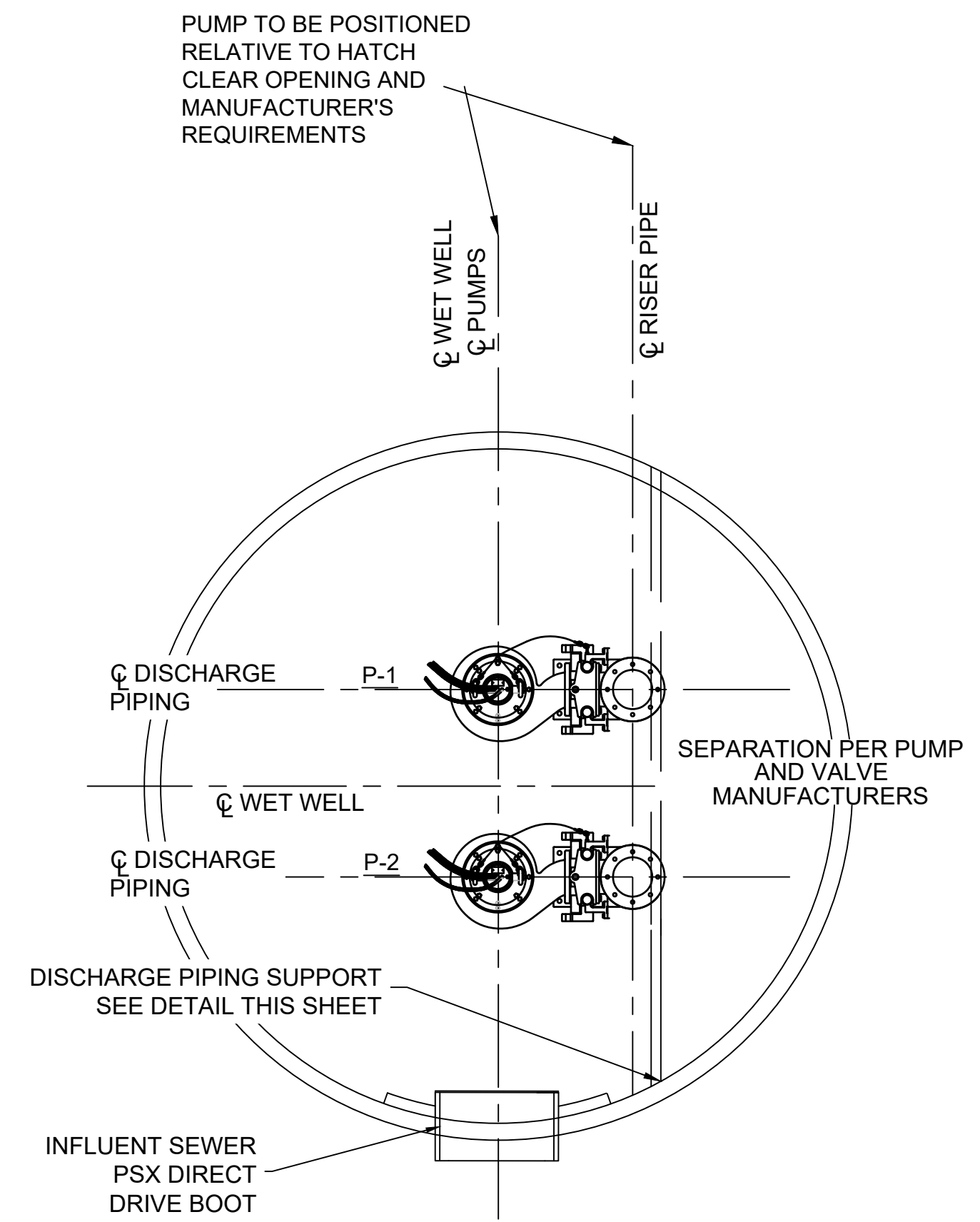


WET WELL PIPING SUPPORT DETAIL

BRACKET DETAIL FOR PIPE AND PUMP GUIDE RAIL SUPPORT, ALL COMPONENTS SHALL BE 316SS
LATERAL SUPPORT C4x7.25 316SS CHANNEL WELDED TO 6" X 6" X 1/2" 316SS PLATES. BEND PLATES TO MATCH WET WELL CURVATURE. MOUNT TO WET WELL WALL USING 4 EACH 1/2" DIAMETER 316SS EPOXY ANCHOR BOLTS MINIMUM. SET 1/2" NEOPRENE GASKET ON WET WELL WALL SURFACES IN SIKA 1A (OR EQUAL) SEALANT.
NOTE: ALL MATERIAL SHALL BE 316SS, ALL NUTS SHALL BE LOCK NUTS, INSTALL FLAT WASHERS FOR ALL BOLTS AND NUTS



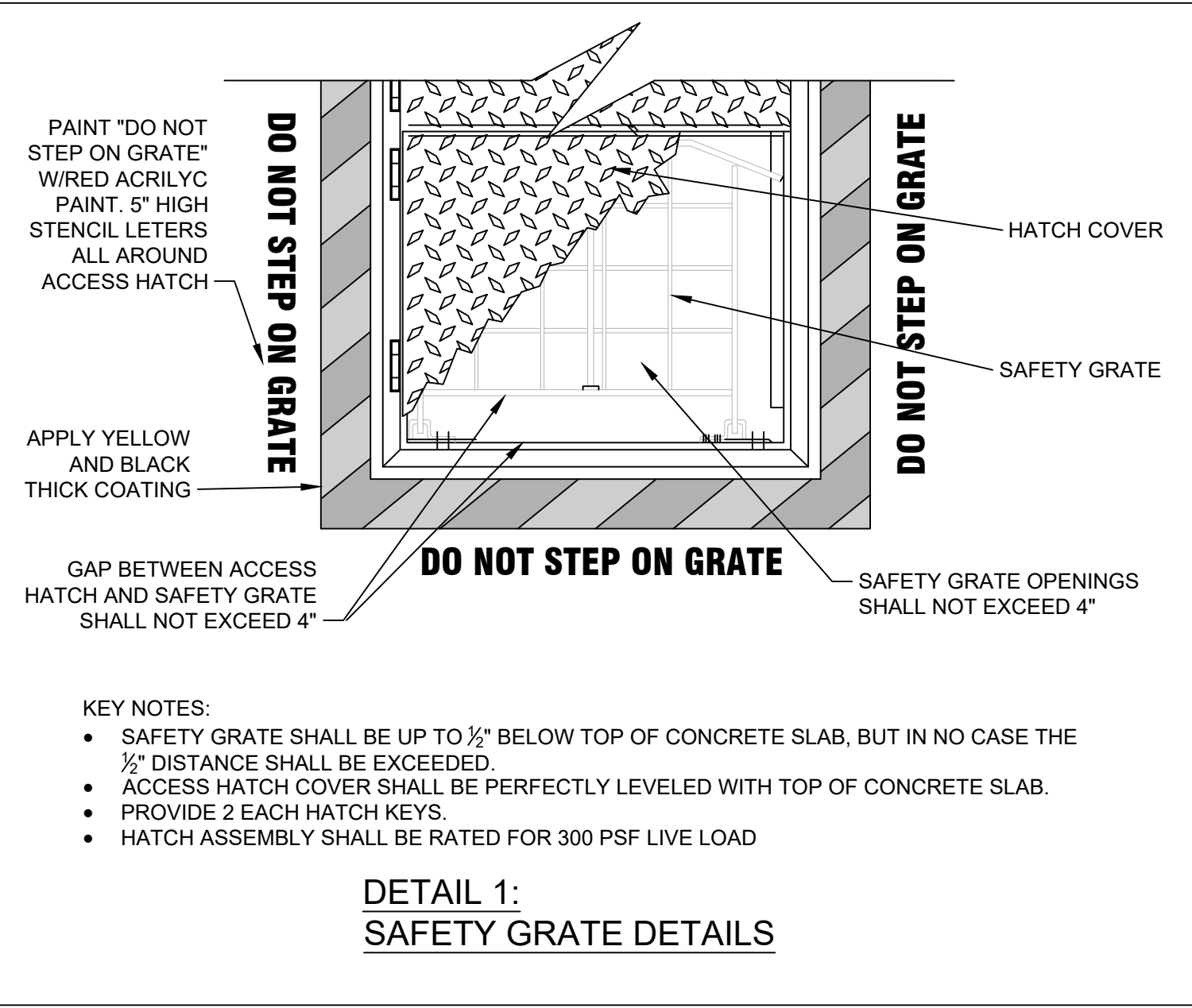
BYPASS RISER & VALVE



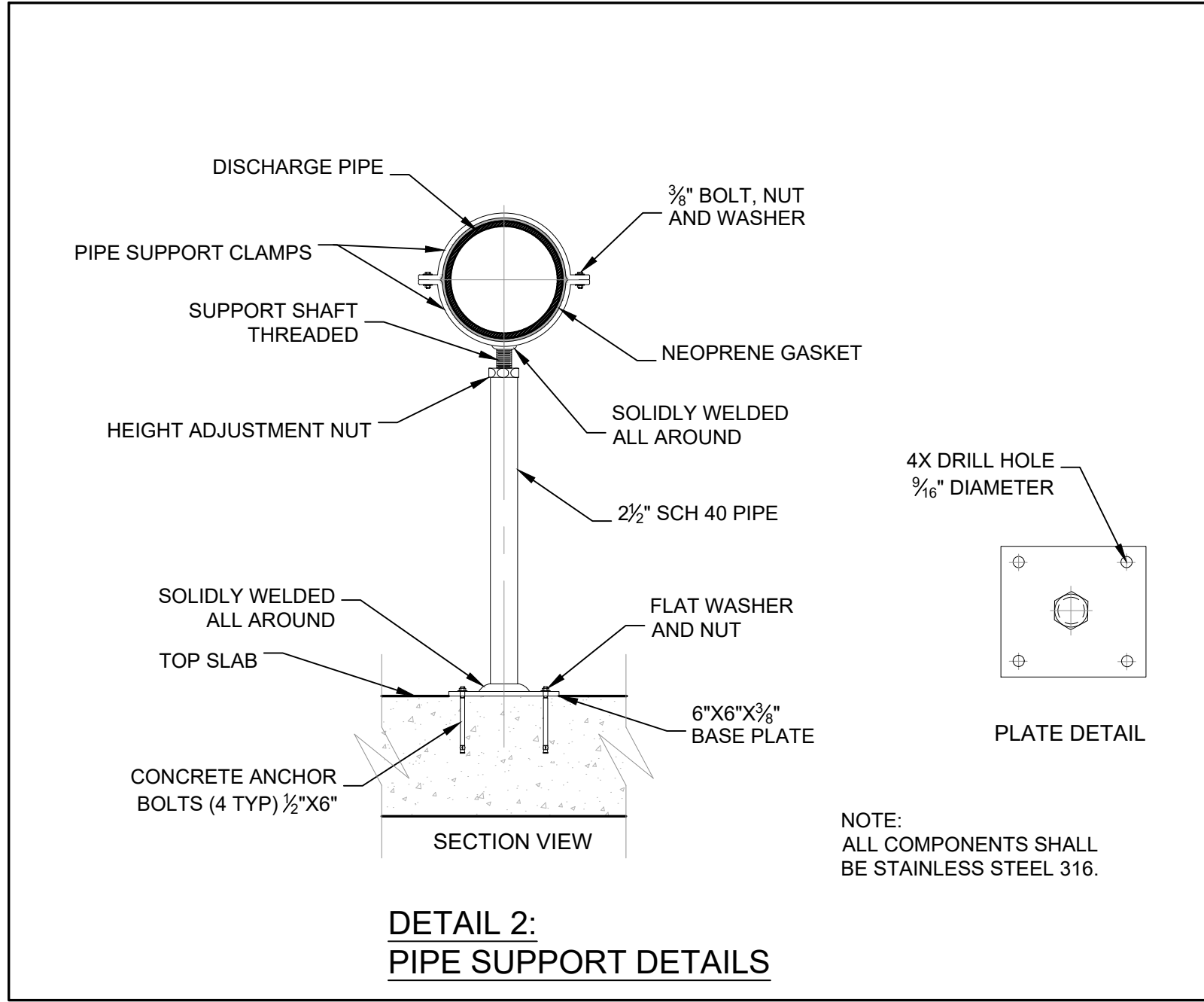
WET WELL SECTION VIEW



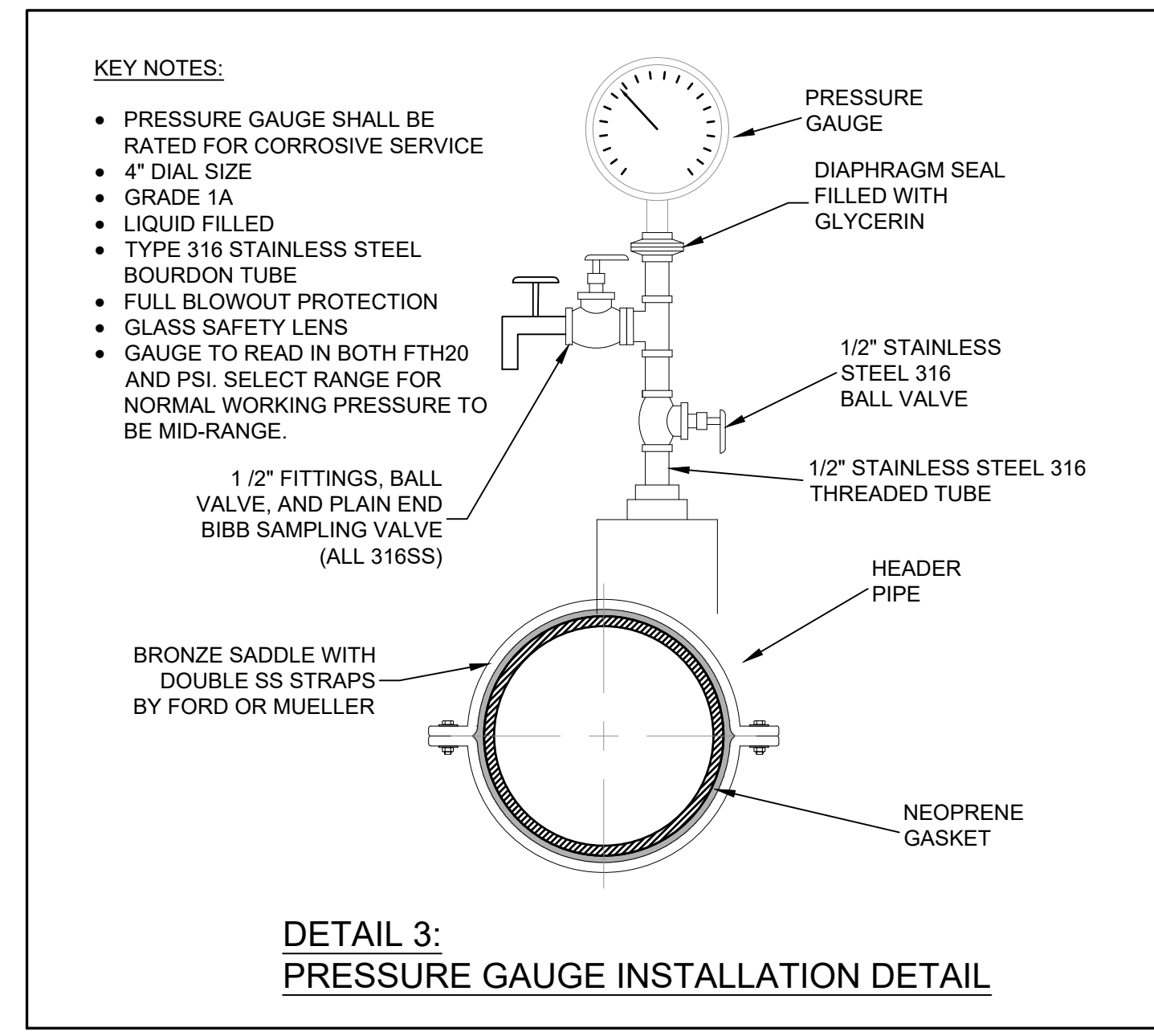
NO.	REVISIONS	APPD.	DATE



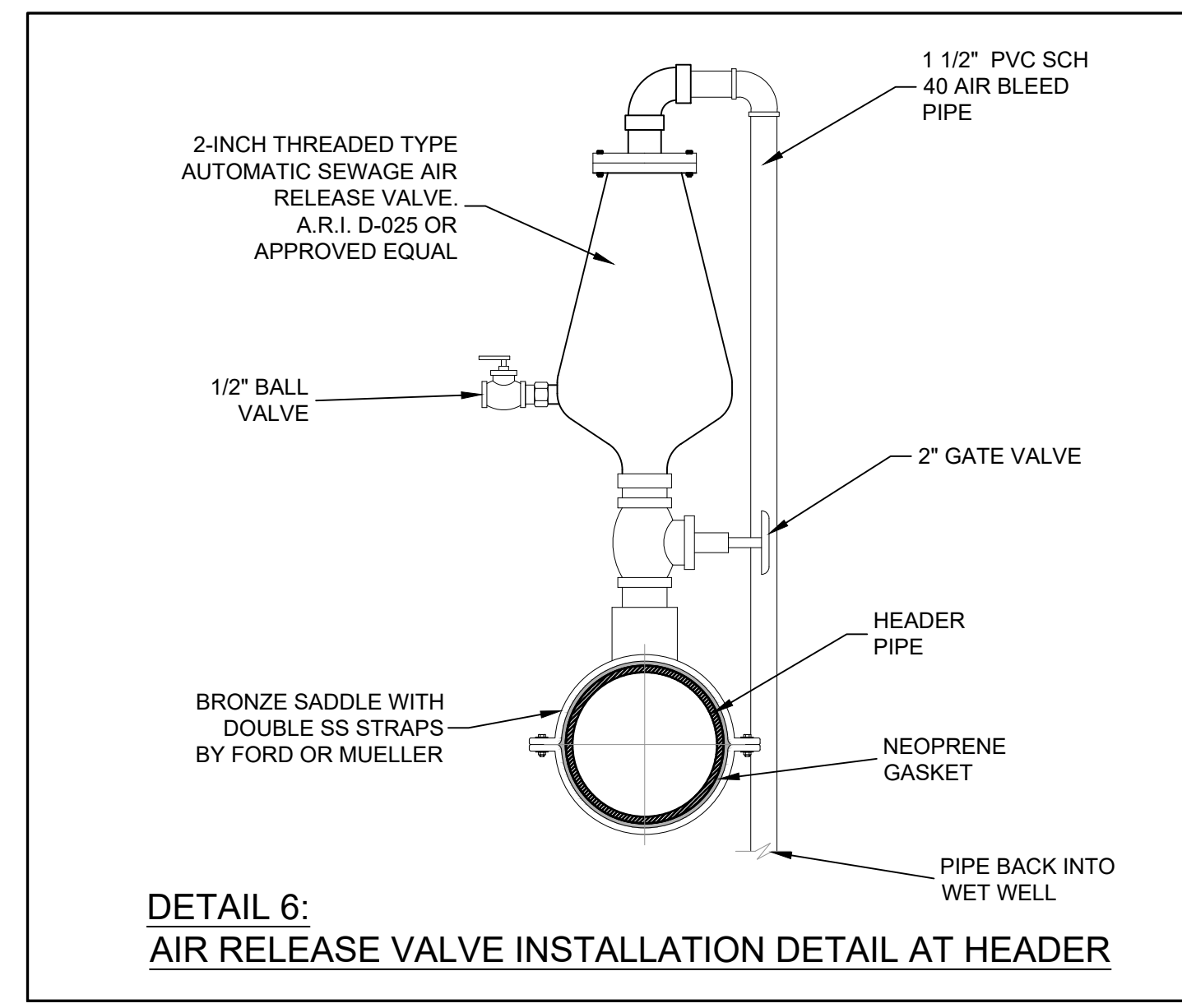
**DETAIL 1:
SAFETY GRATE DETAILS**



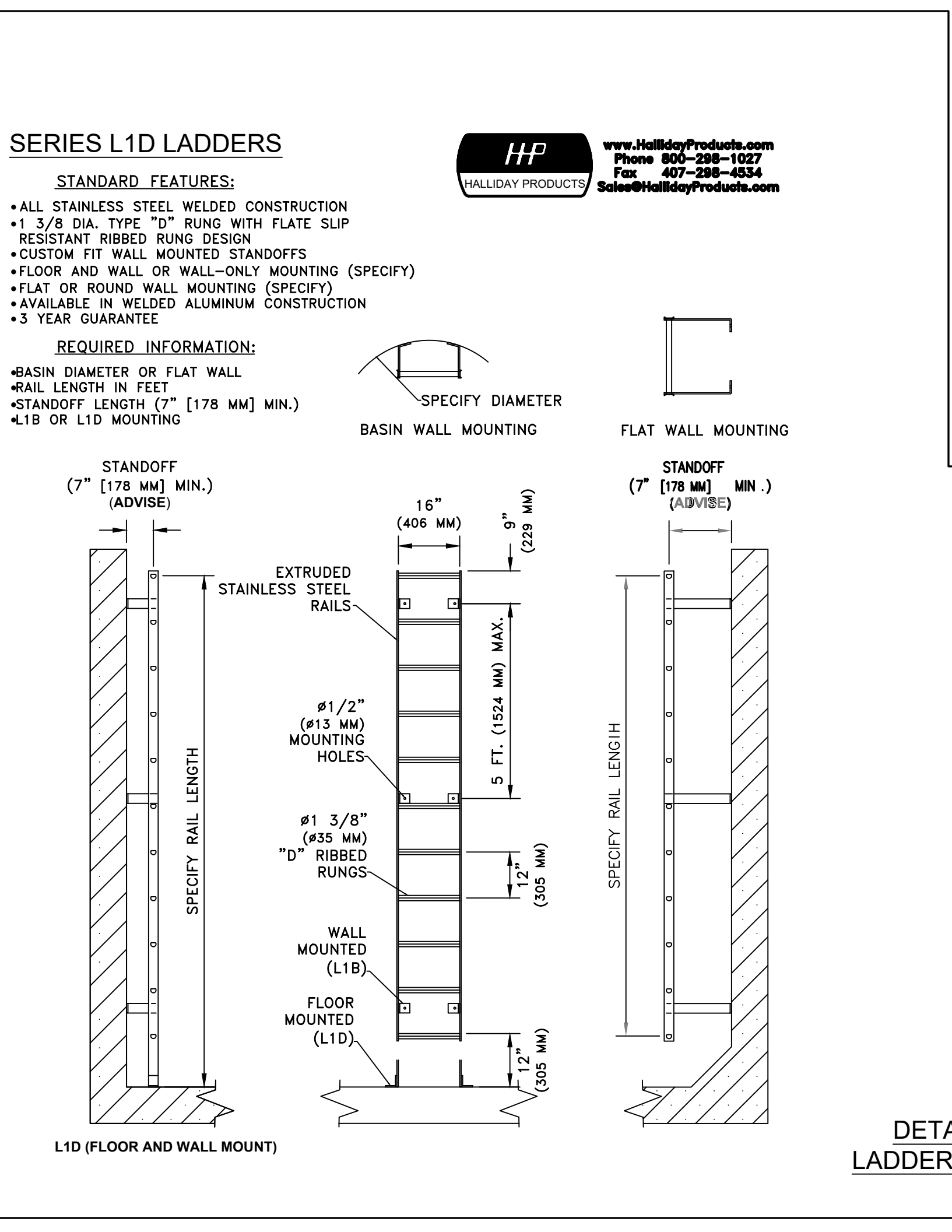
**DETAIL 2:
PIPE SUPPORT DETAILS**



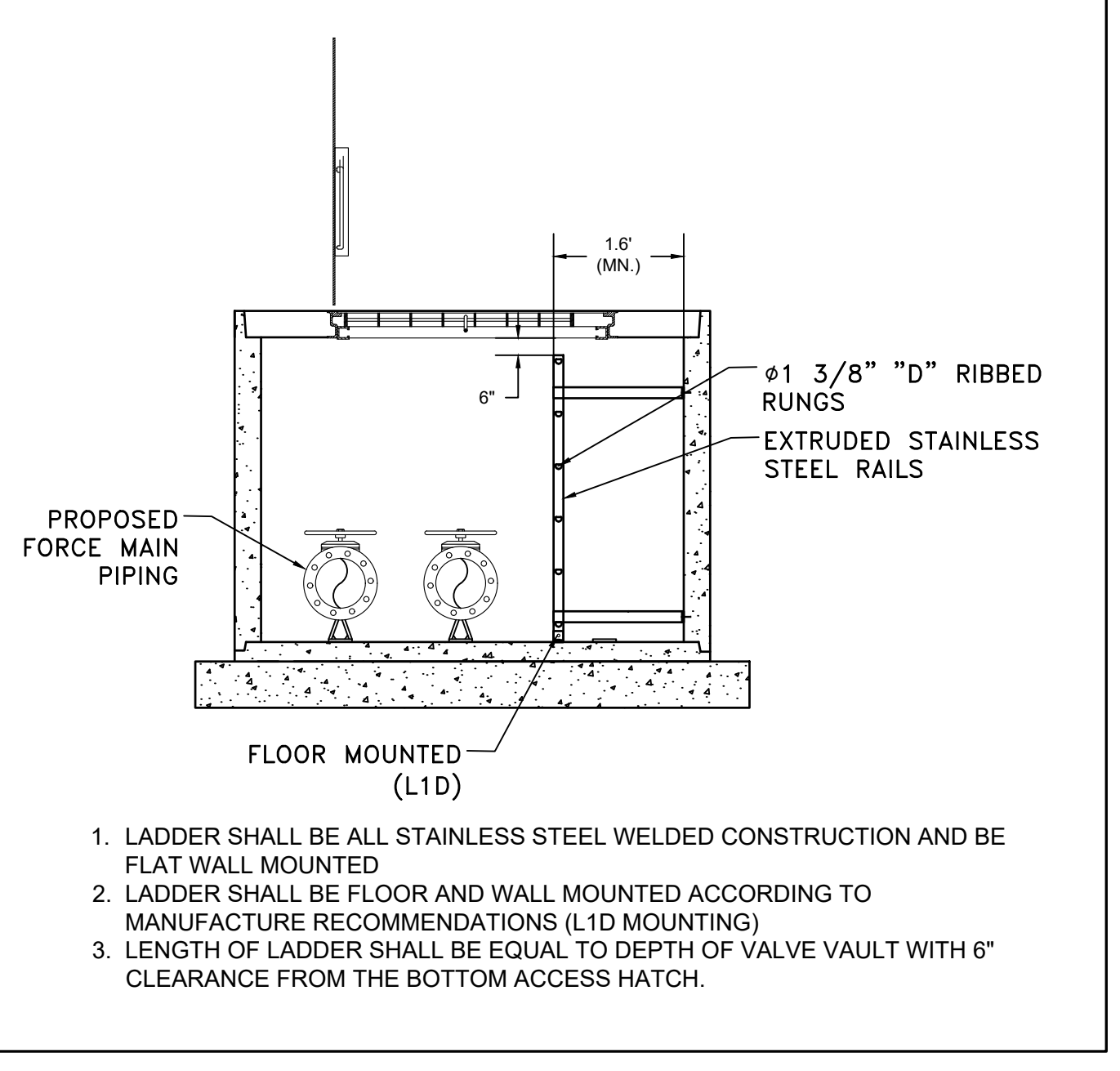
**DETAIL 3:
PRESSURE GAUGE INSTALLATION DETAIL**



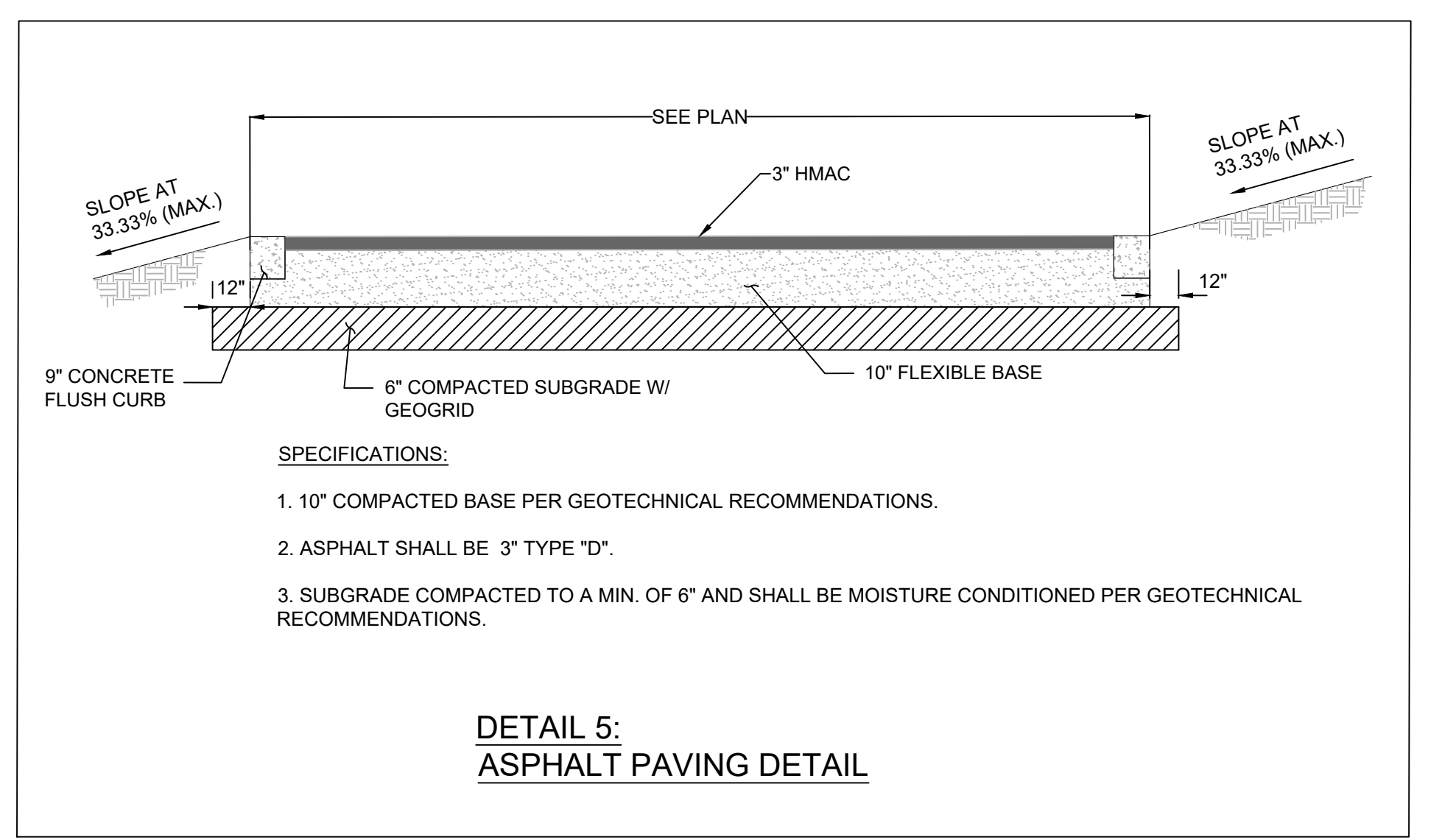
**DETAIL 6:
AIR RELEASE VALVE INSTALLATION DETAIL AT HEADER**



**DETAIL 7:
LADDER DETAIL**



- LADDER SHALL BE ALL STAINLESS STEEL WELDED CONSTRUCTION AND BE FLAT WALL MOUNTED
- LADDER SHALL BE FLOOR AND WALL MOUNTED ACCORDING TO MANUFACTURE RECOMMENDATIONS (L1D MOUNTING)
- LENGTH OF LADDER SHALL BE EQUAL TO DEPTH OF VALVE VAULT WITH 6" CLEARANCE FROM THE BOTTOM ACCESS HATCH.

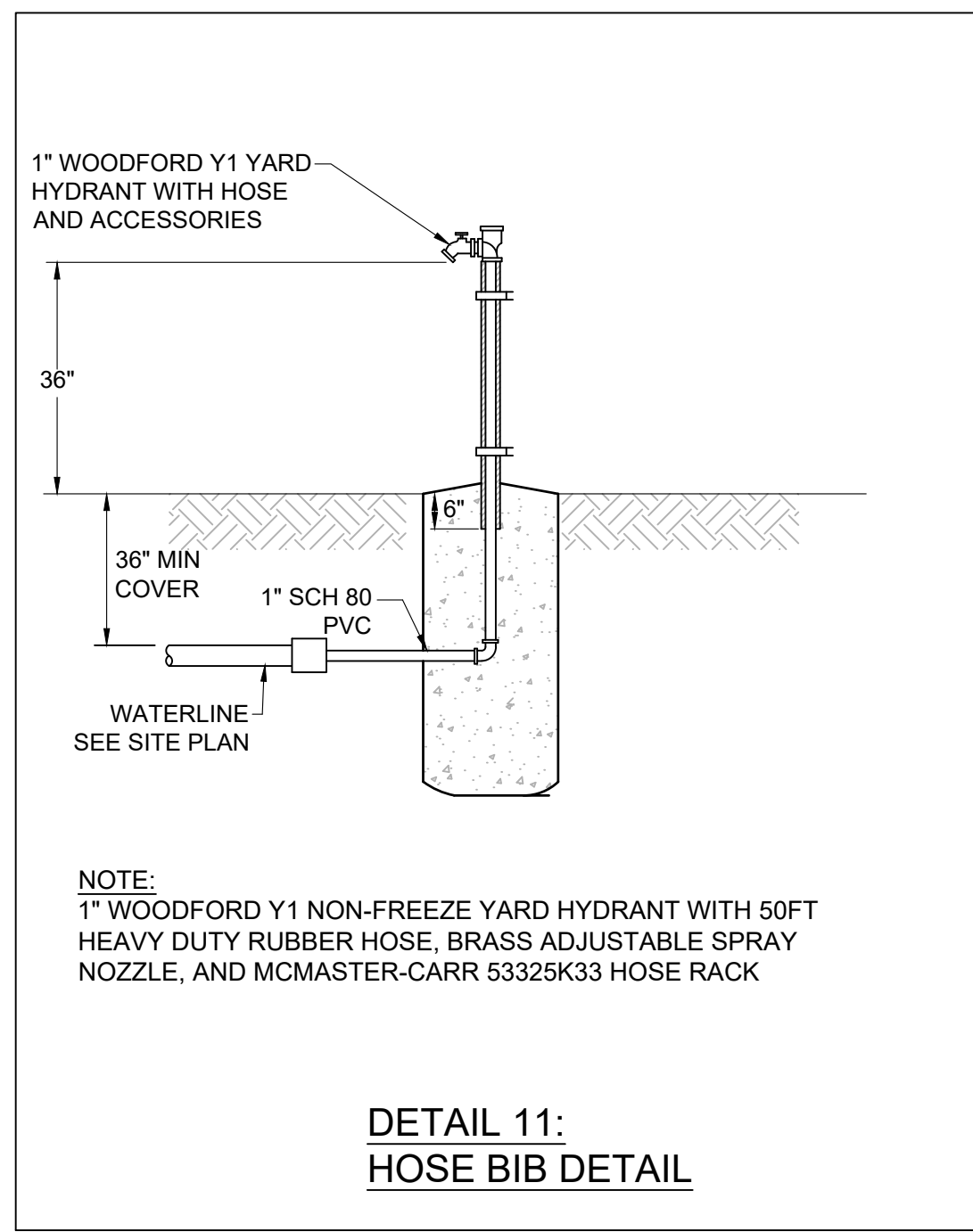


**DETAIL 5:
ASPHALT PAVING DETAIL**

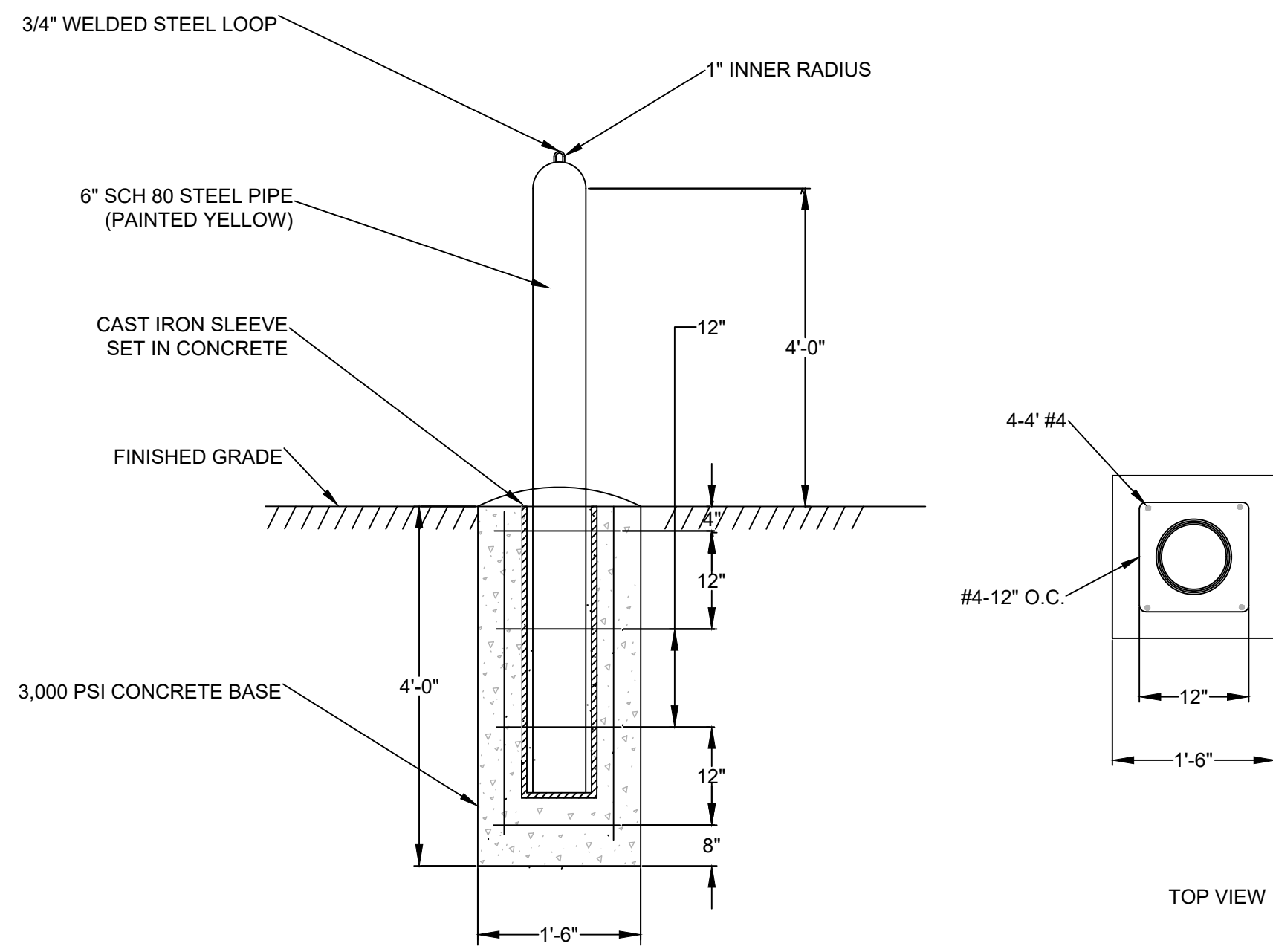
- SPECIFICATIONS:**
- 10" COMPACTED BASE PER GEOTECHNICAL RECOMMENDATIONS.
 - ASPHALT SHALL BE 3" TYPE "D".
 - SUBGRADE COMPACTED TO A MIN. OF 6" AND SHALL BE MOISTURE CONDITIONED PER GEOTECHNICAL RECOMMENDATIONS.



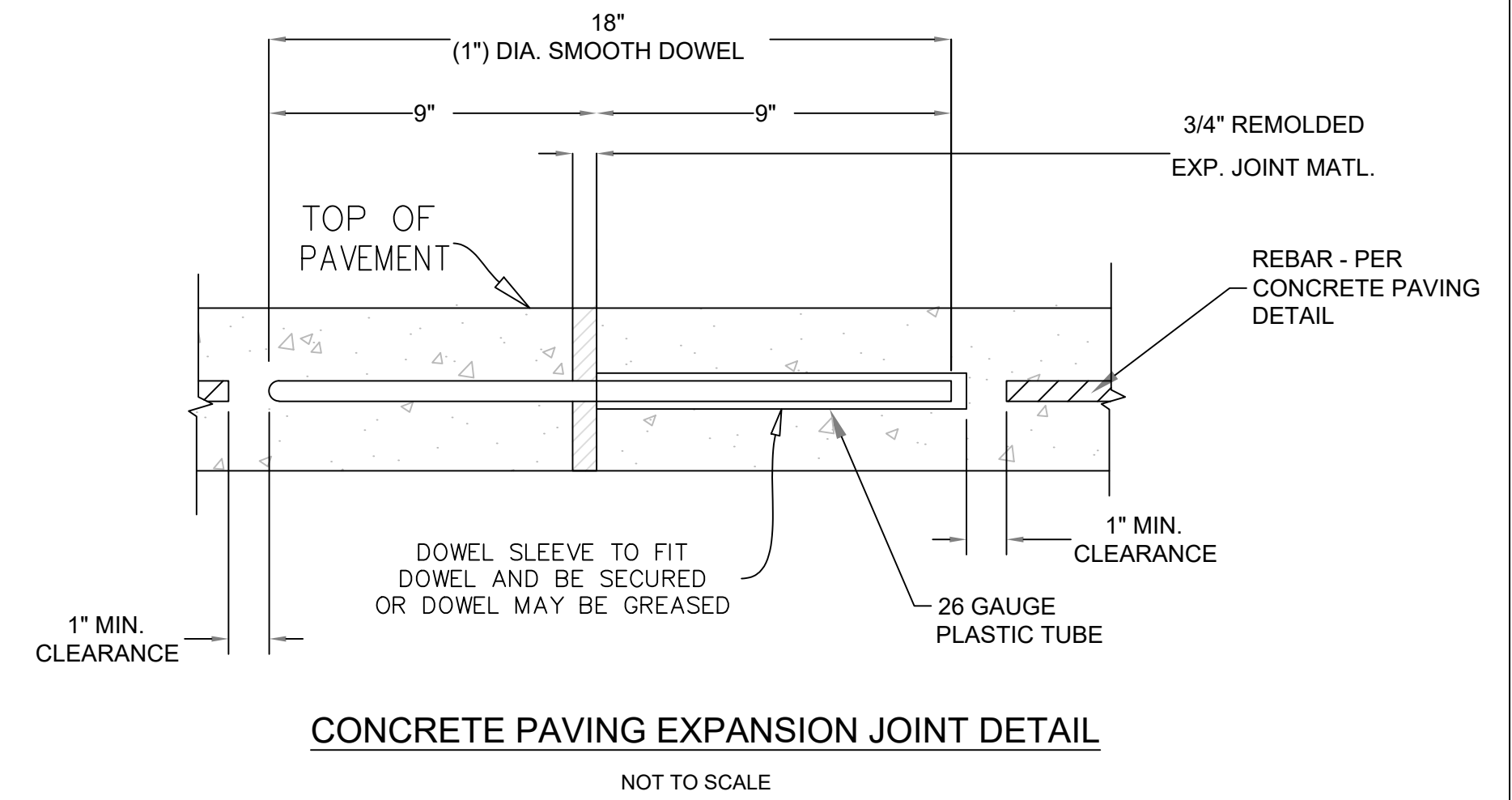
NO.	REVISIONS	APPD.	DATE



**DETAIL 11:
HOSE BIB DETAIL**

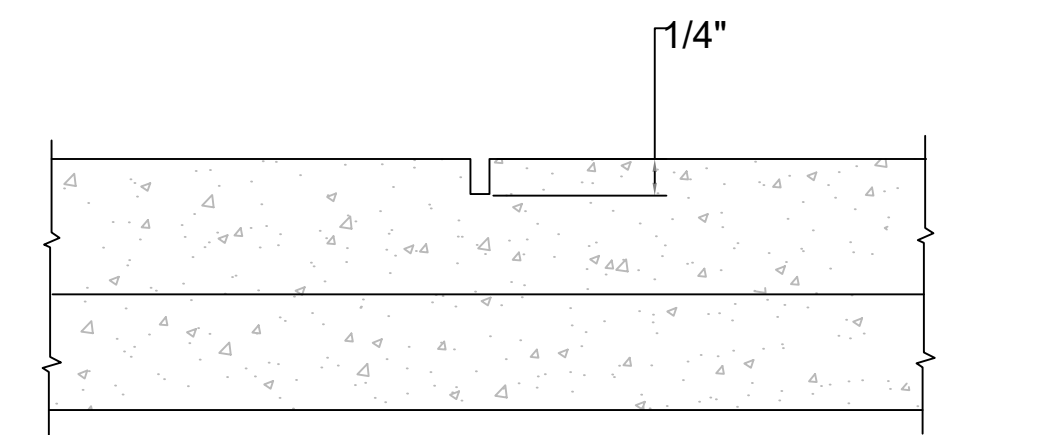


**DETAIL 8:
REMOVABLE BOLLARD DETAIL - NTS**



CONCRETE PAVING EXPANSION JOINT DETAIL

NOT TO SCALE



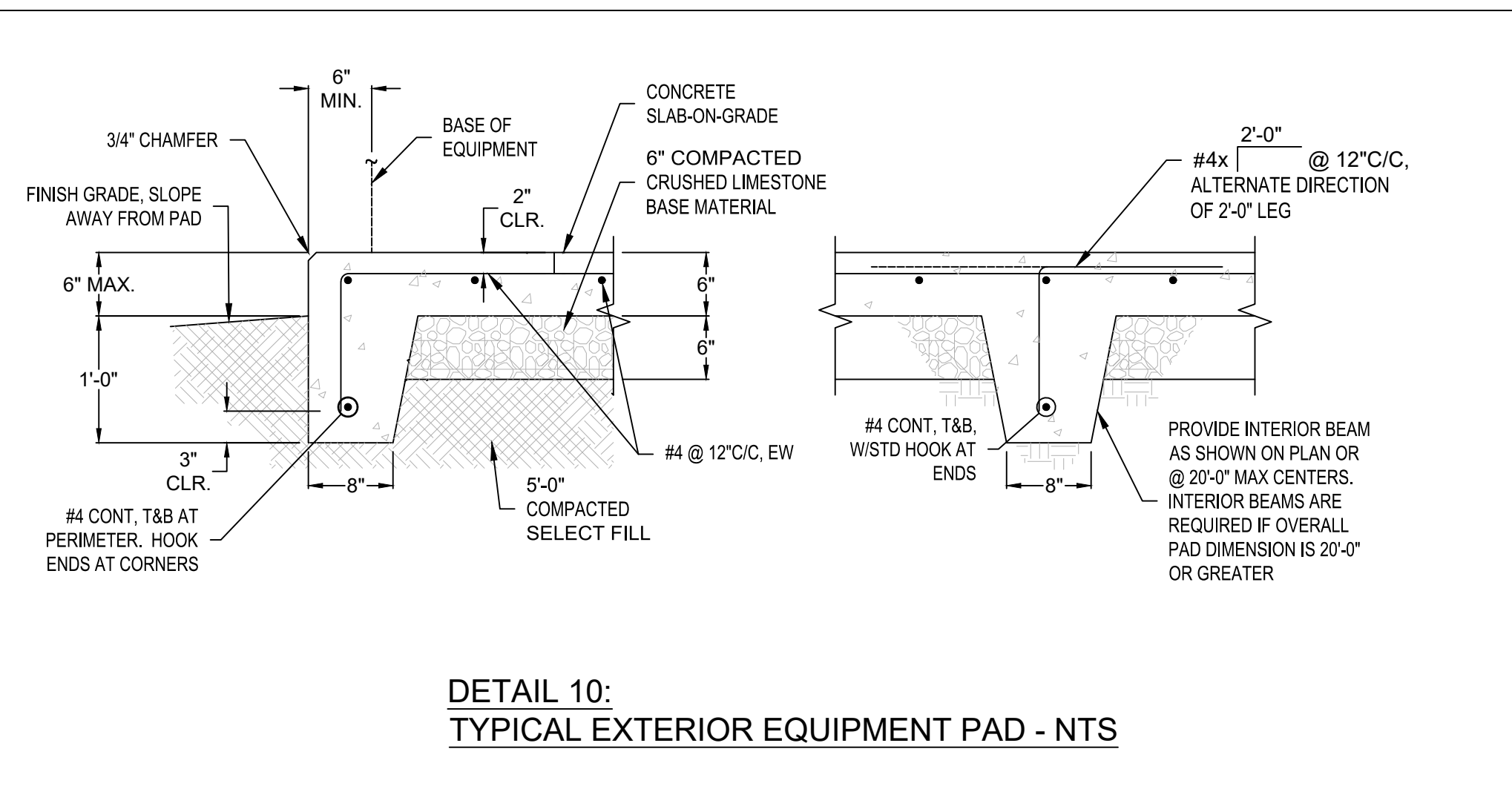
CONCRETE PAVING CONCRETE JOINT DETAIL

NOT TO SCALE

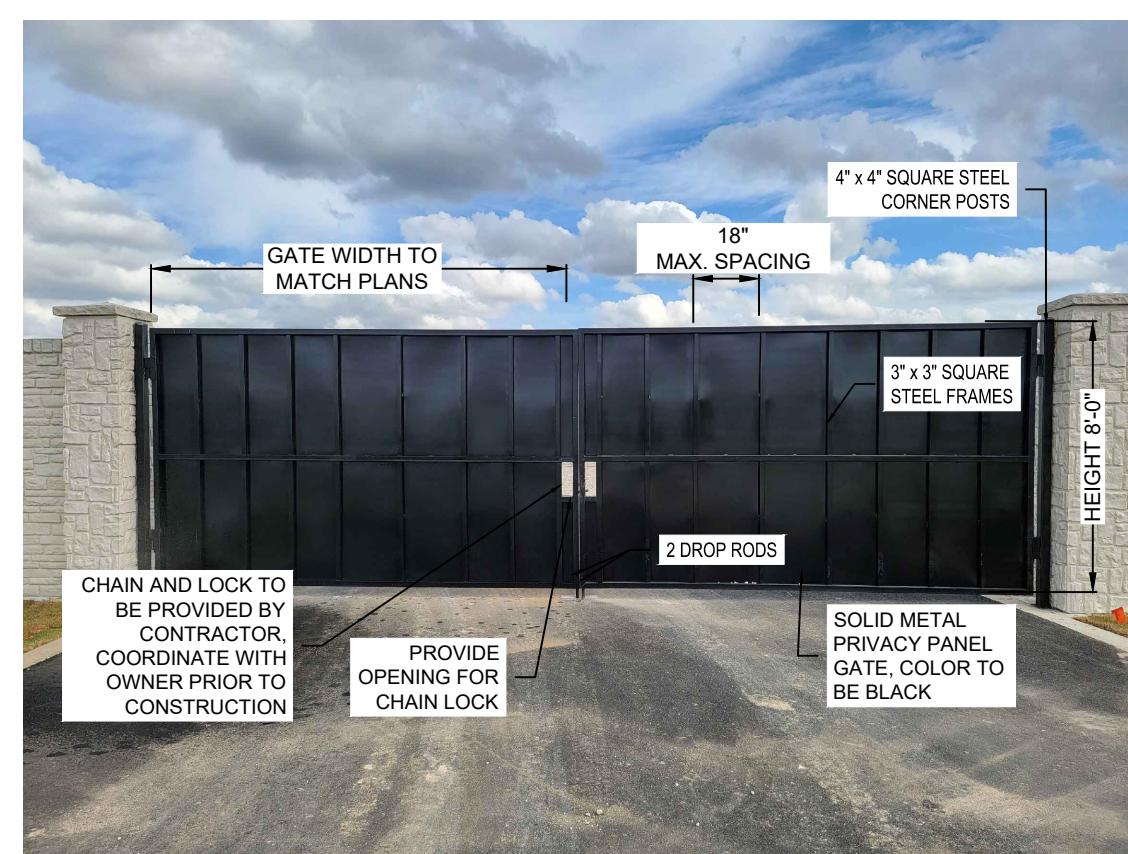
TABLE 1

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
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

DETAIL 9:



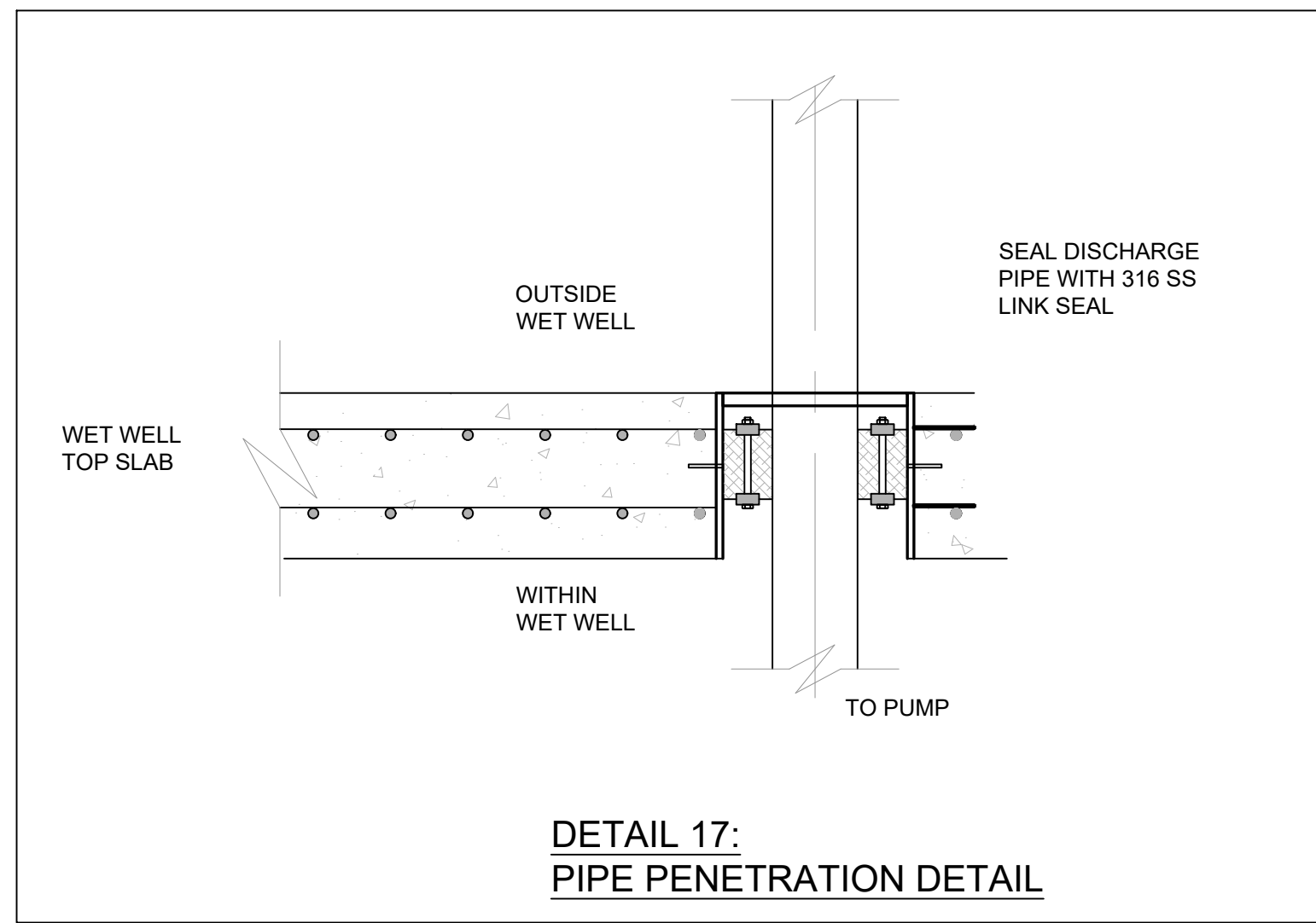
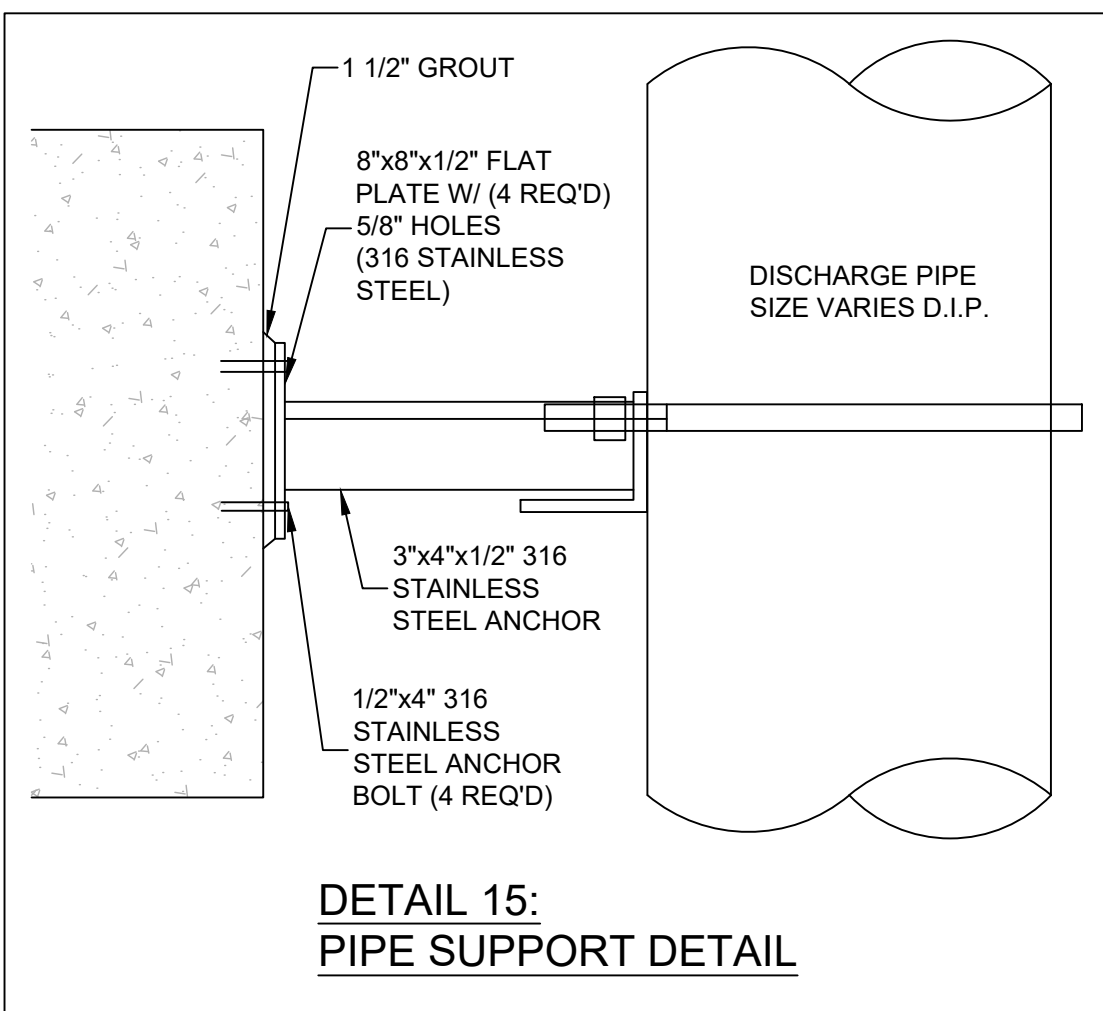
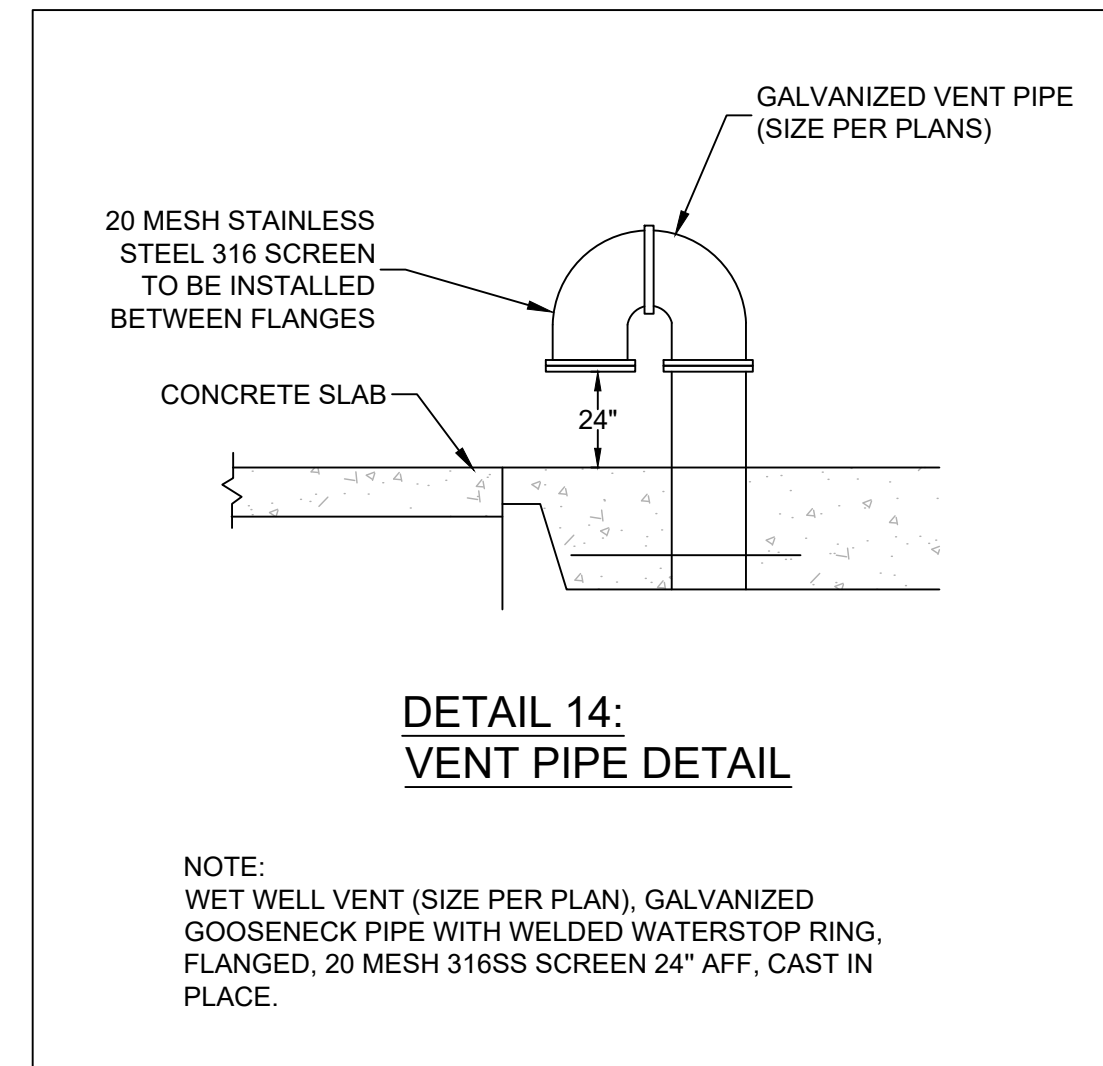
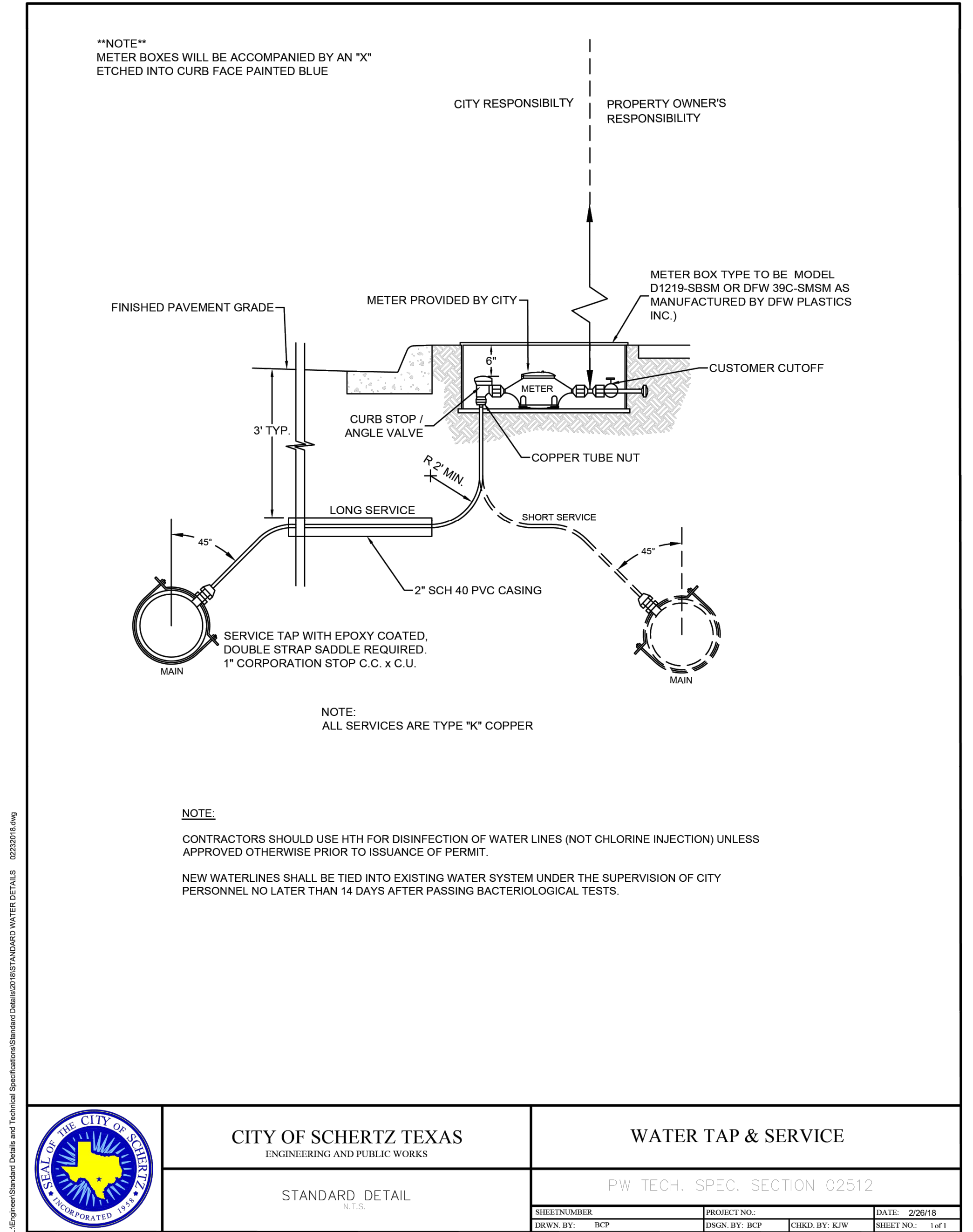
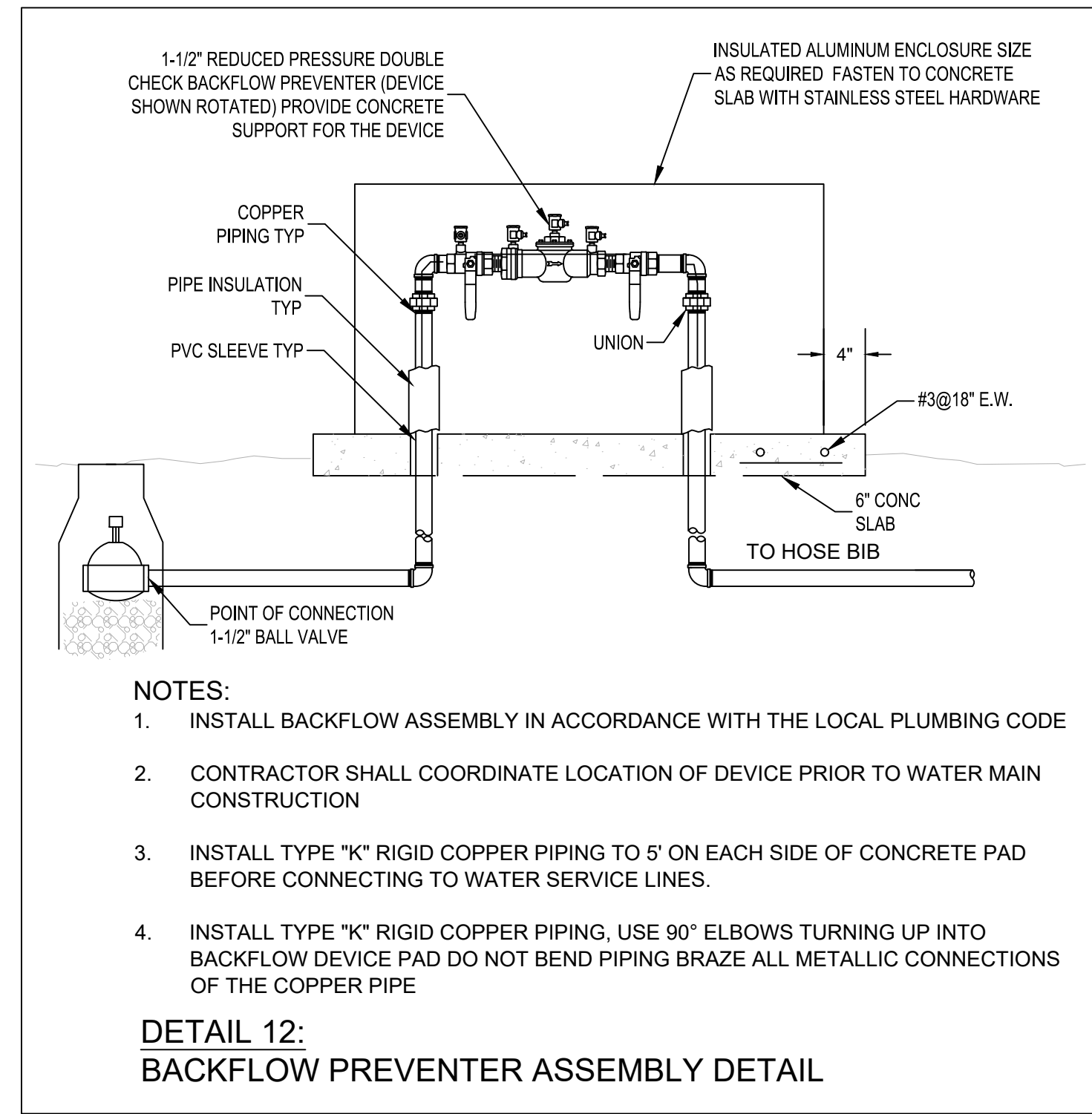
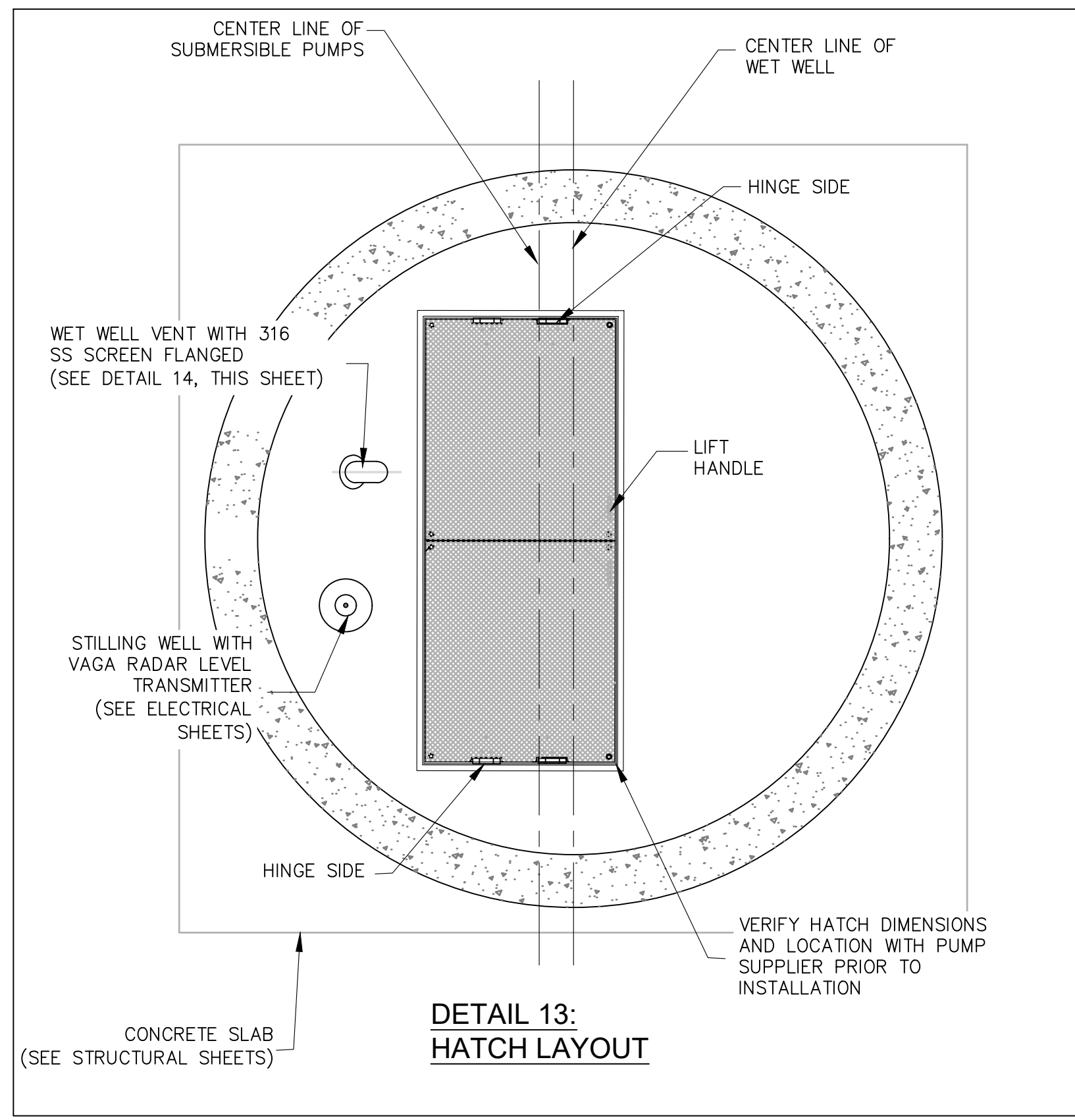
**DETAIL 10:
TYPICAL EXTERIOR EQUIPMENT PAD - NTS**



**DETAIL 18:
LIFT STATION GATE**



NO.	REVISIONS	APPD.	DATE



CITY OF SCHERTZ TEXAS ENGINEERING AND PUBLIC WORKS		WATER TAP & SERVICE	
STANDARD DETAIL		PW TECH. SPEC. SECTION 02512	
SHEET NUMBER	PROJECT NO.	DATE	2/28/18
DRAWN BY: BCP	DESIGN BY: BCP	CHECKED BY: KTW	SHEET NO.: 1 of 1

UTILITY ENGINEERING GROUP PLLC
181 N. Union Ave. NEW BRUNSWICK, TEXAS 76181 (817) 214-6621
Texas Engineering Firm F-181712

DAVID A. HULLIFER
REGISTERED PROFESSIONAL ENGINEER
NO. 58875

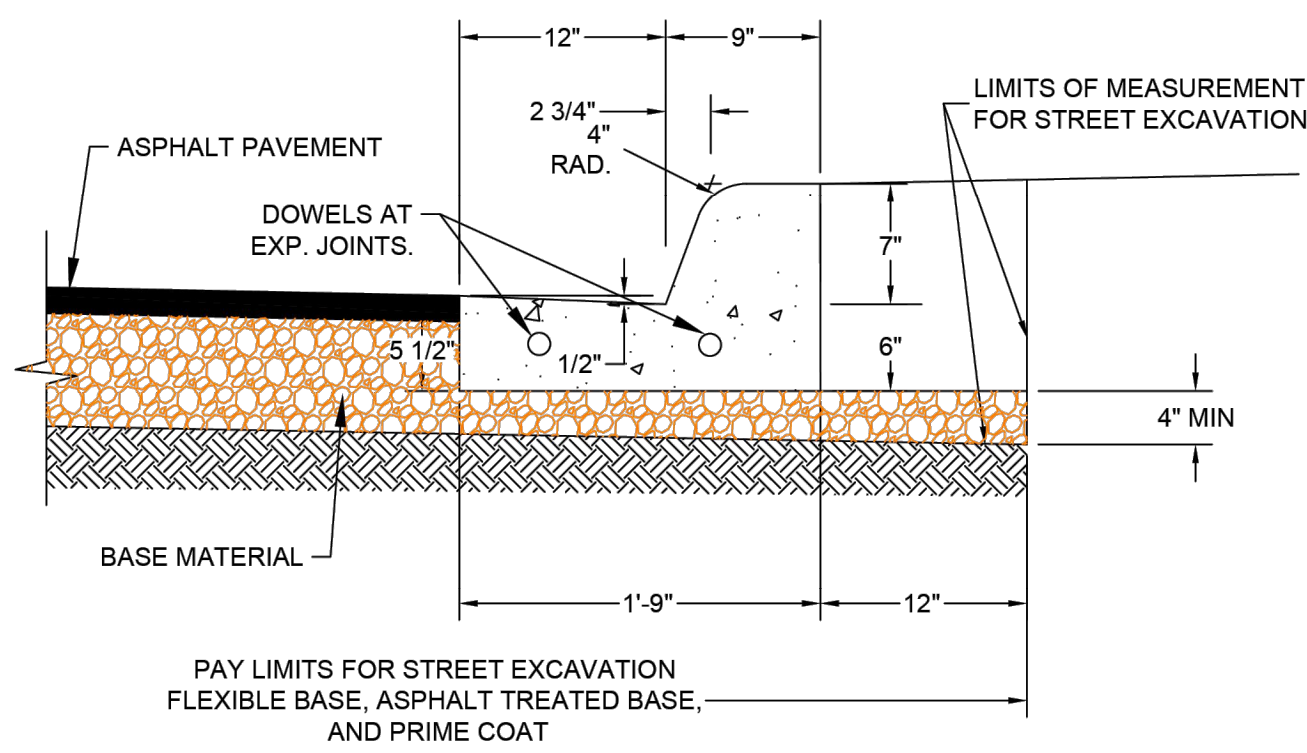
IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS

WET WELL AND PIPING DETAILS SHEET 3 OF 3

NO.	REVISIONS	APPD.	DATE

SCALE:
DATE: 30 January, 2023
PROJECT NO: 2032-03
DESIGNED BY: PND
DRAWN BY: PND
CHECKED BY: DK
SHEET NO.
LS-10
OF 36 SHEETS

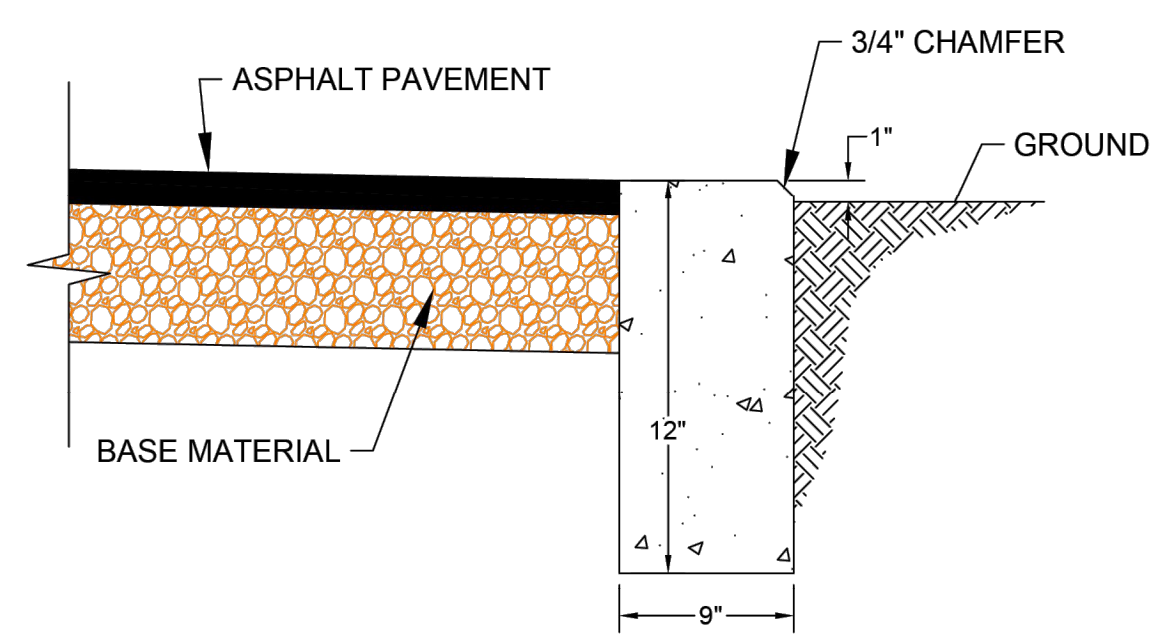
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 25B: WET WELL AND PIPING DETAILS SHEET 3 OF 3 PLOTTED: 1/30/2023 2:49 PM BR: JGD/DFK



CURB & GUTTER
(NOT TO SCALE)

SIDEWALK AND CURB EXPANSION JOINT NOTES
(TECH SPEC 02752)

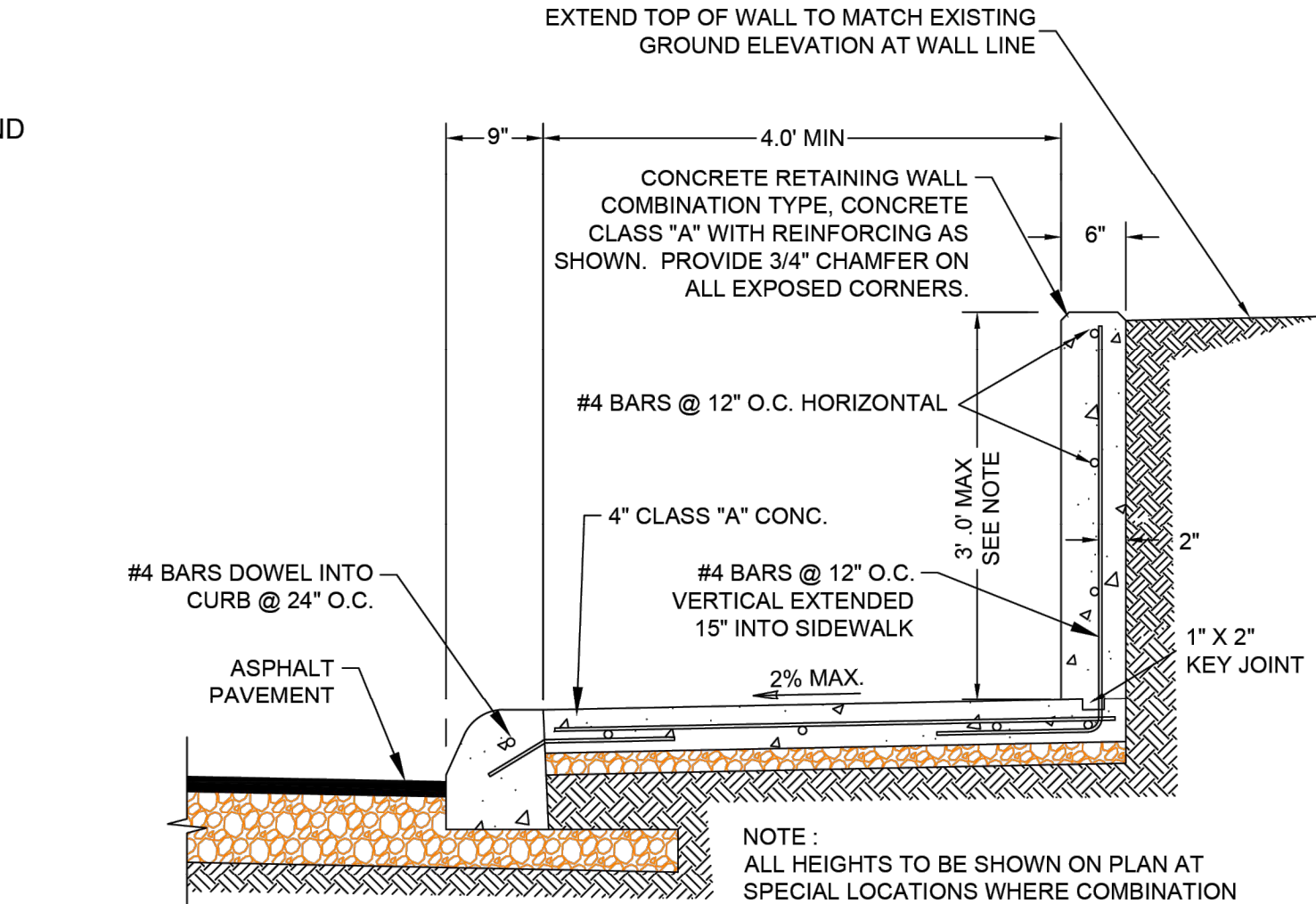
1. STEEL TO MEET ASTM STD SPECIFICATIONS FOR CONCRETE REINFORCING BARS.
2. EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS AND SPACED AT A MAXIMUM DISTANCE OF 40 FEET MAXIMUM SPACING FOR CONTROL JOINTS SHALL BE 5 FEET ON SIDEWALKS AND 10 FEET ON CURBS.
3. CENTER DOWEL HORIZONTALLY ON JOINT
4. CENTER DOWEL VERTICALLY IN CONCRETE AS NEEDED TO MAINTAIN 2" MIN. COVER.
5. REINFORCING STEEL SHALL BE #3 BARS (INLINE WITH DOWELS).



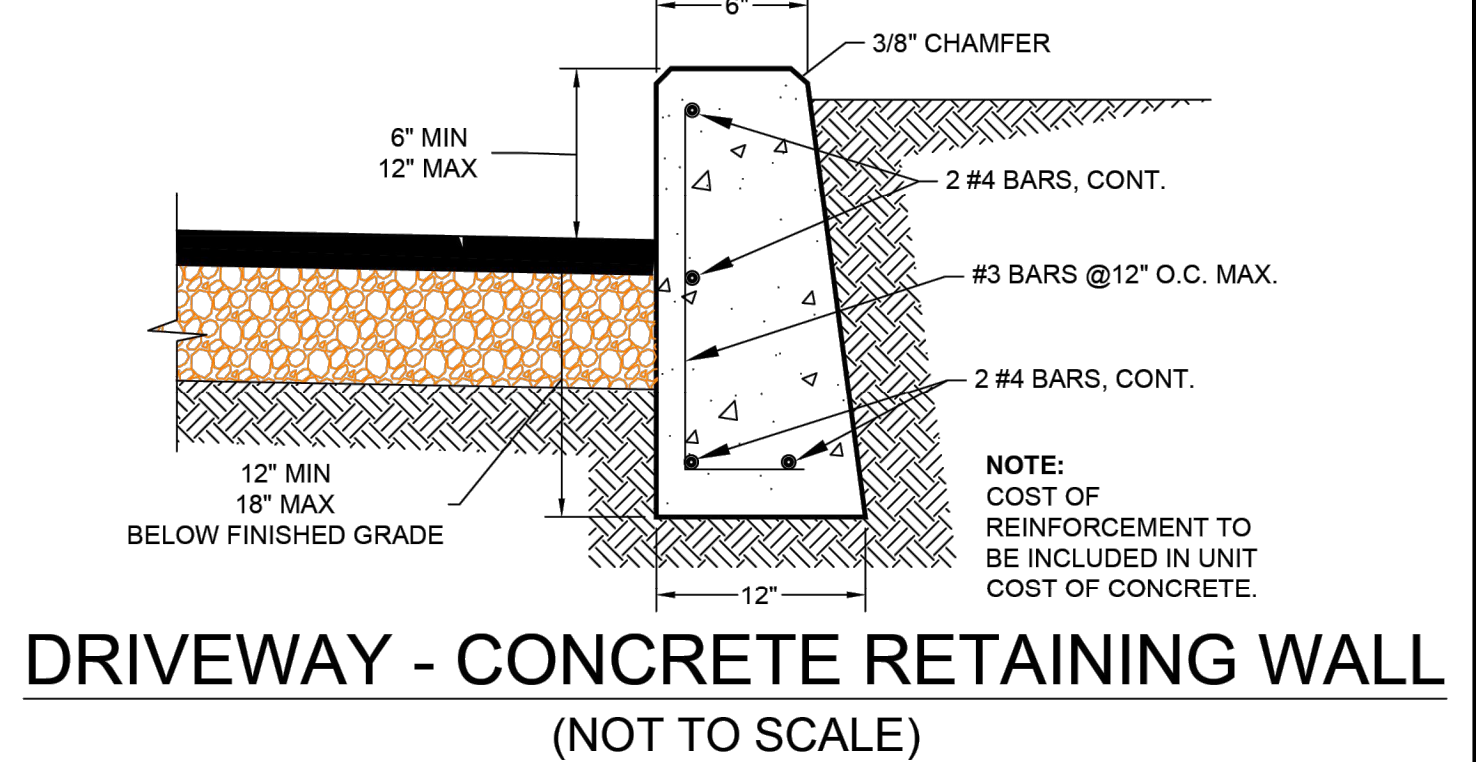
FLUSH CURB
(NOT TO SCALE)

TABLE 1
DOWEL SIZES AND SPACINGS

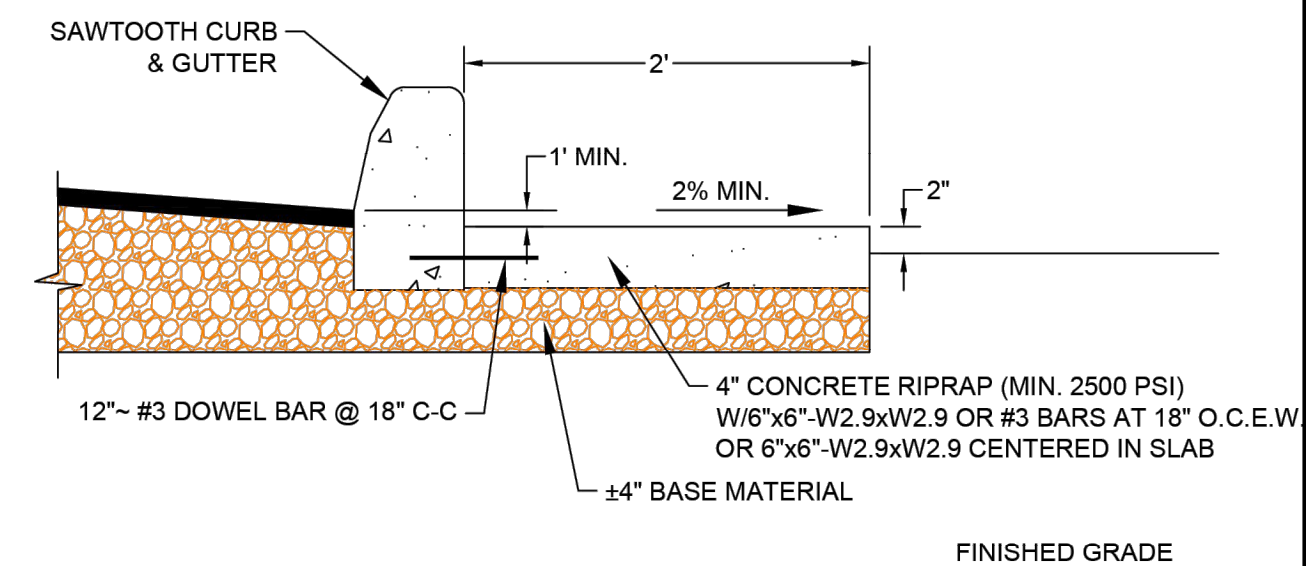
PAVEMENT THICKNESS (IN)	DIAMETER (IN)	LENGTH (IN)	SPACING (IN)
4 1/2	1/2	18	12
5	1/2	18	12
6	3/4	18	12
7	1	18	12
8	1	18	12
9	1 1/4	18	12
10	1 1/4	18	12
11	1 1/4	18	12
12	1 1/4	18	12



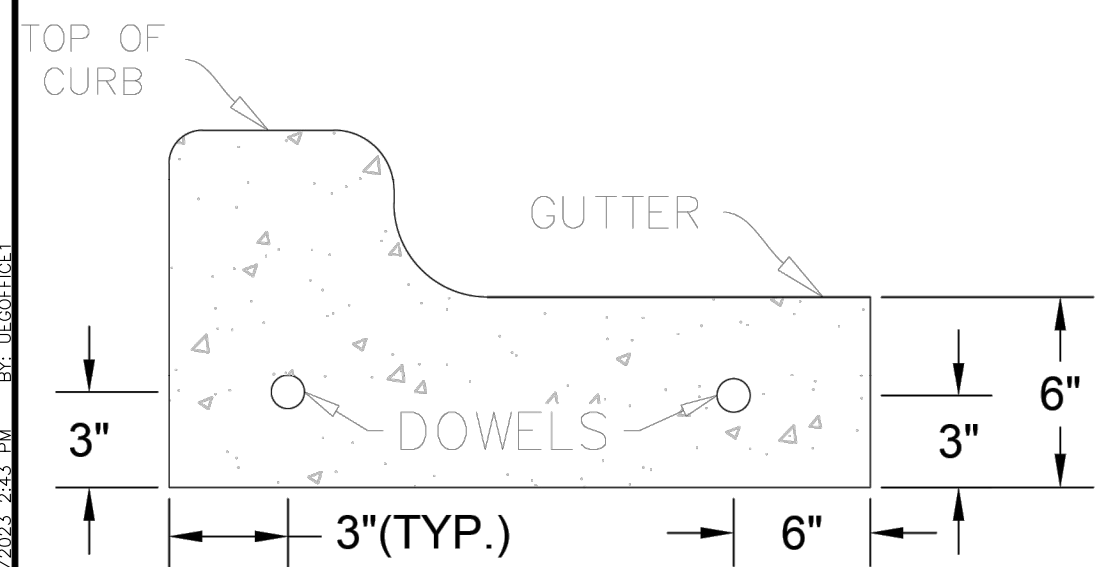
CONCRETE RETAINING WALL - COMBINATION TYPE
(NOT TO SCALE)



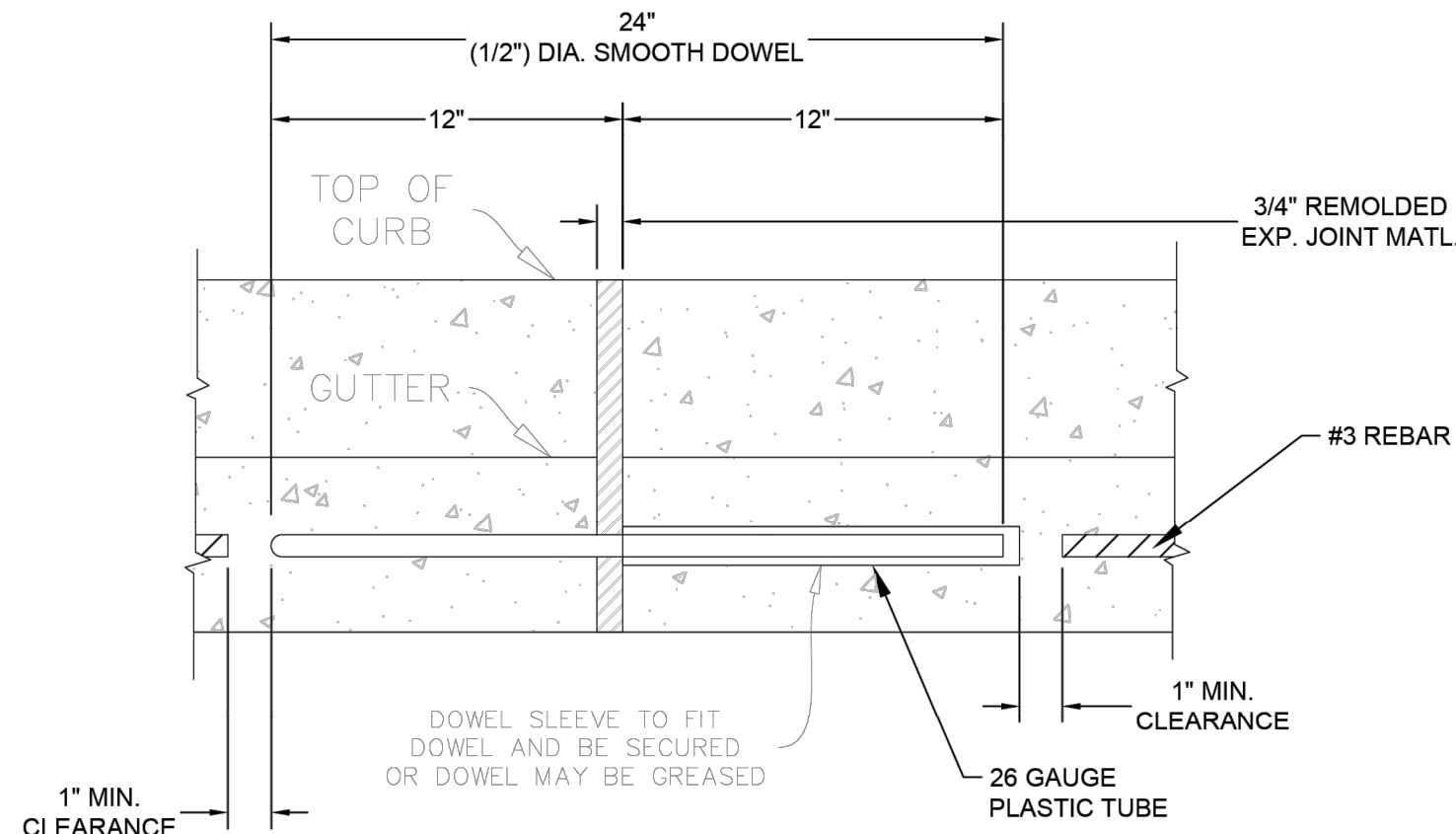
DRIVEWAY - CONCRETE RETAINING WALL
(NOT TO SCALE)



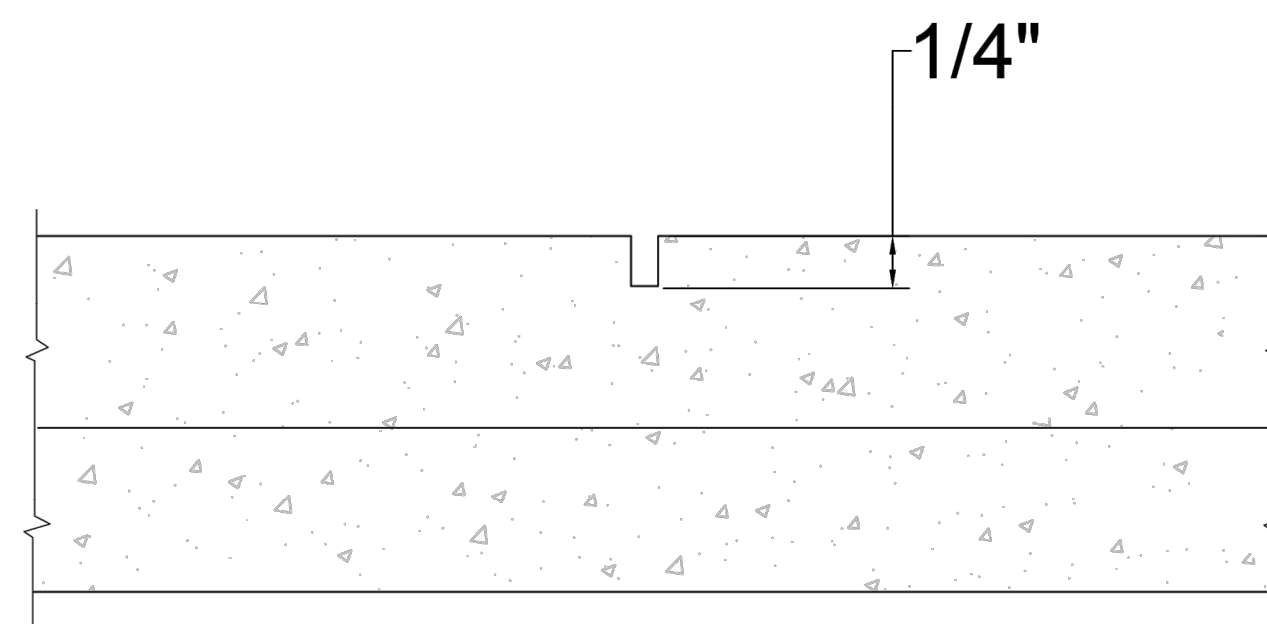
CONCRETE APRON BEHIND SAWTOOTH CURB & GUTTER
(NOT TO SCALE)



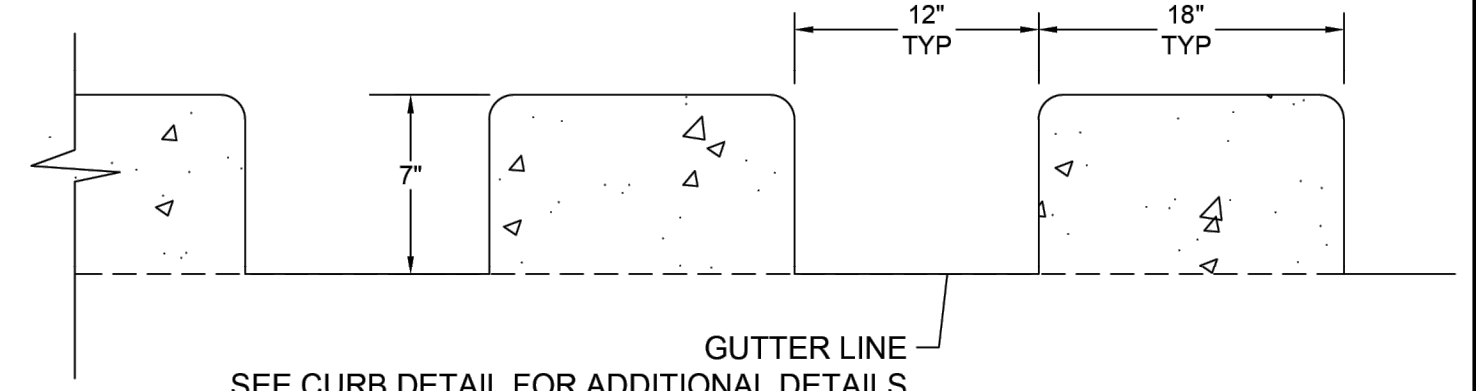
CROSS SECTION



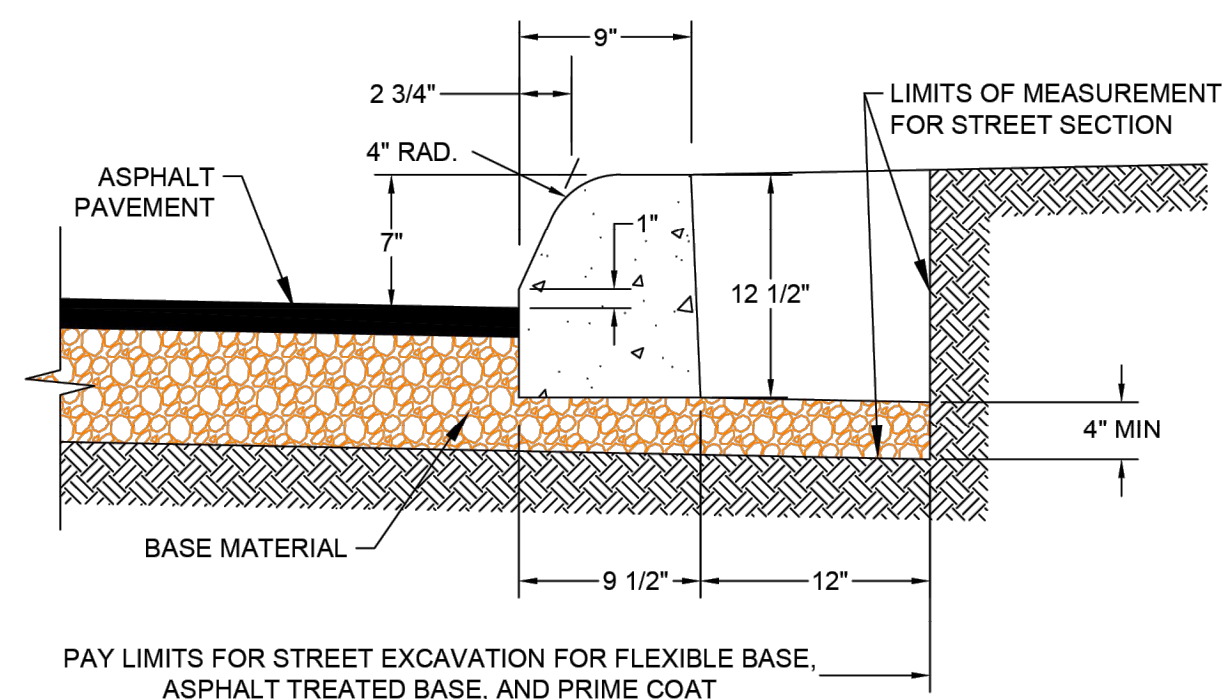
FRONT VIEW



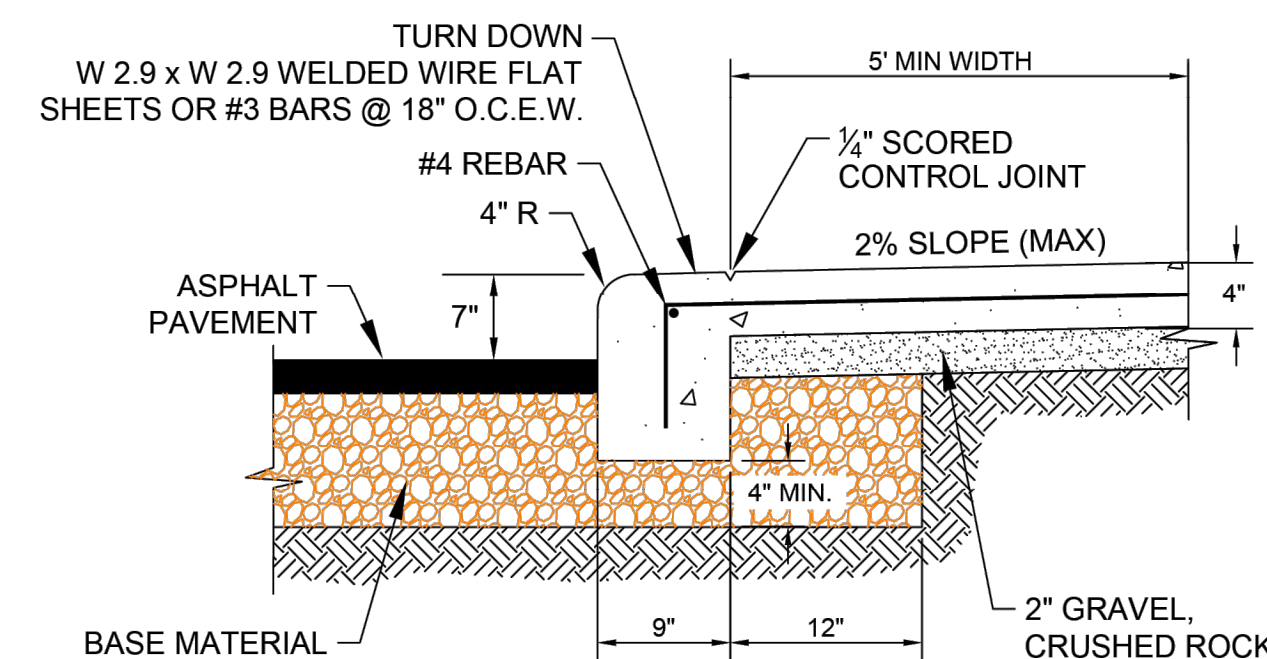
CONTROL JOINT
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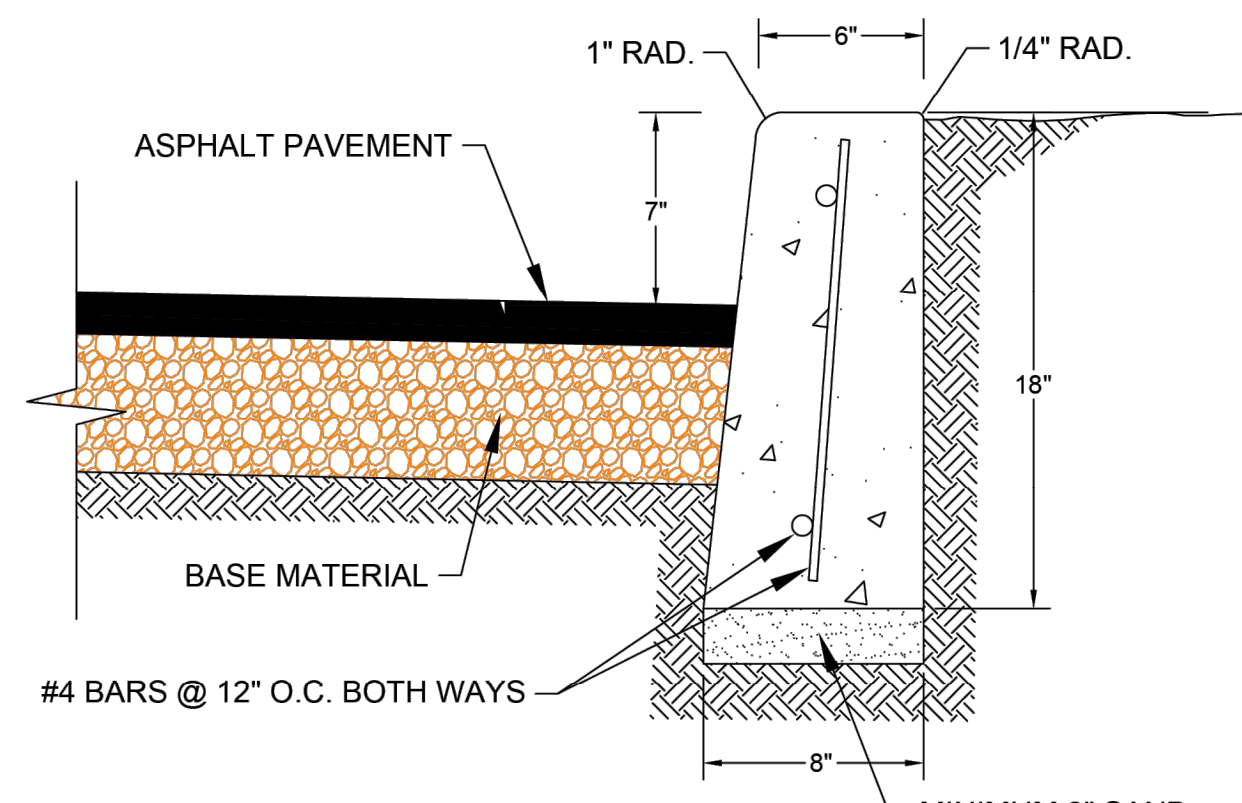
SAWTOOTH CURB & GUTTER
(NOT TO SCALE)



MACHINE LAID CURB FOR STREET SLOPE ≥ 1%
(NOT TO SCALE)



MONOLITHIC CURB
(NOT TO SCALE)



HEADER CURB
(NOT TO SCALE)

01-OCTOBER-2015

CITY OF SCHERTZ TEXAS
ENGINEERING AND PUBLIC WORKS

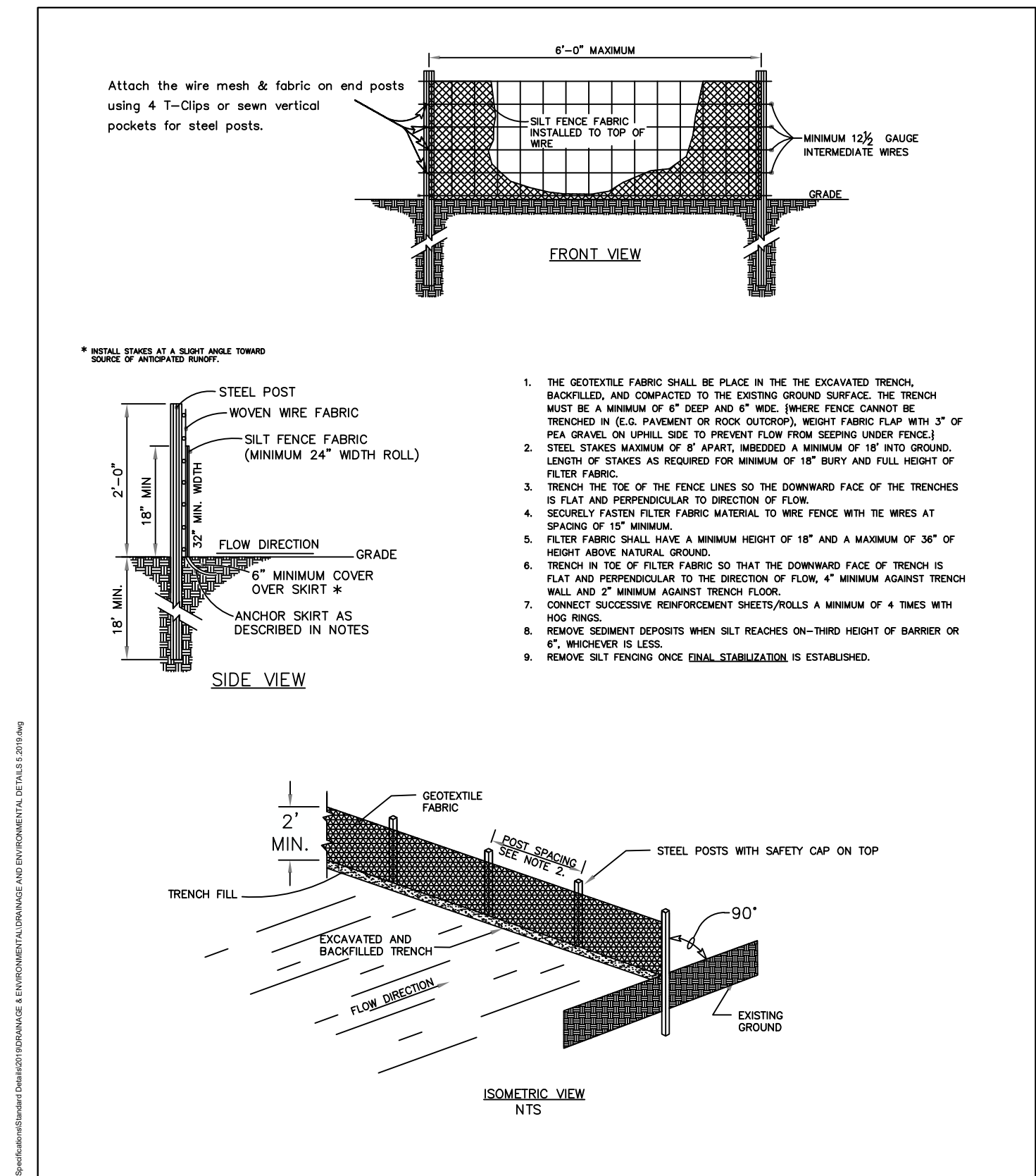
FLATWORK DETAILS

SCALE:
DATE: 30 January, 2023
PROJECT NO: 8032-03

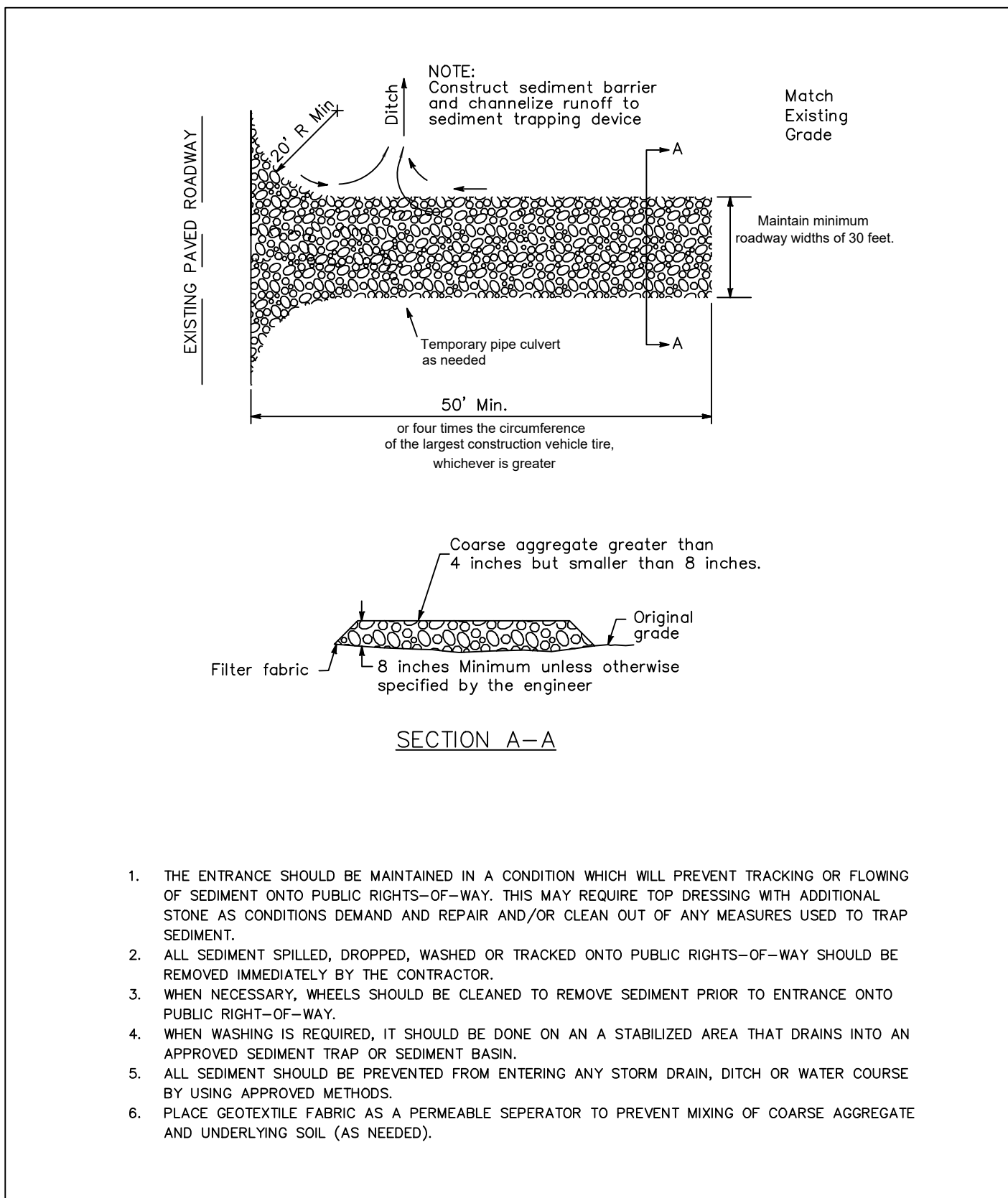
DESIGNED BY: PND
DRAWN BY: PND
CHECKED BY: DK
SHEET NO. LS-11

DRWN. BY: LBJ PROJECT NO.: DATE: 2015
DSGN. BY: LBJ CHKD. BY: LBJ SHEET NO.: 3 OF 36 SHEETS

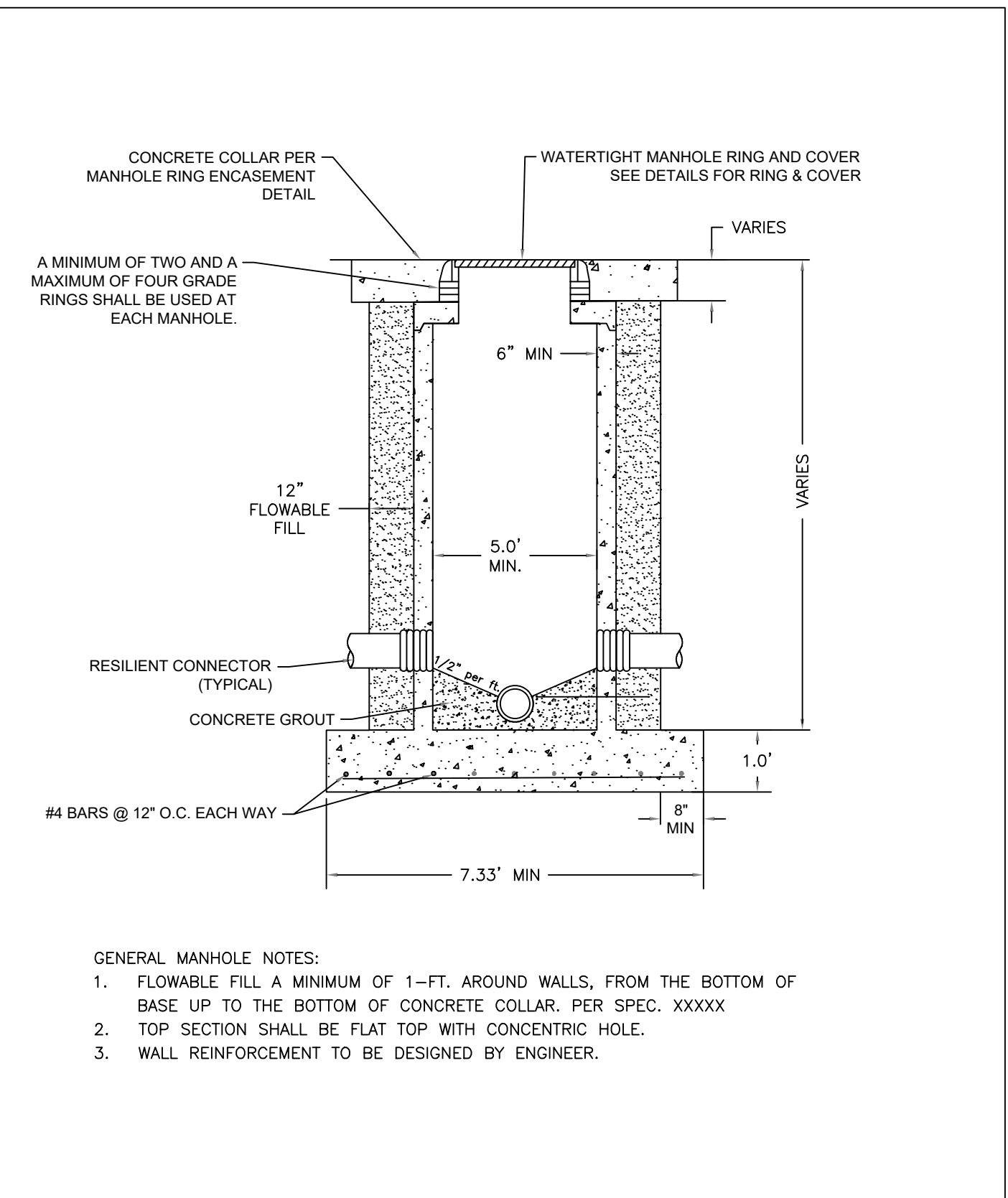
NO.	REVISIONS	APPD.	DATE



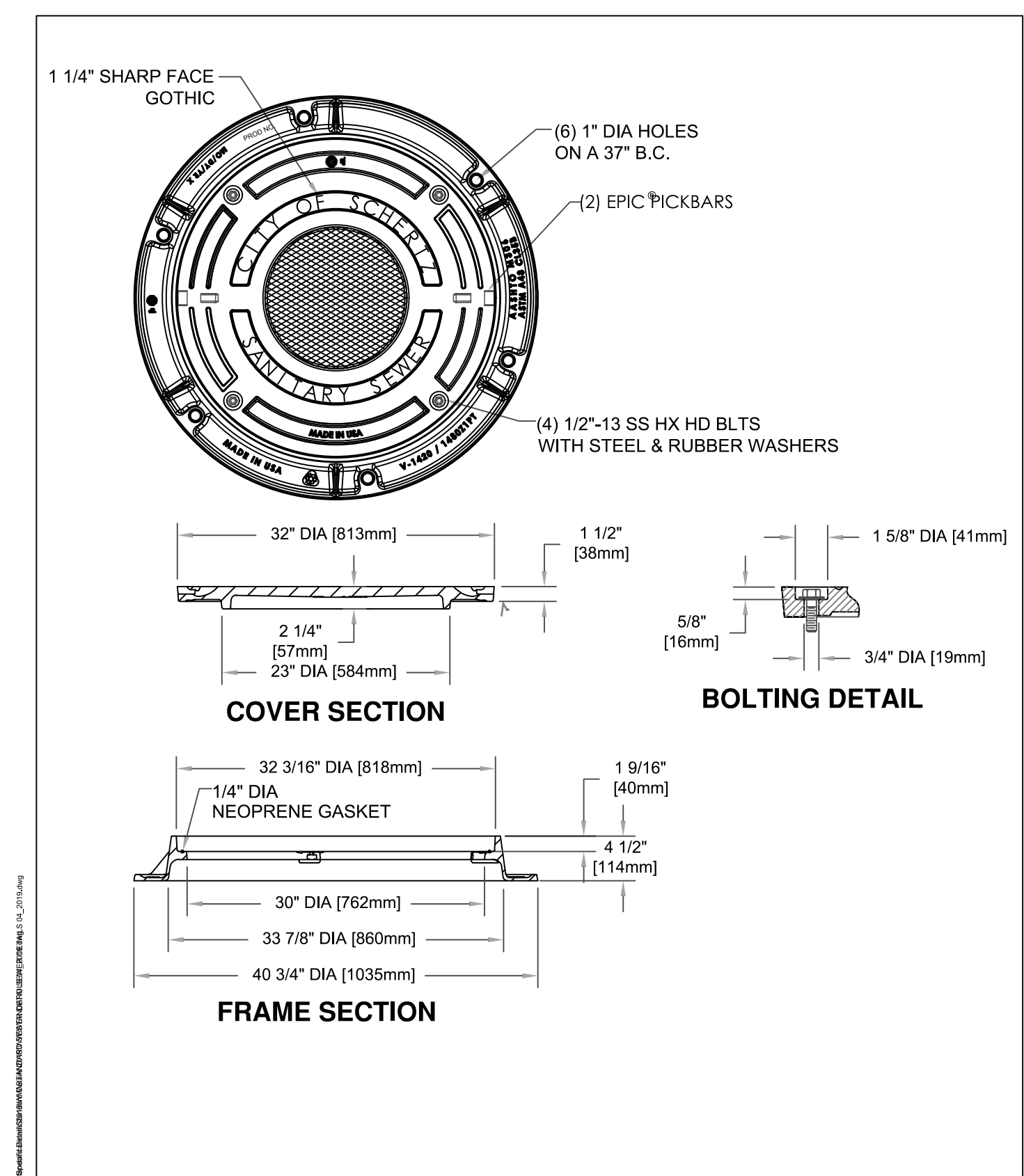
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	TECHNICAL SPECIFICATION SECTION 01570	
ENGINEERING AND PUBLIC WORKS	DATE: 5/10/19	SCALE: N.T.S.



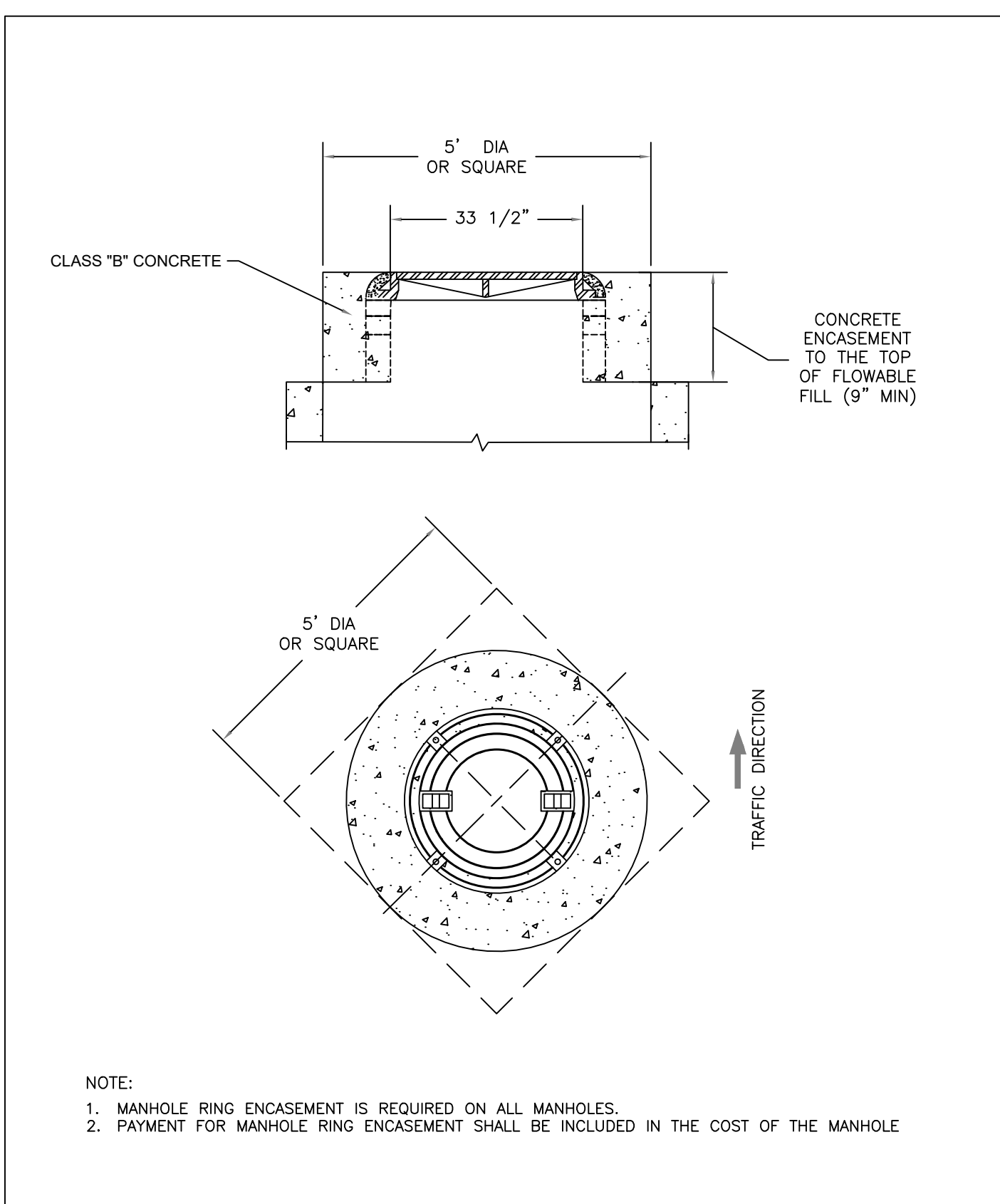
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	TECHNICAL SPECIFICATION SECTION 01575	
ENGINEERING AND PUBLIC WORKS	DATE: 5/10/19	SCALE: N.T.S.



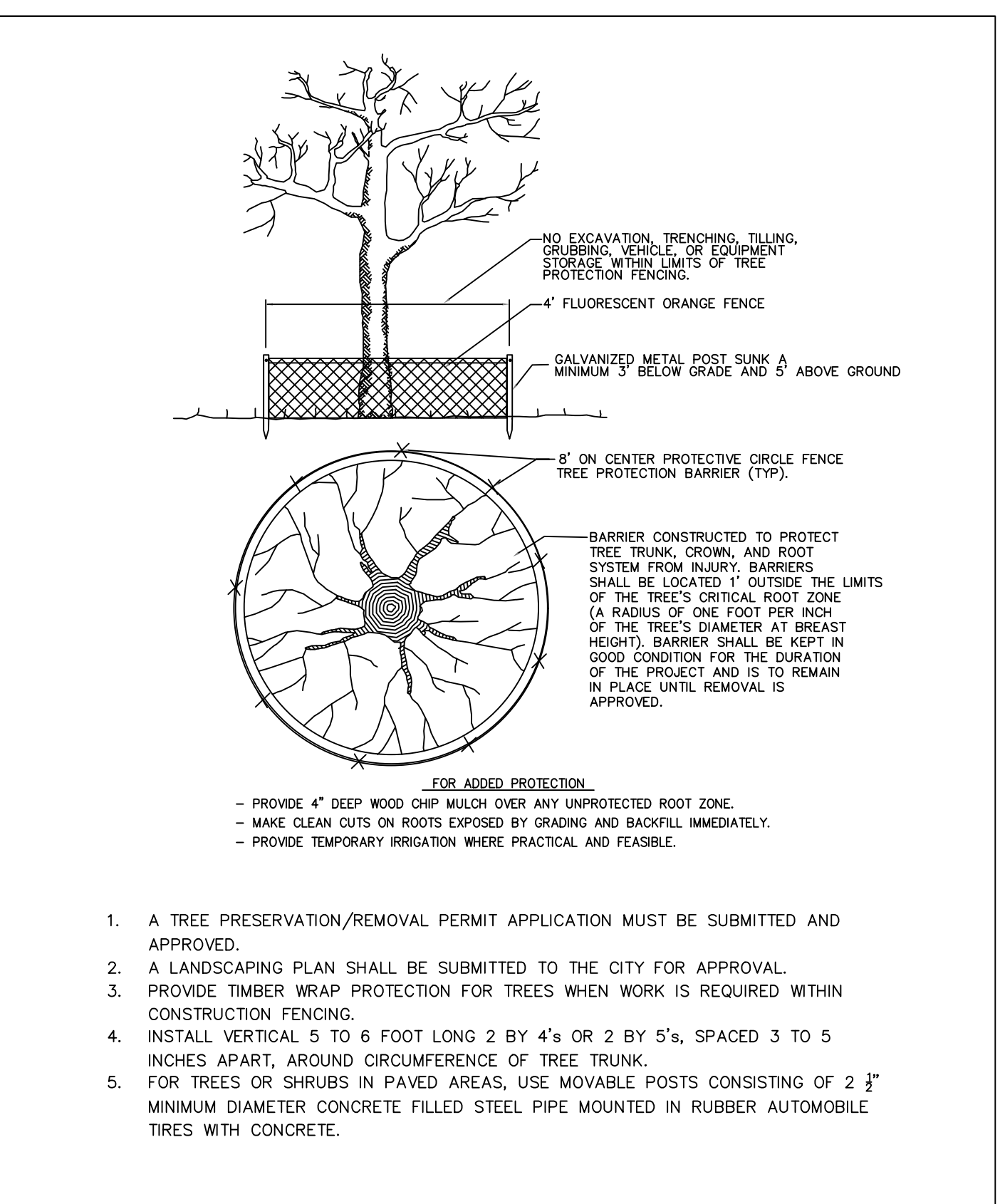
	MANHOLE	
	TECHNICAL SPECIFICATION SECTION 02081	
ENGINEERING AND PUBLIC WORKS	DATE: 5/10/19	SCALE: N.T.S.



	MANHOLE RING & COVER	
	TECHNICAL SPECIFICATION SECTION 02084	
ENGINEERING AND PUBLIC WORKS	DATE: 5/10/19	SCALE: N.T.S.



	MANHOLE RING ENCASUREMENT	
	TECHNICAL SPECIFICATION SECTION 02081 & 02082	
ENGINEERING AND PUBLIC WORKS	DATE: 5/10/19	SCALE: N.T.S.



	TREE AND PLANT PROTECTION	
	TECHNICAL SPECIFICATION SECTION 01570	
ENGINEERING AND PUBLIC WORKS	DATE: 5/10/19	SCALE: N.T.S.



IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS

DETAILS 1 OF 3

NO.	REVISIONS	APPD.	DATE

SCALE:	DATE: 30 January, 2023
PROJECT NO:	08032-03
DESIGNED BY:	PND
DRAWN BY:	PND
CHECKED BY:	Dx
SHEET NO.	LS-12
OF 36 SHEETS	

CONCRETE JOINTING COLLAR

CONCRETE COVER FOR FLEXIBLE PIPE

TYPICAL CONCRETE ENCASEMENT DETAILS

CONCRETE CRADLE

CONCRETE ENCASEMENT

NOTES:

- 1) ALL CONCRETE ENCASEMENT SHALL BE POURED AT A PLANE 6" ABOVE THE PIPE BETWEEN EXCAVATED TRENCH WALLS.
- 2) ALL SEWER MAIN WITH LESS THAN 4' OF COVER TO FINAL GRADE SHALL BE CONCRETE ENCASED.
- 3) ALL FORCE MAINS SHALL BE PROVIDED WITH THRUST BLOCKS, WHERE CHANGES IN DIRECTION OCCUR, AT TEES, BENDS, CROSSES, CHANGES IN SIZE, STOPS, OR AS DIRECTED BY THE CITY ENGINEER.

SCHIERTZ COMMUNITY + SERVICE + OPPORTUNITY

CONCRETE ENCASEMENT

TECHNICAL SPECIFICATION SECTION 02511

SCALE: NTS DATE: 5/10/19
 ENGINEERING AND PUBLIC WORKS DESGN: BXC DRAWN BY: RCP SHEET NO.: 1

SYMMETRICAL ABOUT

PAVEMENT REPAIR — **NEW PAVEMENT**

NOTE:

1. PUBLIC WORKS PERMIT REQUIRED FOR ALL STREET CUTS OR TAPS.
2. SAW CUTS SHALL BE STRAIGHT AND PERPENDICULAR TO THE FLOW OF TRAFFIC.
3. TACK ALL VERTICAL SURFACES.
4. IN UNPAVED AREAS, EXTEND SECONDARY BACKFILL UP TO REQUIRED TOP SOIL.
5. SUBMITTALS—PROVIDE DELIVERY TICKETS INCLUDING SOURCE LOCATION FOR EACH DELIVERY OF MATERIAL.

INITIAL BACKFILL:
 3" WASHED ROCK AROUND PIPE COMPACTED PER SPEC 02320 — UTILITY BACKFILL MATERIALS

SECONDARY BACKFILL:
 NATIVE MATERIAL FROM TRENCH PLACED IN MAXIMUM 8" LOOSE LIFTS, FREE OF DEBRIS AND STONES LARGER THAN 4". COMPACTION TO 95% STD PROCTOR DENSITY (ASTM D 698). PER SPEC 02317

SCHIERTZ COMMUNITY + SERVICE + OPPORTUNITY

MAIN IN TRENCH

TECHNICAL SPECIFICATION SECTION 02531 & 02532

SCALE: NTS DATE: 5/10/19
 ENGINEERING AND PUBLIC WORKS DESGN: BXC DRAWN BY: RCP SHEET NO.: 1

SIZE	A	B'	PSM (SDF-28)	PSI (SDF-96)
6"	4.0"	4.5"	5.50	4.79
8"	5.5"	6.0"	7.37	6.66
10"	7.0"	7.5"	9.21	8.50
12"	8.0"	9.0"	10.96	10.25
15"	10.0"	11.0"	13.42	12.71
18"	12.0"	13.5"	—	—
21"	14.0"	16.0"	—	—
24"	16.0"	18.0"	—	—
27"	18.0"	20.0"	—	—

MINIMUM LENGTH CHART

NOTE:
 ALL MANDRELS MUST BE APPROVED BY CONSTRUCTION INSPECTIONS AND STAMPED BEFORE USE.

SCHIERTZ COMMUNITY + SERVICE + OPPORTUNITY

DEFLECTION TESTING MANDREL

TECHNICAL SPECIFICATION SECTION 02260

SCALE: NTS DATE: 5/10/19
 ENGINEERING AND PUBLIC WORKS DESGN: BXC DRAWN BY: RCP SHEET NO.: 1

TCOQ RULES AND REGULATIONS, TAC TITLE 30 PART 1 CHAPTER 217.53.D, "SEPARATION DISTANCES"

WHEN NEW SANITARY SEWERS ARE INSTALLED, THEY SHALL BE INSTALLED NO CLOSER TO WATERLINES THAN NINE FEET IN ALL DIRECTIONS. SEWERS THAT PARALLEL WATERLINES MUST BE INSTALLED IN SEPARATE TRENCHES, WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE FOLLOWING GUIDELINES WILL APPLY.

(A) WHERE A SANITARY SEWER PARALLELS A WATERLINE, THE SEWER SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC MEETING ASTM SPECIFICATIONS WITH A PRESSURE RATING FOR BOTH THE PIPE AND JOINTS OF 150 PSI. THE VERTICAL SEPARATION SHALL BE A MINIMUM OF TWO FEET BETWEEN OUTSIDE DIAMETERS AND THE HORIZONTAL SEPARATION SHALL BE A MINIMUM OF FOUR FEET BETWEEN OUTSIDE DIAMETERS. THE SEWER SHALL BE LOCATED BELOW THE WATERLINE.

(B) WHERE A SANITARY SEWER CROSSES A WATERLINE AND THE SEWER IS CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC WITH A MINIMUM PRESSURE RATING OF 150 PSI, AN ABSOLUTE MINIMUM DISTANCE OF SIX INCHES BETWEEN OUTSIDE DIAMETERS SHALL BE MAINTAINED. IN ADDITION, THE SEWER SHALL BE LOCATED BELOW THE WATERLINE WHERE POSSIBLE AND ONE LENGTH OF THE SEWER PIPE MUST BE CENTERED ON THE WATERLINE.

(C) WHERE A SEWER CROSSES UNDER A WATERLINE AND THE SEWER IS CONSTRUCTED OF ABS TRUSS PIPE, SIMILAR SEMI-RIGID PLASTIC COMPOSITE PIPE, CLAY PIPE, OR CONCRETE PIPE WITH GASKETED JOINTS, A MINIMUM TWO-FOOT SEPARATION DISTANCE SHALL BE MAINTAINED. THE INITIAL BACKFILL SHALL BE CEMENT STABILIZED SAND (TWO OR MORE BAGS OF CEMENT PER CUBIC YARD OF SAND) FOR ALL SECTIONS OF SEWER WITHIN NINE FEET OF THE WATERLINE. THIS INITIAL BACKFILL SHALL BE FROM ONE QUARTER DIAMETER BELOW THE CENTERLINE OF THE PIPE TO ONE PIPE DIAMETER (BUT NOT LESS THAN 12 INCHES) ABOVE THE TOP OF THE PIPE.

(D) WHERE A SEWER CROSSES OVER A WATERLINE, ALL PORTIONS OF THE SEWER WITHIN NINE FEET OF THE WATERLINE SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC PIPE WITH A PRESSURE RATING OF AT LEAST 150 PSI USING APPROPRIATE ADAPTERS. IN LIEU OF THIS PROCEDURE THE NEW CONVEYANCE MAY BE ENCASED IN A JOINT OF 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE FEET INTERVALS WITH SPACERS OR BE FILLED TO THE SPRING LINE WITH WASHED SAND. THE ENCASEMENT PIPE SHOULD BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEAL.

SCHIERTZ COMMUNITY + SERVICE + OPPORTUNITY

OSHA TRENCH SAFETY

TECHNICAL SPECIFICATION SECTION 02260

SCALE: NTS DATE: 5/10/19
 ENGINEERING AND PUBLIC WORKS DESGN: BXC DRAWN BY: RCP SHEET NO.: 1

OSHA TRENCH SAFETY

1. TRENCH EXCAVATION SHALL COMPLY WITH MINIMUM STANDARDS AS SET FORTH BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, REGULATIONS STANDARDS — 29 CFR — "EXCAVATION" — 1926 SUBPART P.

2. TRENCH SAFETY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SHOP DRAWINGS FOR DETAIL PLANS AND SPECIFICATIONS TO PROVIDE ADEQUATE SHORING AND SHEETING STANDARDS THAT MEET THE OSHA STANDARDS AS SET OUT BY STANDARDS — 29 CFR — "EXCAVATION" — 1926 SUBPART P FOR TRENCH SAFETY.

3. CONTINUOUS INSPECTION OF ALL TRENCH EXCAVATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR JOB SUPERINTENDENT. THE CONTRACTOR CONTROLS THE SIZE, WEIGHT, AND SPEED OF OPERATION OF EQUIPMENT AND PIPE INSTALLATION, WHICH DIRECTLY AFFECTS ALL SAFETY MEASURES IN A TRENCH. IF PROBABLE CAUSE OF UNSAFE TRENCH CONDITIONS EXIST, ALL WORK SHALL CEASE IMMEDIATELY UNTIL NECESSARY PRECAUTIONS TO SAFEGUARD EMPLOYEES ARE TAKEN.

SCHIERTZ COMMUNITY + SERVICE + OPPORTUNITY

OSHA TRENCH SAFETY

TECHNICAL SPECIFICATION SECTION 02260

SCALE: NTS DATE: 5/10/19
 ENGINEERING AND PUBLIC WORKS DESGN: BXC DRAWN BY: RCP SHEET NO.: 1



IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS

DETAILS 2 OF 3

NO.	REVISIONS	APPD.	DATE

SCALE: DATE: 30 January, 2023
 PROJECT NO: 08032-03
 DESIGNED BY: PND
 DRAWN BY: PND
 CHECKED BY: DK
 SHEET NO. LS-13
 OF 36 SHEETS

GENERAL NOTES

GENERAL

Contractor shall carefully review the Structural series drawings and compare them with the Specifications (including any Addenda) as well as the Civil, Mechanical, Electrical and Plumbing series drawings. Before construction, all Civil drawing dimensions and proposed equipment shall be compared with the Structural drawings for compatibility.

Any differences shall be promptly referred to the Civil Engineer for instruction. In the event of a discrepancy between the Structural drawings and specifications, (unless directed otherwise) Contractor shall bid on the item of greater quantity and/or more expensive quality.

Foundation designs are based upon the geotechnical engineering recommendations provided by Arias Geoprosessionals for this project in their geotechnical engineering report (No. 2020-667) dated March 8, 2021.

CODE REQUIREMENTS FOR CONSTRUCTION

Building Code: 2015 International Building Code (IBC).

Concrete: Building Code Requirements for Reinforced Concrete, ACI 318-05 and Code Requirements for Environmental Concrete Structures, ACI 350-06.

Structural Steel: Manual of Steel Construction, American Institute of Steel Construction, Ninth Edition.

Design Loads: Minimum Design Loads for Buildings and Other Structures, ASCE 7-10.

DESIGN LOADS

1. Live Loads

- A. Wet Well Concrete Cap 150 psf
- 2. Equivalent Lateral Fluid Pressure on Wet Well Walls 150 pcf (Unfactored)

WET WELL EXCAVATION AND BACKFILL

1. Construction areas (5'-0" min. beyond the Wet Well and Valve Vault perimeter) shall be stripped of all vegetation, organics and deleterious material, including debris to expose the subgrade.

2. Wet well excavation shall comply with OSHA Standard 29CFR, Part 1926, Subpart F and all State of Texas and local requirements. According to OSHA, "Sloping or benching for excavations greater than 20 ft. deep" shall be designed by a professional engineer registered to practice in the State of Texas.

Excavation may be sloped or shored at Contractor's discretion provided that methods comply with OSHA, state and local requirements.

3. During construction, excavation dewatering measures shall be implemented to prevent ponding of water on the subgrade. Subgrade and building pads shall not be allowed to dry out. Foundation backfill shall proceed as soon as possible (24 hours max.) after approval of the subgrade preparation. If the bearing soils are softened by water intrusion or by desiccation, the unsuitable material must be removed from the foundation excavation and replaced as required.

4. It is anticipated that heavy duty excavation equipment will be required due to the shallow and deep layer of Marl (rock) encountered at this location. See Boring #1 in Arias's report.

Any debris in the bottom of the excavation shall be removed.

Once final subgrade elevations have been achieved, coordinate with the appropriate Arias personnel for their observation and direction for any required subgrade improvements (e.g. removal of soft material and replacement with compacted select fill).

5. Once approved, construct a 2500 psi (min. 28 day compressive strength) 6" thick unreinforced concrete working slab on top of the subgrade within 24 hours max. of subgrade approval.

6. Construct foundation mat and precast concrete wet well.

7. Backfill around the wet well walls in a uniform, balanced manner with an "Excavatable Flowable Fill" material meeting the requirements of the Texas Department of Transportation Item 401: Flowable Fill (80 psi to 200 psi max.) up to within 1 ft. of bottom of valve vault.

8. The valve vault bearing pad and remaining backfill shall be constructed with a crushed limestone material (select fill) meeting the requirements of the Texas Department of Transportation (TxDOT) 2014 Standard Specification Item 241, Type A, Grades 1 or 2

9. Install select fill in 8 inch maximum thickness loose lifts and compact to 98% minimum of ASTM D 698 Standard Proctor maximum dry density at a moisture content between -1% and +3% of optimum.

CONCRETE AND REINFORCING STEEL

1. All concrete shall be normal weight concrete made with natural aggregates. Do not add air-entraining admixtures without receiving prior approval from the Engineer.

2. Concrete shall have a minimum compressive strength of 4000 psi at 28 days and shall not contain less than 5 1/2 sacks of cement per cubic yard of concrete with a maximum water/cement ratio of 0.49.

3. Construction joints in concrete pours shall be permitted only where indicated on the drawings. The location of construction joints shall be as approved by the Structural Engineer. Additional reinforcing at construction joints shall be as specified by the Engineer without additional cost to the Owner.

4. No conduit or piping shall be run within the concrete slab thickness specified. Provide additional excavation (and slab thickness) as required to maintain the minimum 6" slab thickness along with a minimum of 1' clearance/cover from/between reinforcing steel.

5. Reinforcing steel shall be deformed new billet steel bars in accordance with ASTM Specification A615 Grade 60. Welded wire fabric shall conform to ASTM 185 requirements.

6. Detailing of reinforcing steel shall conform to the American Concrete Institute Detailing Manual.

7. Provide 2-#6 x 4'-0" 'L' shaped bars top and bottom at all corners and 'T' intersections of beams.

8. All hooks and bends in reinforcing bars shall conform to ACI Standards unless shown otherwise.

9. Lap continuous unscheduled reinforcing bars 48 bar diameters unless noted otherwise.

10. Tack welding on reinforcing steel will not be permitted.

11. Heat shall not be used in the fabrication or installation of reinforcement.

12. Reinforcing steel coverage shall be as follows:

- a) Wet Well Foundation Mat - 3' bottom, 2' top, 3' sides
- b) Cap Slab - 2' top and bottom, 3' sides

13. Concrete must reach the following percentages of 28 day compressive strength (F_c) before forms may be removed:

mat and slab sides	40%
bottom of cap slab	85%

COORDINATION

1. Only certain of the required openings in the wet well structure are indicated on the structural series drawings. All sleeves, inserts, openings, frames, etc., required for incorporation of the Work of the Contract, including Mechanical, Electrical and Plumbing shall be provided. The provision for sleeves or framed openings shall include the verification and coordination of their sizes, alignment, dimensions, position, locations, elevations and grades. Openings not indicated on the structural series drawings, but required as above, shall be specifically noted on shop drawings for review by the Engineer.

2. Refer to Civil, Mechanical, Electrical and Plumbing series drawings for floor elevations, slopes, drains and location of depressed and elevated floor areas.

3. Structural series drawings shall be compared with drawings of other series. Differences shall be referred to the Civil Engineer for instruction.

4. Compatibility of structural framing with proposed equipment, including location, loading and sizes, shall be verified prior to submission of shop drawings. Any conflicts or differences shall be referred to the Civil Engineer for review and approval or notation.

5. Shop drawings shall be prepared for all structural items and submitted for review by the Engineer. Engineering contract drawings shall not be reproduced and used as shop drawings. Any items deviating from the contract drawings or from previous shop drawings submitted shall be so noted. Written notice shall be provided for each deviation from the contract documents and from previous submittals.

6. The details designated as 'Typical Details' apply generally to the drawings in all areas where conditions are similar to those described in the details.

7. The design and provision of all temporary supports such as gys, braces, falsework, cribbing, masonry wall bracing, formwork, wall bracing, supports and anchors for safety lines or any other temporary elements required for the execution of the Contract are not included in these drawings and shall be the responsibility of the Contractor.

SPECIAL INSPECTIONS

GENERAL

1. In addition to the regular inspections required by Section 110 of the 2012 International Building Code (IBC), Special Inspections are required in accordance with Sections 1704, 1705 and 1706 of the 2012 IBC. Structural Observations as noted in Sections 1704.5.1 and 1704.5.2 will not be required.

2. Special Inspections as noted in Sections 1705.10 (Wind Resistance), 1705.11 (Seismic Resistance), and 1705.12 (Seismic Resistance) are not required.

3. See Specification Section 01450, 'Special Inspections and Quality Control', for a more detailed description of special inspection and quality control requirements.

4. Contractor shall communicate and coordinate work schedule with the Special Inspector. Contractor shall generally notify the Special Inspector of upcoming inspection items 7 days prior to the work being executed.

EXCAVATION, FILLING AND BACKFILLING

1. A qualified representative of the geotechnical engineer, Arias Geoprosessionals, shall provide periodic inspections of excavation operations.

2. Arias Geoprosessional's representative must be engaged to carefully monitor all filling and backfilling operations, including placement and compaction of each lift as noted on this sheet and Specification Section 01450.

STRUCTURAL CONCRETE

1. Inspect all reinforcing steel before placement of concrete and provide concrete inspection and testing in accordance with Specification Section 01450.

2. Provide periodic inspections of concrete formwork as required to confirm compliance with Specification Section 03100, 'Concrete Formwork'.



C. Victor Winter III
04/10/2021

WINTER ENGINEERING
FIRM NO. F-1865

1100 LAKEWAY DRIVE, SUITE #220
AUSTIN, TEXAS 78734
(512) 261-4400

IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS

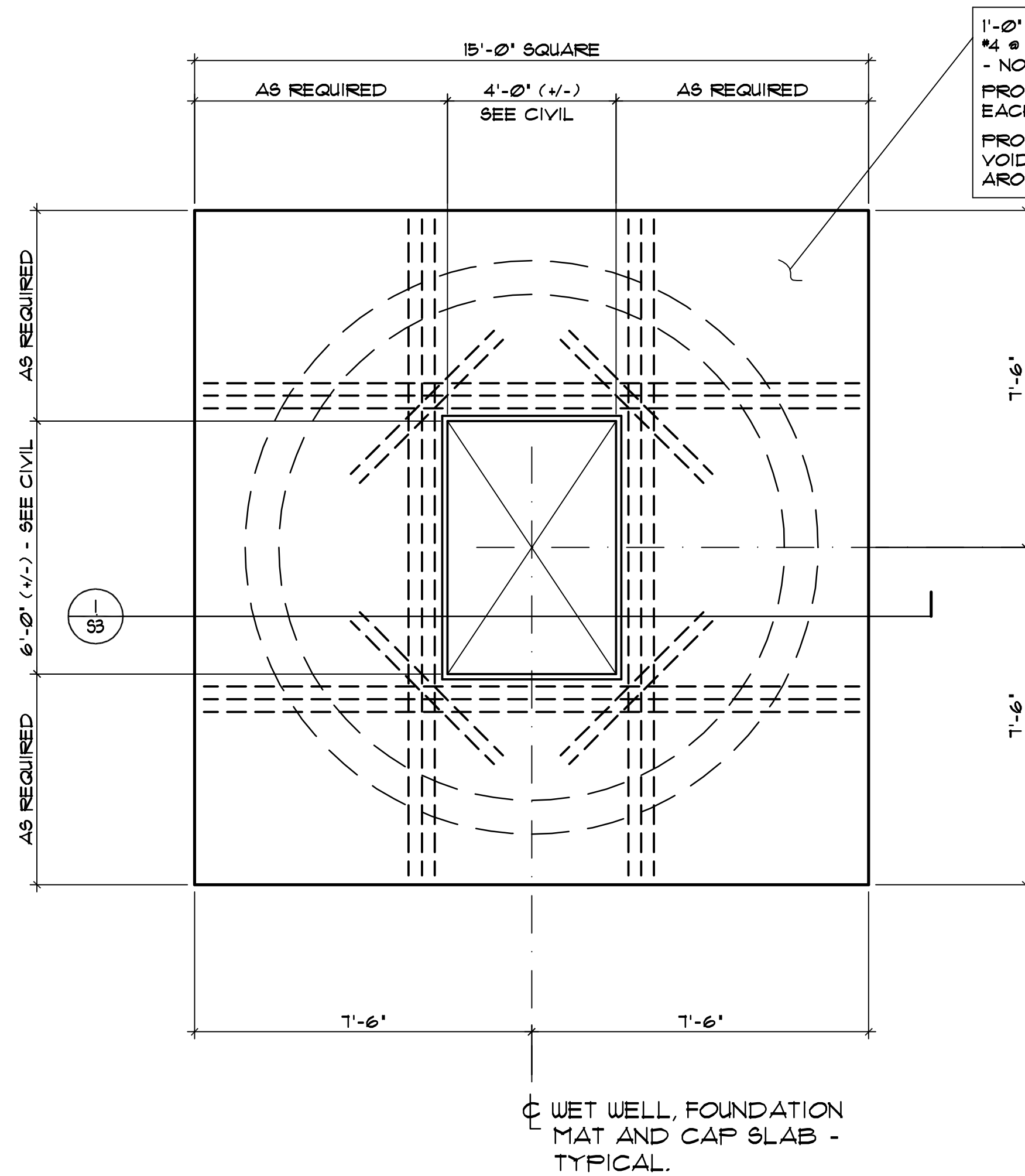
WET WELL STRUCTURAL NOTES

NO.	REVISIONS	APPD.	DATE

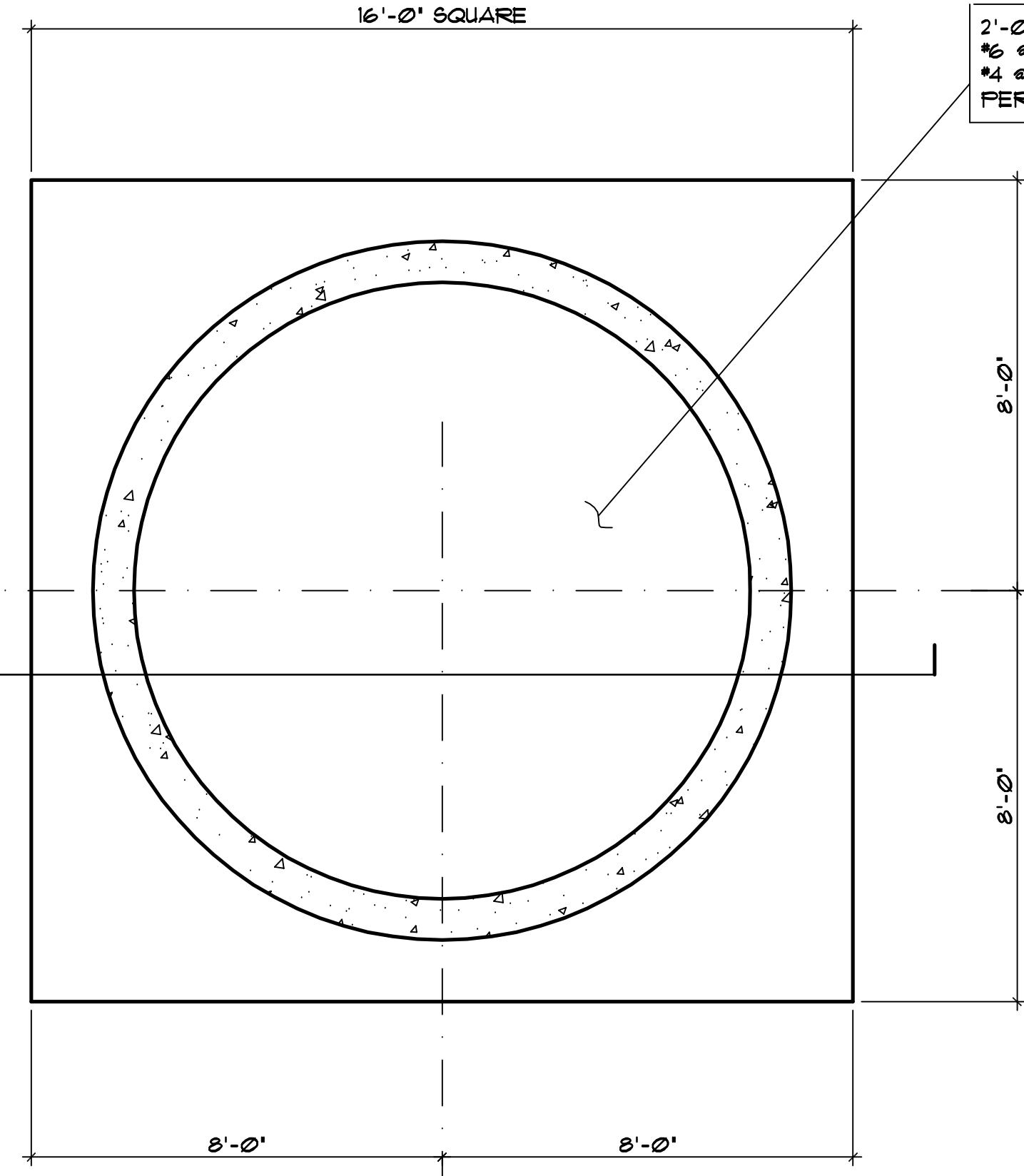
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DATE: 04/01/21
PROJECT NO: 002107
DESIGNED BY: VW
DRAWN BY: VW
CHECKED BY: VW
SHEET NO.
S-1
OF SHEETS



280 Central Expressway, Suite 100, Dallas, TX 75201
Texas Engineering Firm E-88712



1'-0" THICK (MIN.) CAP SLAB REINF. W/
 #4 @ 12" O.C. EACH WAY TOP AND BOTTOM
 - NO REBAR SPLICES PERMITTED.
 PROVIDE 3 ADD'L. #5 TOP AND BOTTOM ON
 EACH SIDE OF ACCESS OPENING AS SHOWN.
 PROVIDE A 6" MIN. DEEP (CARTON FORMED)
 VOID SPACE BELOW BOTTOM OF CAP SLAB
 AROUND PERIMETER OF WET WELL.



2'-0" THICK (MIN.) FOUNDATION MAT REINF. W/
 #6 @ 12" O.C. EACH WAY TOP (10" CLEARANCE)
 #4 @ 12" O.C. EACH WAY BOTTOM (NO SPLICES
 PERMITTED) OVER 6" THICK WORKING SLAB.

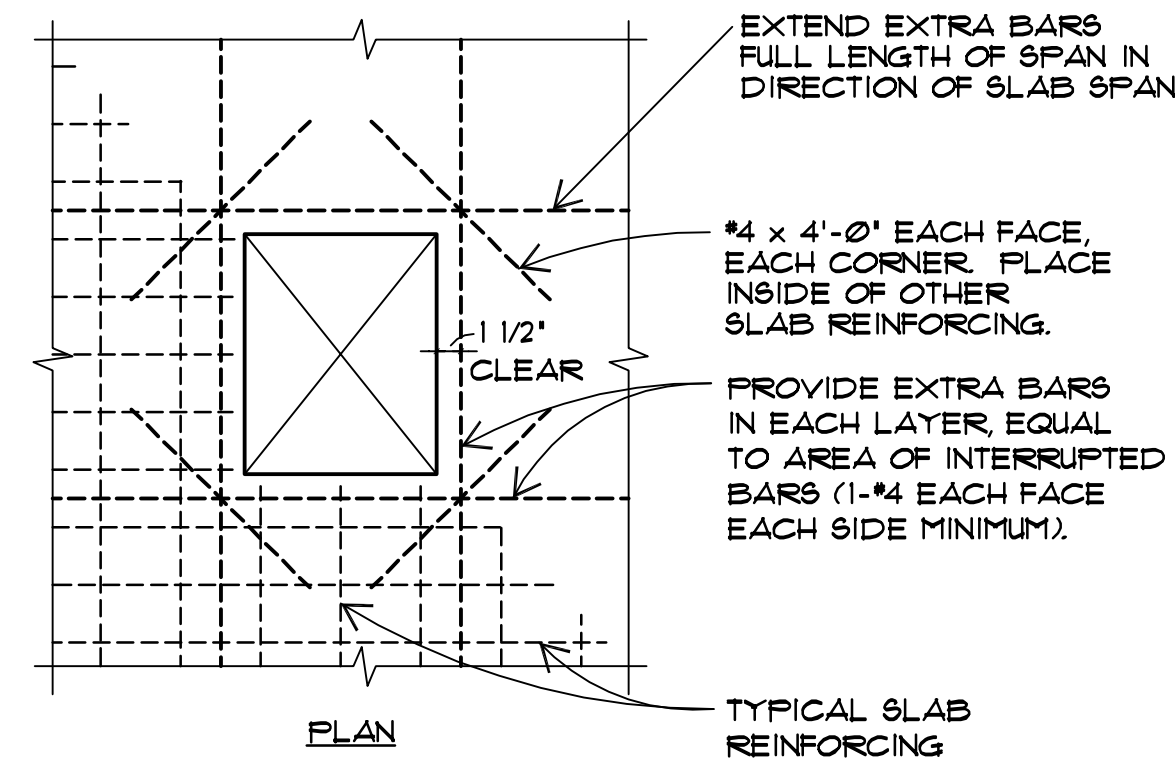
WET WELL, FOUNDATION
 MAT AND CAP SLAB -
 TYPICAL.

OPTION B

WET WELL
 CAP SLAB PLAN

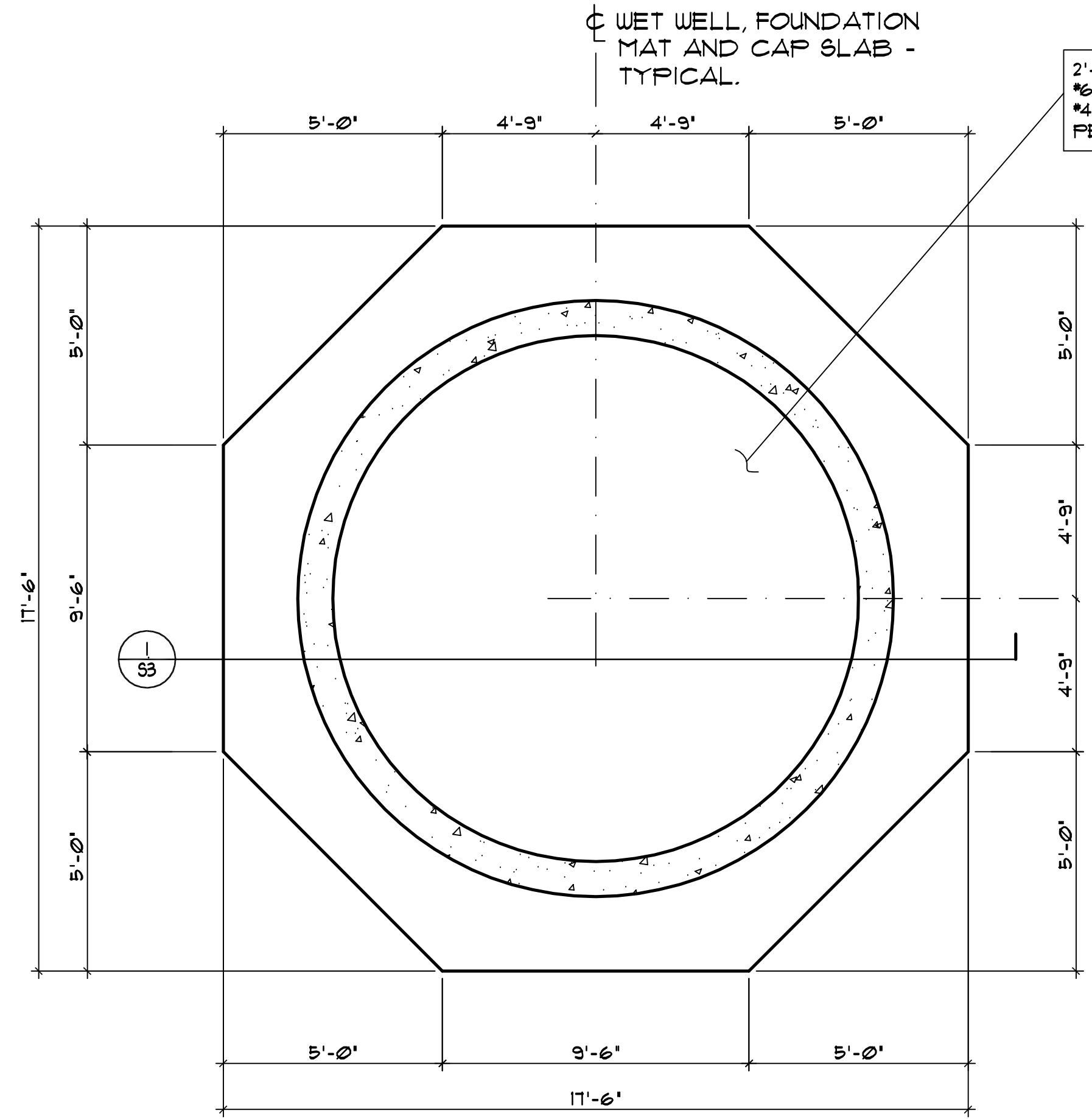


SCALE: 3/8" = 1'-0"



NOTE:
 EXTRA BARS MAY BE OMITTED
 WHERE SIDES OF OPENING ARE
 FRAMED BY BEAMS.

1 TYPICAL REINFORCEMENT AT
 CONCRETE CAP SLAB OPENING DETAIL
 NO SCALE



2'-0" THICK (MIN.) FOUNDATION MAT REINF. W/
 #6 @ 12" O.C. EACH WAY TOP (10" CLEARANCE)
 #4 @ 12" O.C. EACH WAY BOTTOM (NO SPLICES
 PERMITTED) OVER 6" THICK WORKING SLAB.

WET WELL, FOUNDATION
 MAT AND CAP SLAB -
 TYPICAL.

OPTION A

WET WELL FOUNDATION MAT PLAN (S)

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



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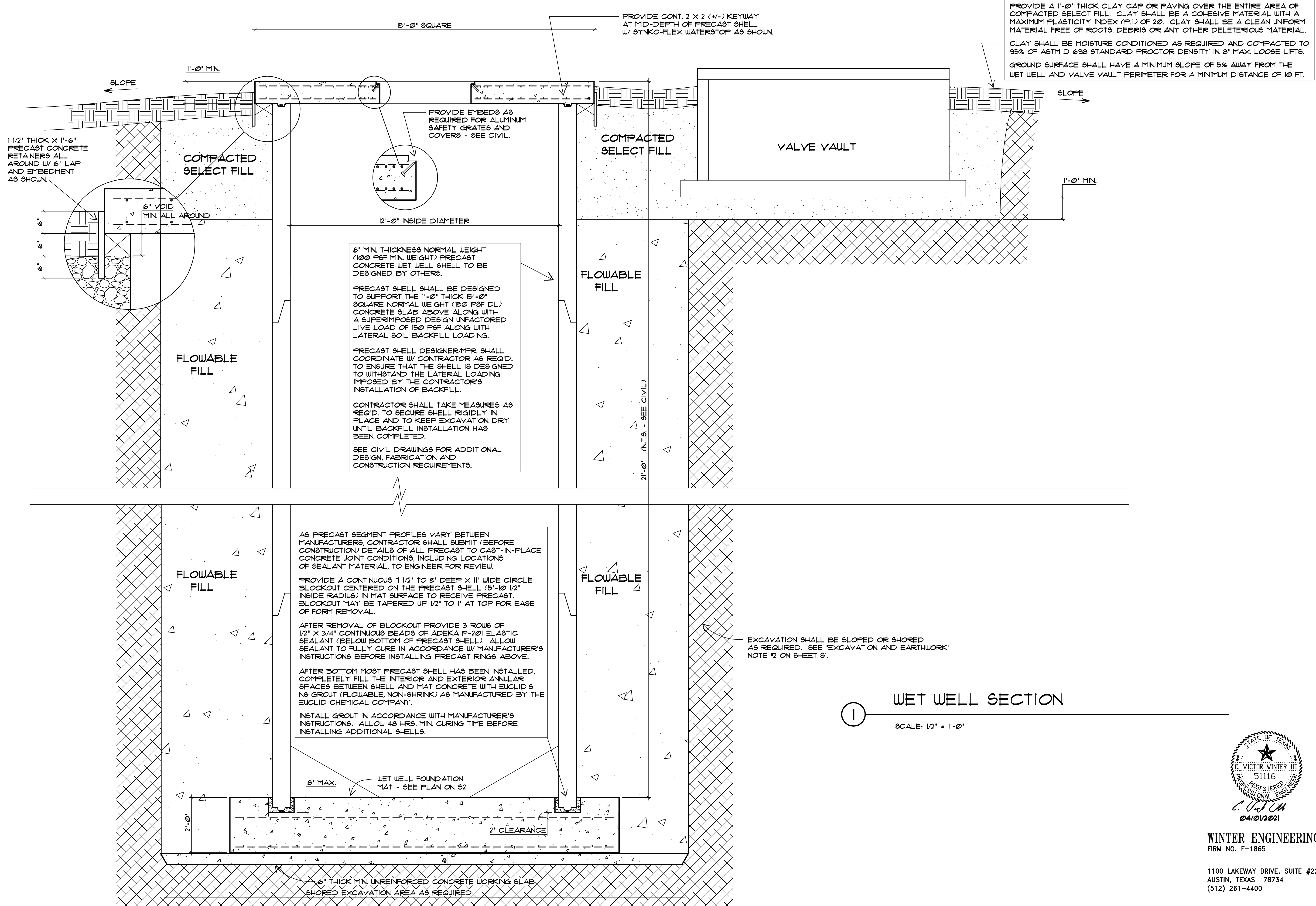
NO.	REVISIONS	DATE

SCALE: 1/4" = 1'-0"
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 PROJECT NO: 002107

DESIGNED BY: VW
 DRAWN BY: VW
 CHECKED BY: VW

SHEET NO.
S-2
 OF SHEETS

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1 WET WELL SECTION
SCALE: 1/2" = 1'-0"



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PLAN LEGEND

ONE-LINE AND CONTROL SCHEMATIC LEGEND

ABBREVIATIONS

	EQUIPMENT CONNECTION
	JUNCTION OR CONNECTION BOX
	STARTER OR LIGHTING CONTACTOR
	DISCONNECT
	MANHOLE
	HANDHOLE
	KEYED NOTE. NUMBER MATCHES NOTE NUMBER
	TOGGLE SWITCH, WALL MOUNTED, SINGLE POLE SINGLE THROW. MOUNTED 54" AFF UNLESS OTHERWISE NOTED
	TOGGLE SWITCH, WALL MOUNTED, FOUR WAY. MOUNTED 54" AFF UNLESS OTHERWISE NOTED
	SWITCH MOTOR RATED WITH TERMINAL OVERLOADS
	OCCUPANCY SENSOR
	TERMINAL BOARD
	TELEPHONE OUTLET, PRIVATE. MOUNTED 12" AFF
	DATA OUTLET, SURFACE MOUNTED
	MOTOR LOAD, NUMBER INDICATES HORSEPOWER
	POLE
	TRANSFORMER, DRY TYPE, KVA RATING MAY BE DISPLAYED NEXT TO SYMBOL
	ANTENNA
	HOMERUN. LETTERS INDICATE PANELBOARD, NUMBERS INDICATE CIRCUIT NUMBER IN PANELBOARD
	CONDUIT CAPPED FOR FUTURE USE
	CONDUIT GOING DOWN
	CONDUIT GOING UP
	CONDUIT ABOVE GROUND
	CONDUIT RUN UNDERGROUND OR CONCEALED
	CONDUIT BELOW GRADE
	LIQUID TIGHT FLEXIBLE CONDUIT
	SURFACE MOUNT
	120V RECEPTACLE FLUSH MOUNTED
	120V RECEPTACLE SURFACE MOUNTED
	120V QUAD RECEPTACLE FLUSH MOUNTED
	120V QUAD RECEPTACLE SURFACE MOUNTED
	208V RECEPTACLE FLUSH MOUNTED
	208V RECEPTACLE SURFACE MOUNTED
	WELDING OUTLET
	THERMOSTAT
	PANELBOARD FLUSH MOUNTED
	PANELBOARD SURFACE MOUNTED
	NORTH ARROW
	TORQUE SWITCH
	SOLENOID SWITCH
	LIMIT SWITCH
	AMMETER SWITCH
	VOLTMETER SWITCH
	PRESSURE SWITCH
	LIGHTING CONTACTOR
	PHOTO CELL

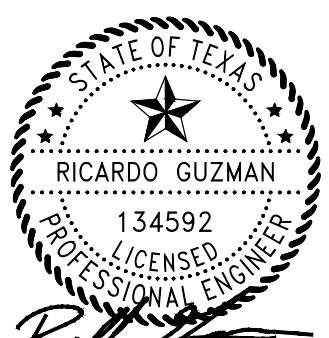
	GROUND CONNECTION
	NORMALLY OPEN RELAY OR CONTACTOR CONTACTS
	NORMALLY CLOSED RELAY OR CONTACTOR CONTACTS
	CONDUCTOR CONNECTION
	CIRCUIT BREAKER, MOLDED CASE, TRIP CURRENT AND QUANTITY OF POLES (P) SHOWN NEXT TO SYMBOL
	DISCONNECT SWITCH NON-FUSED, LOAD BREAK. CONTINUOUS CURRENT RATING, QUANTITY OF POLES (P) SHOWN NEXT TO SYMBOL
	DISCONNECT SWITCH FUSED, LOAD BREAK. CONTINUOUS CURRENT RATING, QUANTITY OF POLES (P), AND FUSE RATING SHOWN NEXT TO SYMBOL
	FUSE. RATING SHOWN NEXT TO SYMBOL
	MOTOR STARTER THERMAL OVERLOAD PROTECTOR
	CONTACTOR OR RELAY COIL. LETTERS AND NUMBERS MATCH CONTACTS CONTROLLED
	LIMIT SWITCH NORMALLY CLOSED
	LIMIT SWITCH NORMALLY OPEN
	MOTOR OPERATED VALVE GEARED LIMIT SWITCH
	PRESSURE SWITCH NORMALLY CLOSED OPEN ON INCREASING PRESSURE
	PRESSURE SWITCH NORMALLY OPEN CLOSING ON INCREASING PRESSURE
	LEVEL SWITCH NORMALLY CLOSED OPEN ON INCREASING LEVEL
	LEVEL SWITCH NORMALLY OPEN CLOSING ON INCREASING LEVEL
	FLOW SWITCH NORMALLY CLOSED OPENS WITH FLOW
	FLOW SWITCH NORMALLY OPEN CLOSING ON LOSS OF FLOW
	SPACE HEATER
	PHASE FAILURE RELAY
	MAINTAINED CONTACT START/STOP PUSHBUTTON
	MAINTAINED CONTACT HAND-OFF-AUTO SELECTOR SWITCH
	NORMALLY CLOSED MOMENTARY CONTACT PUSHBUTTON
	NORMALLY OPEN MOMENTARY CONTACT PUSHBUTTON
	WYE TRANSFORMER CONNECTION
	DELTA TRANSFORMER CONNECTION
	CURRENT TRANSFORMER WITH RATIO SHOWN
	ANALYTICAL TRANSMITTER
	FLOW OR FLOAT SWITCH
	LEVEL TRANSMITTER
	MOTOR OPERATED VALVE
	PRESSURE TRANSMITTER
	SOLENOID VALVE
	ELAPSED TIME METER
	TIME DELAY RELAY. TIMES OUT AFTER ENERGIZATION. ADJUSTABLE TIME DELAY TIME INDICATED NEXT TO SYMBOL
	TIME DELAY RELAY. TIMES OUT AFTER DE-ENERGIZATION. ADJUSTABLE TIME DELAY TIME INDICATED NEXT TO SYMBOL
	CONDUIT TAG
	TELEVISION CAMERA
	TORQUE SWITCH
	PILOT LIGHT R=RED, B=BLUE, G=GREEN, A=AMBER, Y=YELLOW
	CONTROL POWER TRANSFORMER. PRIMARY AND SECONDARY VOLTAGE INDICATED
	TERMINAL BLOCK

	INSTRUMENT TRANSFORMER PT=POTENTIAL TRANSFORMER
	PT=POWER TRANSFORMER. VOLTAGE AND KVA RATING AS SHOWN
	LIGHTING ARRESTOR
	SURGE CAPACITOR
	AMMETER
	VOLTMETER
	AMMETER SWITCH
	VOLTMETER SWITCH
	MOTOR STARTER
	FVNR=FULL VOLTAGE NON-REVERSING
	VFD=VARIABLE FREQUENCY DRIVE
	RVSS=REDUCED VOLTAGE SOFT START
	RVNR=REDUCED VOLTAGE NON-REVERSING
	FVR=FULL VOLTAGE REVERSING
	MCP=MOTOR CIRCUIT PROTECTOR
	SIZE=NEMA STARTER SIZE
	CONNECTION TO EXISTING
GROUNDING LEGEND	
	A = GROUNDING RECEPTACLE, B = GROUND TEST WELL
	BARE COPPER GROUNDING CONDUCTOR
	GROUNDING CONNECTION
	COPPER CLAD GROUND ROD
LIGHTING FIXTURE LEGEND	
	LETTER IN OR BESIDE FIXTURE IDENTIFIES FIXTURE IN FIXTURE SCHEDULE
	LED STRIP LIGHT
	LED STRIP LIGHT WITH BATTERY BACKUP
	LED FIXTURE, SURFACE OR SUSPENDED, CEILING MOUNTED
	LED FIXTURE, STANCHION MOUNTED
	LED FIXTURE, WALL MOUNTED
	LED LIGHTED EXIT SIGN. ARROWS DENOTE DIRECTION OF EGRESS ON EACH SIDE OF FIXTURE. NO ARROW DENOTES NO DIRECTION OF EGRESS
	POLE MOUNTED LED LUMINAIRE. SEE SCHEDULE OR NOTES FOR TYPE. ORIENT FIXTURE FOR CUT-OFF TOWARDS AREA TO BE LIT. ORIENT HOUSE SHIELD TOWARDS BUILDING. SEE DETAILS FOR POLE BASE. PROVIDE POLE BASE GROUND ROD.
	REMOTE EMERGENCY LIGHTS
	EMERGENCY LED LIGHT FIXTURE, SELF CONTAINED, BATTERY OPERATED
	PAR LAMP HOLDER. NUMBER OF TRIANGLES INDICATE NUMBER OF FIXTURES
	POLE MOUNTED FLOOR LIGHT. NUMBER OF TRIANGLES INDICATE NUMBER OF FIXTURES. ARROW DENOTES FOLDING POLE AND DIRECTION POLE FOLDS DOWN.
LEGEND & GENERAL NOTES:	
1.	BRANCH CIRCUIT NUMBERS MAY BE SHOWN NEXT TO SYMBOLS IN MULTIWIRED CIRCUITS.
2.	SYMBOL SIZE DOES NOT IMPLY EQUIPMENT SIZE UNLESS OTHERWISE NOTED.
3.	LOWER CASE LETTERS NEXT TO SYMBOLS INDICATE FIXTURE(S) CONTROLLED BY THE SWITCH DISPLAYING THE SAME LETTER.
4.	THIS IS A STANDARD LEGEND LIST. ALL SYMBOLS MAY NOT BE USED.
5.	INSTALLATION SHALL BE PER LATEST VERSION OF NATIONAL ELECTRICAL CODE, CITY OF SCHERTZ REQUIREMENTS, AND ALL APPLICABLE LOCAL CODES/ORDINANCES. NOT ALL CODE AND STANDARD REQUIREMENTS MAY BE SHOWN ON PLANS. CONTRACTOR SHALL ADHERE TO CODES AND STANDARDS REGARDLESS OF BEING SHOWN ON PLANS OR SPECIFICATIONS IN DETAILED FASHION.
6.	REFER TO SPECIFICATIONS AND ENTIRE DRAWING PACKAGE PRIOR TO BID FOR FULL PROJECT REQUIREMENTS.

A	AMPERES OR TRIP AMPERES	N.C.	NORMALLY CLOSED
AC	ALTERNATING CURRENT	NEC	NATIONAL ELECTRICAL CODE
A/C	AIR CONDITIONING	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
AFF	ABOVE FINISHED FLOOR	NEUT	NEUTRAL
AFG	ABOVE FINISHED GRADE	N.O.	NORMALLY OPEN
AIC	ASYMMETRICAL AMPERES INTERRUPTING CAPACITY	NTS	NOT TO SCALE
		OC	ON CENTER
		OH	OVERHEAD
		P	POLE
		PC	PHOTOCELL
		PNL	PANEL
AWG	AMERICAN WIRE GAUGE	PRI	PRIMARY
BLDG	BUILDING	PVC	POLYVINYL CHLORIDE
BKR	BREAKER	REQ'D	REQUIRED
C	CONDUIT	RS	RUN/STOP
CAP	CAPACITOR	RTD	RESISTANCE TEMPERATURE DETECTOR
CKT	CIRCUIT	SCH	SCHEDULE
CONT'D	CONTINUED	SEC	SECONDARY
CPT	CONTROL POWER TRANSFORMER	S/N	SOLID NEUTRAL
		SPACE	SPACE(S) ONLY-NO BREAKER OR DEVICE
CT	CURRENT TRANSFORMER	SPARE	SPARE BREAKER OR DEVICE
CU	COPPER	SPECS	SPECIFICATIONS
DBL	DOUBLE	S.D. BARE	SOFT DRAWN BARE
DISC SW	DISCONNECT SWITCH	SS HDWE	STAINLESS STEEL
DC	DIRECT CURRENT		HARDWARE
EMER	EMERGENCY		SWBD SWITCHBOARD
EMT	ELECTRICAL METALLIC TUBING		SWGR SWITCHGEAR
			TB TERMINAL BLOCK
ENCL	ENCLOSURE		TYP TYPICAL
EP	EXPLOSION PROOF		UL UNERWRITERS LABORATORIES
EQUIP	EQUIPMENT		V VOLTS
FM	FLOW METER	VA	VOLT AMPERES
FS	FLOAT SWITCH	W	WATTS
G	GROUND WIRE	W/O	WITHOUT
GALV	GALVANIZED	WP	WEATHERPROOF
GEN	GENERATOR	XFMR	TRANSFORMER
GFI	GROUND FAULT INTERRUPTER CIRCUIT	PHASE	PHASE
		1/C	ONE CONDUCTOR
GND	GROUND	3/C	THREE CONDUCTOR
HDG	HOT DIPPED GALVANIZED		
HPG	HIGH PRESSURE GAUGE		
HPS	HIGH PRESSURE SODIUM		
HT	HEIGHT		
HZ	HERTZ		
INST	INSTRUMENT		
KV	KILOVOLTS		
KVA	KILOVOLT AMPERES		
KWH	KILOWATT HOURS		
LA	LIGHTNING ARRESTOR		
L-L	LINE TO LINE		
L-N	LINE TO NEUTRAL		
MCC	MOTOR CONTROL CENTER		
MFR	MANUFACTURER		
MIN	MINIMUM		
MTD	MOUNTED		
MTG	MOUNTING		
MRCT	MULTI-RATIO CURRENT TRANSFORMER		
MV	MERCURY VAPOR		

UTILITY ENGINEERING GROUP, PLLC

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RICARDO GUZMAN
134592
LICENSED PROFESSIONAL ENGINEER
JANUARY 26, 2023

IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS

ELECTRICAL ABBREVIATIONS, LEGENDS, AND GENERAL NOTES

NO.	REVISIONS	DATE

SCALE: N/A
DATE: 26 January, 2023
PROJECT NO:
DESIGNED BY: CS
DRAWN BY: JAA
CHECKED BY: RG
SHEET NO. 1
OF 13 SHEETS

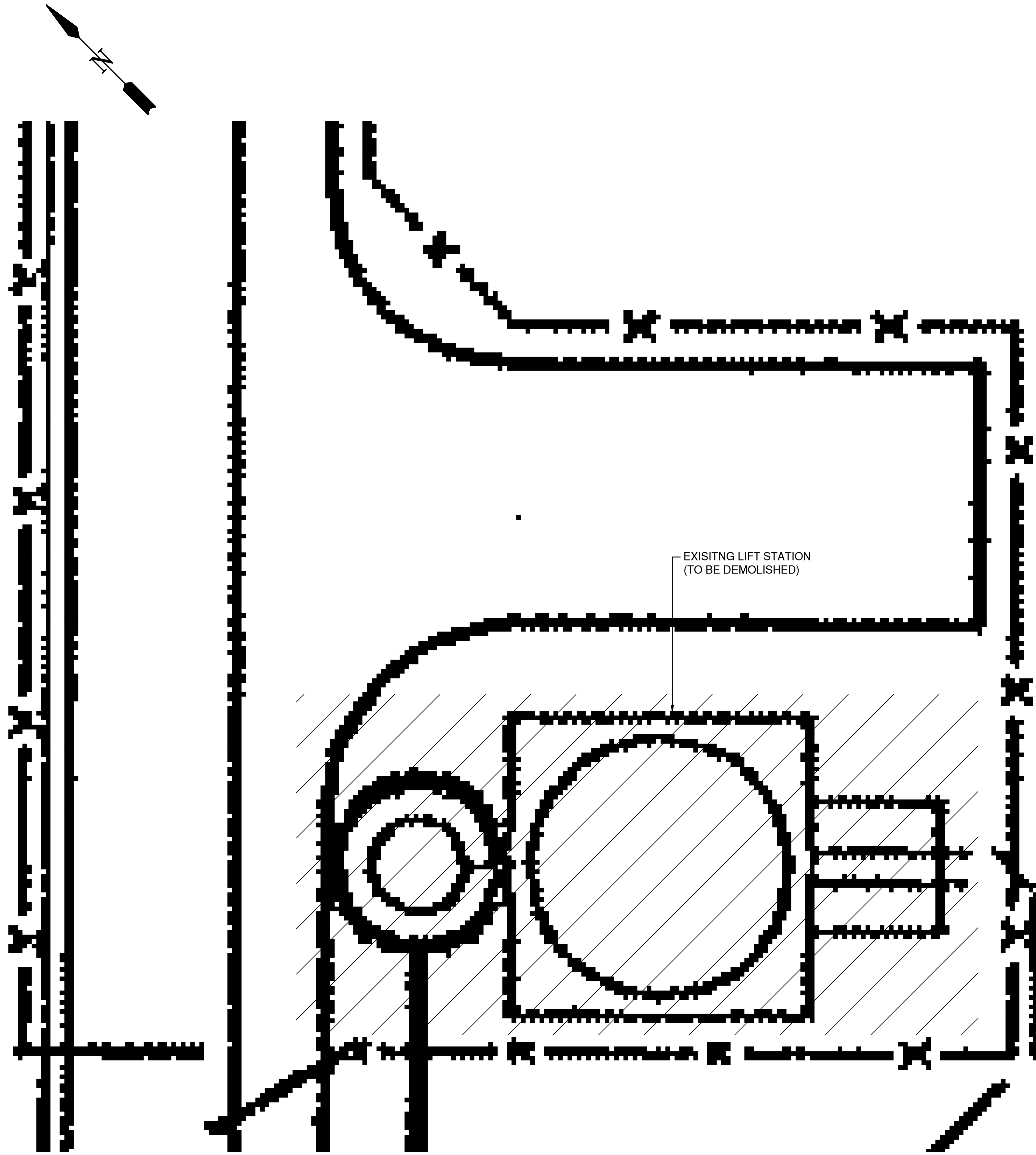


CLEARY ZIMMERMANN
ENGINEERS
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VICINITY MAP

PROJECT COORDINATES
29.622961, -98.243779
SCHERTZ, TX 78132

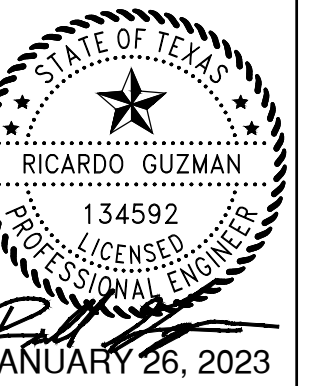


ELECTRICAL SITE PLAN - DEMOLITION
SCALE: N.T.S.

DEMOLITION NOTES:

1. FIELD VERIFY ALL UNDERGROUND UTILITIES, PIPING, CONDUITS, AND OBSTRUCTIONS PRIOR TO EXCAVATING. REPAIR ANY DAMAGE OF EXISTING OBSTRUCTION TO ORIGINAL CONDITION.
2. REMOVE ALL ABANDONED CONDUITS. CUT OFF BELOW TOP OF SLAB. PLUG CONDUITS AND REPAIR SLAB TO ORIGINAL FINISH UNLESS NOTED OTHERWISE ON PLANS.
3. REFER TO CIVIL AND/OR STRUCTURAL PLANS FOR ADDITIONAL MODIFICATIONS.
4. LOCATE ALL UNDERGROUND CONDUITS, PIPING, AND OTHER STRUCTURES BEFORE STARTING WORK.
5. COORDINATE WITH LOCAL UTILITY FOR REMOVAL OF ELECTRIC SERVICE.
6. NO RECORD DRAWINGS OR SURVEY EXISTS FOR EXISTING FACILITY. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BID AND DEMOLITION. SITE IS LOCATED IN DIFFERENT LOCATION THAN PROPOSED SITE. ENTIRE SITE SHALL BE DECOMMISSIONING PER TCEQ REQUIREMENTS.

UTILITY
ENGINEERING
GROUP, PLLC



IH-35 RIATA LIFT STATION RELOCATION AND
OFFSITE SEWER IMPROVEMENTS

ELECTRICAL SITE PLAN - DEMOLITION

NO.	REVISIONS	APPD.	DATE

SCALE: N/A
DATE: 26 January, 2023
PROJECT NO:
DESIGNED BY: CS
DRAWN BY: JAA
CHECKED BY: RG
SHEET NO.

2

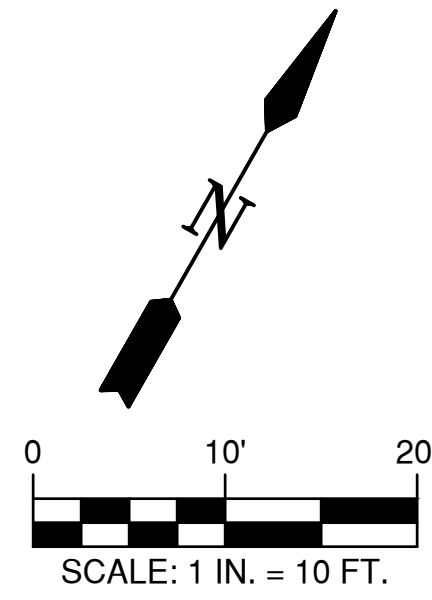
OF 13 SHEETS





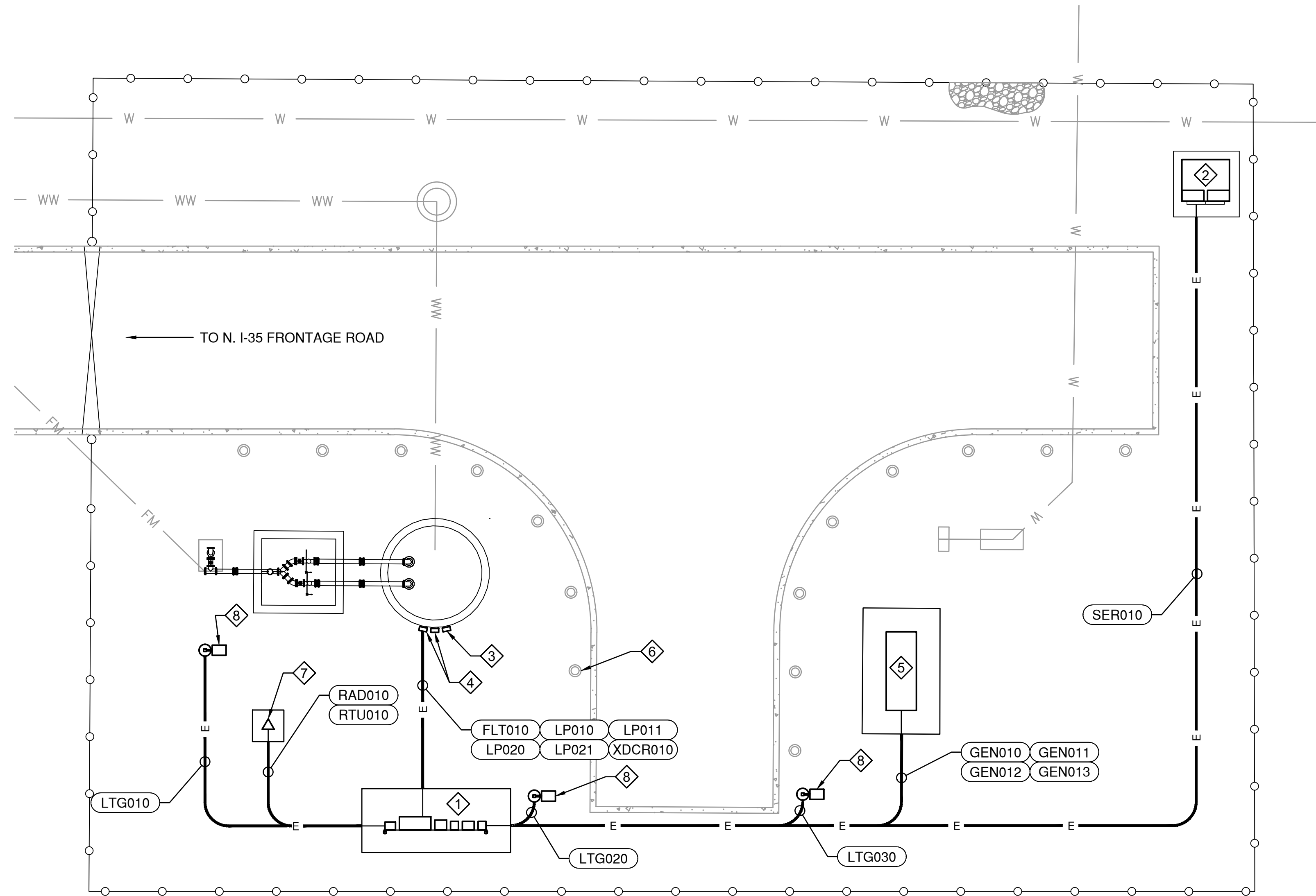
VICINITY MAP

PROJECT COORDINATES	
29.622980, -98.243806	SCHERTZ, TX 78132



NOTES:

- REFER TO CONDUIT SCHEDULE FOR FULL CONDUIT AND CABLE REQUIREMENTS.
- COORDINATE ELECTRICAL SERVICE WITH LOCAL POWER COMPANY. ALL COORDINATION IS WITHIN SCOPE OF THIS CONTRACT AT NO ADDITIONAL COST TO OWNER. PROVIDE ADEQUATE SIZED TRANSFORMERS PER POWER COMPANY STANDARDS.
- CONDUITS SHALL NOT BE INSTALLED UNDERNEATH CONCRETE STRUCTURES, MEANS OF EGRESS, OR WALKWAYS. ROUTE AROUND EQUIPMENT AND AVOID CONFLICT WITH OTHER UNDERGROUND EQUIPMENT.
- EQUIPMENT SHALL NOT BE INSTALLED WITHIN ELECTRICAL EASEMENTS. WHERE EASEMENT CONFLICT EXISTS, CONTACT ENGINEER PRIOR TO INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ANY AND ALL EASEMENTS.
- DO NOT INSTALL CONCRETE FOR EQUIPMENT OR DUCTBANK OVER WATER OR SEWER LINES. FIELD VERIFY AND MARK ALL UNDERGROUND LINES.
- EQUIPMENT SHOWN MAY NOT BE TO SCALE. REFER TO ALL PLAN SHEETS AND ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION. REFER TO CIVIL DRAWINGS FOR SITE DIMENSIONS.
- INSTALLATION SHALL BE PER LATEST VERSION OF NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE LOCAL CODES/ORDINANCES. NOT ALL CODE AND STANDARD REQUIREMENTS MAY BE SHOWN ON PLANS. CONTRACTOR SHALL ADHERE TO CODES AND STANDARDS REGARDLESS OF BEING SHOWN ON PLANS OR SPECIFICATIONS IN DETAILED FASHION.
- PROVIDE ADEQUATE WORKING SPACE FOR ALL ELECTRICAL EQUIPMENT AND GENERATOR ENCLOSURE DOORS.
- PROVIDE GROUND CONNECTION AT SERVICE, PANELS, METALLIC EQUIPMENT AT RACK, PIPING, AND ALL METALLIC PARTS WITHIN PROJECT SITE.
- CONCRETE SPOILS SHALL NOT BE DUMPED ON SITE. DO NOT OVER POUR DUCTBANKS. PROVIDE ADEQUATE FORMS PRIOR TO POUR.
- COORDINATE CONDUIT STUB-UP LOCATIONS WITH GENERATOR MANUFACTURER PRIOR TO POURING HOUSEKEEPING PAD.
- COORDINATE FINAL GENERATOR ENCLOSURE DIMENSIONS PRIOR TO POURING HOUSEKEEPING PAD. CONTRACTOR SHALL SIZE HOUSEKEEPING PAD 6 IN. LARGER ON ALL SIDES THAN ENCLOSURE. REFER TO ELECTRICAL DETAILS FOR ADDITIONAL REQUIREMENTS.
- REFER TO SPECIFICATIONS AND ENTIRE DRAWING PACKAGE PRIOR TO BID FOR FULL PROJECT REQUIREMENTS.
- ALL EQUIPMENT SHOWN IS NEW UNLESS STATED OTHERWISE.
- ALL ELECTRICAL EQUIPMENT CONCRETE FOUNDATIONS ARE TO BE INSTALLED ABOVE FINISHED GRADE. ADDITIONAL ELEVATION DUE TO FLOOD PLANE REQUIREMENTS ARE NOT SHOWN. REFER TO CIVIL SHEETS FOR FLOOD PLAIN LEVEL AND MINIMUM FOUNDATION HEIGHT REQUIREMENTS.
- INSTALL TRANSFORMER POLE AND TERMINAL POLE AS REQUIRED BY UTILITY STANDARDS AND COORDINATION.

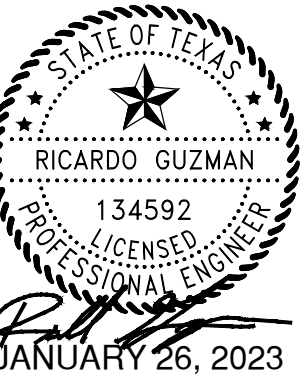


KEYED NOTES:

- 1 ELECTRICAL RACK.
- 2 PAD MOUNTED TRANSFORMER.
- 3 FLOATS/TRANSDUCER TERMINAL BOX.
- 4 LIFT PUMP TERMINAL BOX.
- 5 480/277V, 3Ø, 80KW DIESEL GENERATOR. RE: SPECIFICATIONS.
- 6 BOLLARD (TYPICAL).
- 7 RADIO TOWER.
- 8 AREA LIGHT.

ELECTRICAL SITE PLAN - PROPOSED

SCALE: 1 IN. = 10 FT.



IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS

ELECTRICAL SITE PLAN - PROPOSED

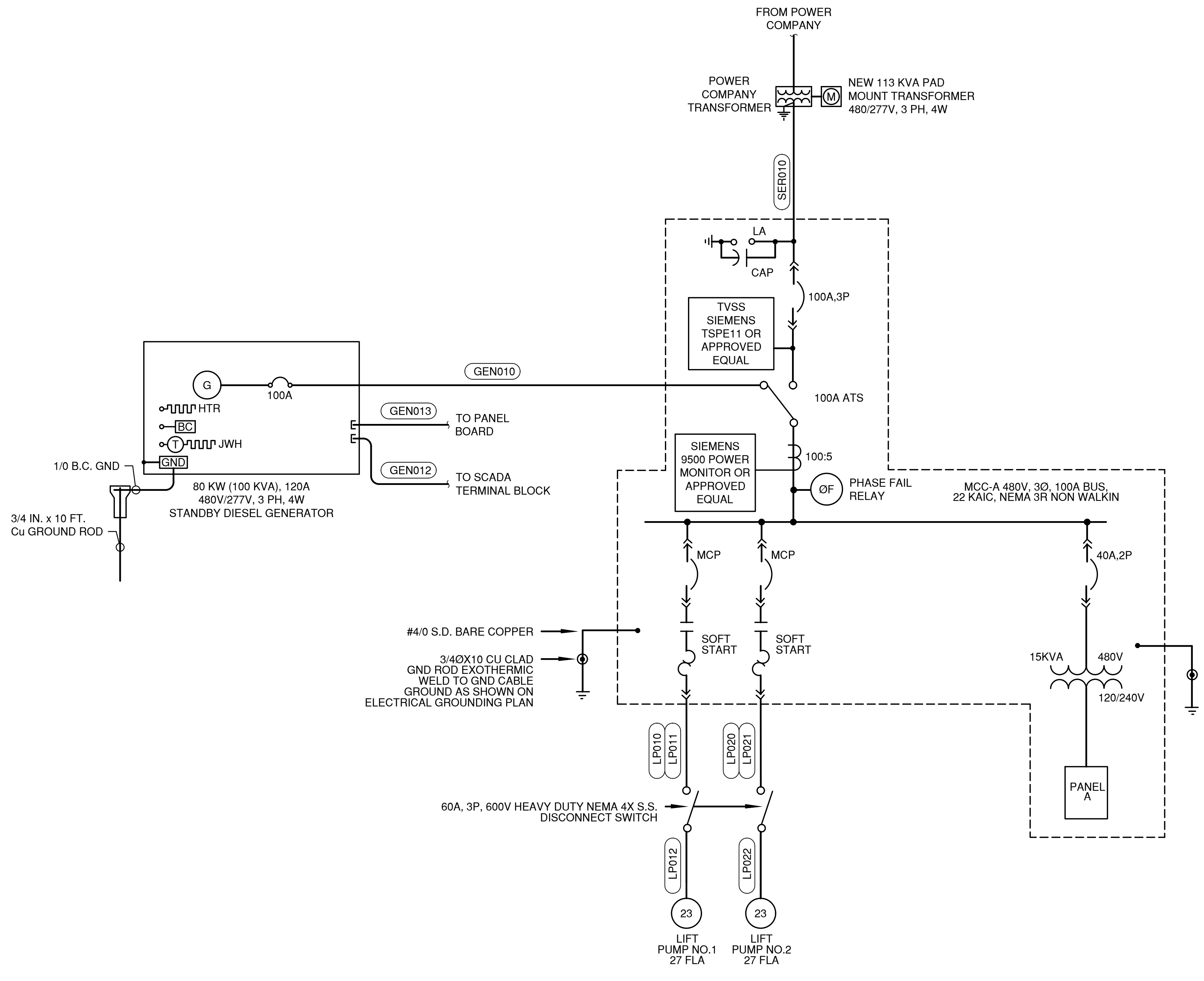
NO.	REVISIONS	APPD.	DATE

SCALE:	N/A
DATE:	26 January, 2023
PROJECT NO:	
DESIGNED BY:	CS
DRAWN BY:	JAA
CHECKED BY:	RG
SHEET NO.	3
OF 13 SHEETS	



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ELECTRICAL ONE-LINE DIAGRAM

NOTE: ITEMS IN GREYSCALE ARE EXISTING

NOTES:

- CONTRACTOR SHALL VERIFY AVAILABLE FAULT CURRENT WITH POWER COMPANY AND PROVIDE EQUIPMENT RATED ACCORDINGLY. INTERRUPT CAPACITY FOR ALL COMPONENTS SHALL BE SAME AS SERVICE.
- PROVIDE ALL REQUIRED ALARM AND DEVICE POWER CONDUCTORS FOR LOCAL PANELS INSTALLED NEAR MOTORS AND EQUIPMENT. SEE ONE-LINE DIAGRAM, CONTROL DIAGRAMS AND EQUIPMENT SPECIFICATIONS FOR REQUIREMENTS. CONDUCTORS MAY BE ROUTED IN POWER CONDUITS WHERE INSULATION RATING IS 600 VOLTS AND WHERE CONDUIT AREA/SPACE IS PER NEC, OR SEPARATE 1 INCH CONDUIT SHALL BE PROVIDED.
- COORDINATE LVP BREAKER SIZES WITH GENERATOR MANUFACTURER FOR AUXILIARY LOADS
- VERIFY CAPACITOR SIZE REQUIREMENTS WITH MOTOR MANUFACTURER BEFORE ORDERING. DO NOT OVERCORRECT. PROVIDE CONDUCTORS AND CONDUITS SIZED ACCORDINGLY TO NEC. CAPACITORS SHALL NOT BE DIRECTLY CONNECTED TO RVAT AND SOLID STATE STARTERS. (USE CONTRACTOR, HOA, TIME DELAY AND BREAKER) INTERLOCK WITH STARTERS.
- ALL CONTROL PANELS TO BE UL LISTED.
- CONTRACTORS SHALL READ ENTIRE CONTENTS OF SPECIFICATIONS BEFORE BIDDING ON THIS PROJECT.
- SEAL OFF FITTINGS ARE REQUIRED FOR ALL RACEWAYS ENTERING AND EXITING WET WELL JUNCTIONS BOXES. FILL SEAL OFF FITTINGS WITH 3M-2123 RE-ENTERABLE SEALING COMPOUND.
- ALL 480V LINE AND CONDUCTORS SHALL BE MEGGER TESTED WITH A MINIMUM READING OF 50 OHMS TO BE ACCEPTABLE. ALL TESTING SHALL BE WITNESSED BY AN ENGINEER.
- REFER TO CONDUIT/CABLE SCHEDULE FOR ADDITIONAL DETAILS.
- NEUTRAL BONDING PER NATIONAL ELECTRICAL CODE ARTICLE 250.
- SERVICE SHALL BE ADHERE TO LATEST UTILITY STANDARDS. COORDINATE AND PAY FOR ALL UTILITY RELATED EXPENSES PER POWER COMPANY ALLOWANCE.
- COORDINATE ALL CONNECTIONS TO GENERATOR WITH MANUFACTURER.

ELECTRICAL LOAD ANALYSIS				
LOAD	AMPS			
	PH A	PH B	PH C	
LIFT PUMP NO 1	23 HP	28	28	28
LIFT PUMP NO 2	23 HP	28	28	28
MINI-POWER ZONE - L.S.	15 KVA	18	18	18
25% OF LARGEST MOTOR		7	7	7
TOTAL LOAD		81	81	81
SERVICE AMPACITY @ 277/480V, 3PH, 4W		100	100	100
SPARE AMPACITY		19	19	19
GENERATOR LOAD		81	81	81
GENERATOR AMPACITY		120	120	120

USE 22 KAIC RATED DEVICES AND BRACING


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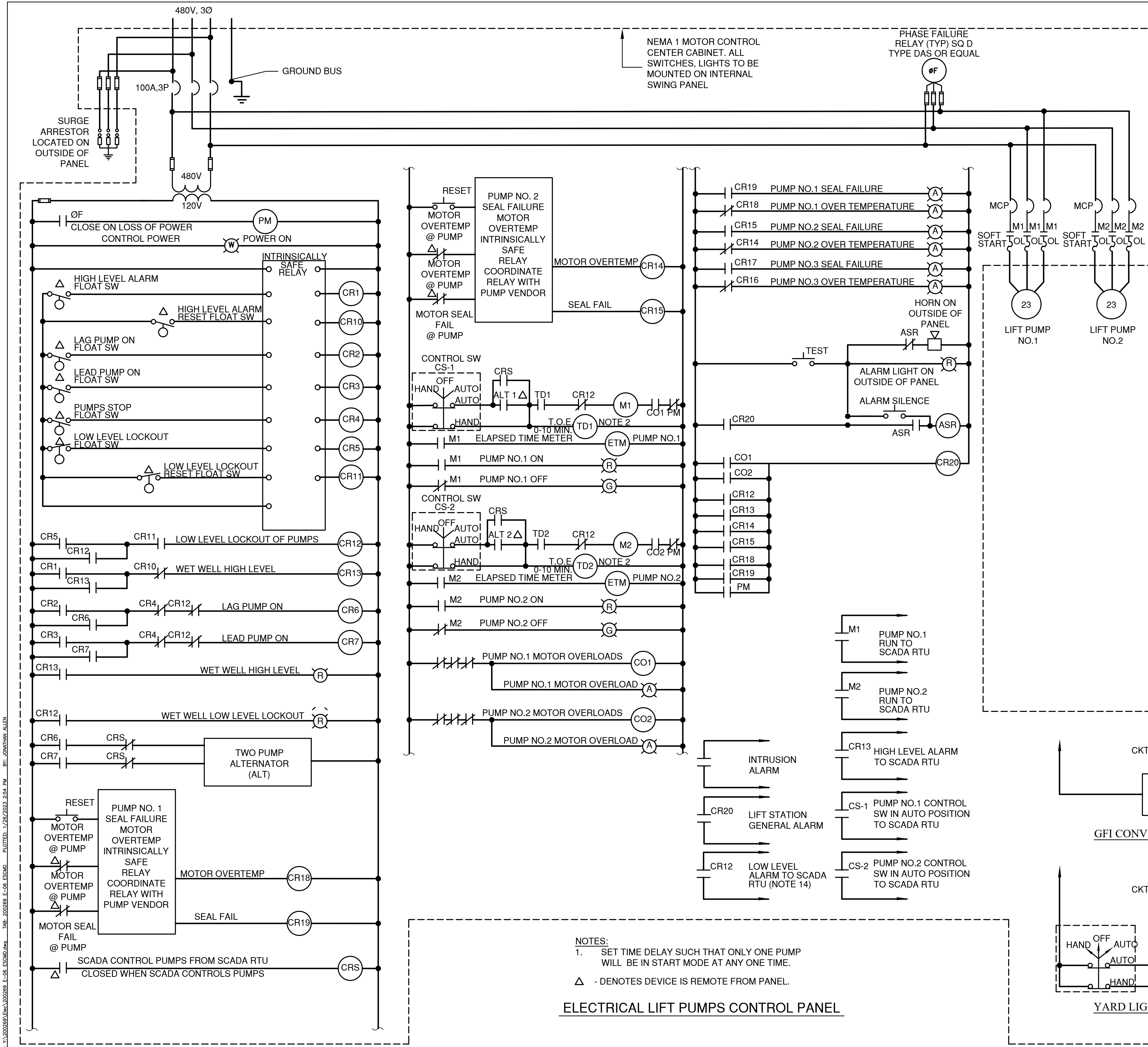
UTILITY ENGINEERING GROUP, PLLC
 981 N. Loop West, Suite 200, Houston, Texas 77008
 Phone: (281) 416-0821
 Texas Engineering Firm F-15712

STATE OF TEXAS
 RICARDO GUZMAN
 134592
 LICENSED PROFESSIONAL ENGINEER
 JANUARY 26, 2023

IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS
 ELECTRICAL ONE-LINE DIAGRAM

NO.	REVISIONS	APP'D.	DATE

SCALE: N/A
 DATE: 26 January, 2023
 PROJECT NO:
 DESIGNED BY: CS
 DRAWN BY: JAA
 CHECKED BY: RG
 SHEET NO. 4
 OF 13 SHEETS



NEMA 1 MOTOR CONTROL CENTER CABINET. ALL SWITCHES, LIGHTS TO BE MOUNTED ON INTERNAL SWING PANEL

PHASE FAILURE RELAY (TYP) SQ D TYPE DAS OR EQUAL

- NOTES:
1. PROVIDE SINGLE ALARM RESET SWITCH FOR ALL DEVICES INCLUDING PUMP PROTECTION MODULES, OVERLOADS, AND ALARMS. MOUNT TO INNER DOOR OF CONTROL PANEL.
 2. REFER TO ABBREVIATION PAGE FOR SYMBOL LEGEND.
 3. CONTRACTOR TO INSTALL ALL SAFETY AND ACCESSORIES REQUIRED BY PUMP VENDOR.
 4. COORDINATE TIME DELAY RELAY SETTINGS SO THAT ONLY ONE PUMP WILL BE IN START MODE AT ONE TIME - START AT 30 SECOND INTERVALS.
 5. ALL INDICATING LIGHTS TO BE LED PUSH TO TEST OIL TIGHT TYPE.
 6. ALL SWITCHES, INDICATING LIGHTS, AND PUSH BUTTONS TO BE MOUNTED ON INNER SWING PANEL.
 7. ALL CONTROLS FOR EQUIPMENT INSIDE WET WELL ARE TO BE INTRINSICALLY SAFE.
 8. PROVIDE SUBMITTAL WITH ALARM WIRING DIAGRAM FOR ENGINEERS REVIEW.
 9. MAINTAIN MINIMUM SEPARATION REQUIRED UNDER NEC ARTICLE 504 BETWEEN INTRINSICALLY SAFE CONTROL WIRING AND NON-INTRINSICALLY SAFE MOTOR FEEDER WIRING.
 10. COORDINATE WITH PUMP MANUFACTURER FOR PUMP PROTECTION MODULE PROVIDE AND INSTALL MODULE SEAL FAIL AND OVERTEMP.
 11. WHERE ADDITIONAL CONTACTS ARE REQUIRED, PROVIDE ADDITIONAL CONTACT BLOCK OR ADDITIONAL RELAYS WITH COILS WIRED IN PARALLEL.
 12. PROVIDE CIRCUIT FUSES RECOMMENDED BY MANUFACTURER.
 13. COORDINATE ALL NORMALLY CLOSED AND NORMALLY OPEN CONTACTS.
 14. CONTRACTOR SHALL COORDINATE NEW CONTROLS TO PUMP CONTROLLER BASED ON EXISTING SIGNALS. NO RECORD DRAWINGS EXIST FOR CURRENT LIFT STATION. PROVIDE COST IN BID FOR DOCUMENTATION OF EXISTING MONITORED SIGNALS AND PROVIDE SIMILAR SIGNALS TO PUMP CONTROLLER FOR NEW PANEL. NOT ALL SIGNALS TO RTU ARE SHOWN ON THIS SHEET.
 15. CONTRACTOR IS RESPONSIBLE FOR TESTING AND MODIFICATION OF PUMP CONTROLLER FOR NEW PUMPS AND NEW CONTROLS. COORDINATE WITH CITY FOR VISUAL AT OPERATING CENTER. ALL COORDINATION AND MODIFICATION TO RTU CONNECTIONS ARE PART OF THIS CONTRACT FOR A FULLY OPERATIONAL SCADA SYSTEM.

- NOTES:
1. SET TIME DELAY SUCH THAT ONLY ONE PUMP WILL BE IN START MODE AT ANY ONE TIME.
- Δ - DENOTES DEVICE IS REMOTE FROM PANEL.

ELECTRICAL LIFT PUMPS CONTROL PANEL

UTILITY ENGINEERING GROUP PLLC
 134592
 LICENSED PROFESSIONAL ENGINEER
 RICARDO GUZMAN
 STATE OF TEXAS
 JANUARY 26, 2023

IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS
 ELECTRICAL SCHEMATIC DIAGRAM

NO.	REVISIONS	APP'D.	DATE

SCALE: N/A
 DATE: 26 January, 2023
 PROJECT NO:
 DESIGNED BY: CS
 DRAWN BY: JAA
 CHECKED BY: RG
 SHEET NO. 6
 OF 13 SHEETS

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- NOTES:
 1. PROVIDE INTERMEDIATE JUNCTION BOX SHOULD PRESSURE TRANSDUCER CABLE NOT BE SUFFICIENT FROM BOTTOM OF WET WELL TO SCADA PANEL CONTROLLER.
 2. PROVIDE 12 IN. CLEARANCE BETWEEN POWER CONDUITS AND COMMUNICATION CONDUITS WITHIN DUCTBANKS.

CABLE AND CONDUIT SCHEDULE							
CABLE/CONDUIT TAG	CONDUIT QUANTITY	CONDUIT SIZE	FROM	TO	CONDUCTOR (EACH CONDUIT)	CABLE TYPE	DESCRIPTION
FLT010	1	1 & 1/2 IN.	CONTROL CABINET	FLOATS TERMINAL BOX	14-#12 + #12 GND	THWN-2	FLOATS
FLT011	1	1 & 1/2 IN.	FLOATS TERMINAL BOX	WET WELL	(7) MANUFACTURER'S CABLE	-	FLOATS
GEN010	1	2 IN.	ATS	EMERGENCY GENERATOR	3-#1 + #6 GND	XHHW-2	EMERGENCY POWER
GEN011	1	1 IN.	EMERGENCY GENERATOR	ATS	3-#12 + #12 GND	THWN-2	ATS CONTROLS
GEN012	1	1 IN.	EMERGENCY GENERATOR	CONTROL CABINET	4-#12 + #12 GND	THWN-2	GENERATOR ALARM SIGNALS
GEN013	1	1 IN.	PANELBOARD A	EMERGENCY GENERATOR	12-#10 + #12 GND	THWN-2	GENERATOR DEVICES (HEATER, BATTERY CHARGER, LIGHTS, JWH, LIGHTS, RECEPT.)
LP010	1	1 1/2 IN.	CONTROL CABINET	LIFT PUMP NO. 1 TERMINAL BOX	3-#8 + #10 GND	THWN-2	LIFT PUMP NO. 1 POWER
LP011	1	1 IN.	CONTROL CABINET	LIFT PUMP NO. 1 TERMINAL BOX	6-#12 + #12 GND	THWN-2	LIFT PUMP NO. 1 ALARMS
LP012	1	1 1/2 IN.	LIFT PUMP NO. 1 TERMINAL BOX	LIFT PUMP NO. 1	MANUFACTURER'S CABLE	-	LIFT PUMP NO. 1 CABLE
LP020	1	1 1/2 IN.	CONTROL CABINET	LIFT PUMP NO. 2 TERMINAL BOX	3-#8 + #10 GND	THWN-2	LIFT PUMP NO. 2 POWER
LP021	1	1 IN.	CONTROL CABINET	LIFT PUMP NO. 2 TERMINAL BOX	6-#12 + #12 GND	THWN-2	LIFT PUMP NO. 2 ALARMS
LP022	1	1 1/2 IN.	LIFT PUMP NO. 2 TERMINAL BOX	LIFT PUMP NO. 2	MANUFACTURER'S CABLE	-	LIFT PUMP NO. 2 CABLE
LTG010	1	1 IN.	PANELBOARD A	AREA LIGHT	4-#12 + #12 GND	THWN-2	AREA LIGHT AND RECEPTACLE
LTG020	1	1 IN.	PANELBOARD A	AREA LIGHT	4-#12 + #12 GND	THWN-2	AREA LIGHT AND RECEPTACLE
LTG030	1	1 IN.	PANELBOARD A	AREA LIGHT	4-#12 + #12 GND	THWN-2	AREA LIGHT AND RECEPTACLE
RAD010	1	1 1/2 IN.	CONTROL CABINET	ANTENNA TOWER	(1) COAX CABLE	-	RADIO COAX CABLE
REC010	1	1 IN.	PANELBOARD A	CONVENIENCE RECEPTACLE	2 - #12 + #12 GND	THWN-2	WET WELL CONVENIENCE RECEPTACLE
RTU010	1	2 IN.	MCC CONTROL SECTION	RTU PANEL	32 - #14 + GND + 4-20 mA TWISTED PAIR	-	RTU SIGNALS (BY CITY SCADA CONTRACTOR)
SER010	1	2 IN.	UTILITY TRANSFORMER	MOTOR CONTROL CENTER	4 - #1 + #6 GND	XHHW-2	UTILITY SERVICE
XDCR010	1	1 IN.	CONTROL CABINET	TRANSDUCER TERMINAL BOX	TWISTED PAIR CABLE	-	PRESSURE TRANSDUCER
XDCR011	1	1 IN.	TRANSDUCER TERMINAL BOX	STILLING WELL	MANUFACTURER'S CABLE	-	PRESSURE TRANSDUCER

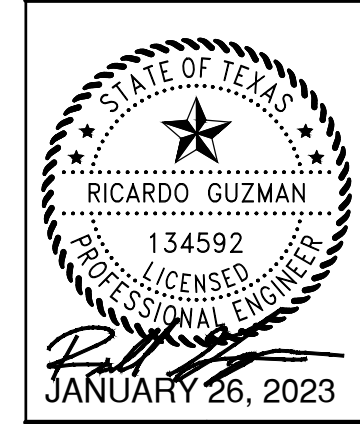
LUMINAIRE FIXTURE SCHEDULE								
SYMBOL	DESCRIPTION	VOLTAGE	LUMENS	WATTAGE	MOUNTING	MANUFACTURER	LUMINAIRE CATALOG NUMBER	POLE DATA
AL	VAPORTITE ALARM/LIGHT	120V	4,000	-	AS NOTED	LITHONIA OR EQUAL	OLVTWM	-
B	WALL PACK	120V	5,174	-	WALL	LITHONIA	TWP LED AL0 50K	HARDWARE, ANCHORS, AND HINGE PIN SHALL BE 316 SS SEAL PENETRATIONS WITH LIQUID TIGHT GROUT
F	AREA LIGHT	120V	27,900	231	POLE	LITHONIA	DSX1 LED-P5-50K-T5W-MVOLT-DBDXD	-

FAULT CURRENT CALCULATIONS											
FROM	TO	AVAILABLE FAULT @ SOURCE	CONDUCTORS PER PHASE	WIRE SIZE	C	VOLTAGE	LENGTH (FT.)	F	M	FAULT CURRENT @ LOAD	MINIMUM KAIC RATING
UTILITY	TRANSFORMERS	15668.99	1	#1	7493	480	1	0.01	0.99	16118.64	22
TRANSFORMERS	MCC	16118.64	1	#1	7493	480	60	0.47	0.68	11563.93	22
MCC	LIFT PUMPS	11563.93	1	#8	1559	480	15	0.40	0.71	8818.19	22

- NOTES:
 1. A PERMANENTLY AFFIXED LABEL SHALL BE APPLIED WITH THE FAULT CURRENT AT THE TIME OF INSTALLATION AND FAULT STUDY. THE LABEL SHALL INCLUDE THE DATE OF THE CALCULATION. REFER TO SPECIFICATIONS.
 2. ALL SERVICES SHALL BE IDENTIFIED WITH A PERMANENT LABEL AT EACH DISCONNECT PER NEC 230.2.
 3. VERIFY NAMEPLATE AND MANUFACTURER'S REQUIREMENTS ON ALL MOTORS PRIOR TO ORDERING EQUIPMENT.

VOLTAGE DROP								
FROM	TO	LENGTH	CONDUCTORS PER PHASE	WIRE SIZE	Cm	LOAD	VOLTAGE	VOLTAGE DROP%
UTILITY	TRANSFORMERS	1 FT.	1	#1	83690	81	480	0.00%
TRANSFORMERS	CONTROL PANEL	60 FT.	1	#1	83690	81	480	0.27%
CONTROL PANEL	LIFT PUMPS	15 FT.	1	#8	16510	41	480	0.17%

PANEL <u>A</u>																					
SERVICE VOLTAGE		BREAKER		VA WATTS			WIRE		PHASE BUS RATING			WIRE SIZE		WITH: <input checked="" type="checkbox"/> SOLID NEUTRAL & GROUND <input type="checkbox"/> ISOLATED GROUND BUS <input type="checkbox"/> 200% NEUTRAL NOTE: ADJ. CKTS. TO BAL. PNL.							
120/208V		POLE	AMP	A	B	C	NO.	NO.	A	B	C	POLE	AMP		100A	#10					
MAIN BREAKER SIZE		40A		LOCATION			MCC		SHORT CIRCUIT RATING			22 KAIC		PHASE		3		MOUNTING		MCC	
CKT. DESCRIPTION	WIRE	BREAKER POLE	AMP	A	B	C	CKT. NO.	CKT. NO.	A	B	C	BREAKER POLE	AMP	WIRE	CKT. DESCRIPTION						
JACKET WATER HEATER NO. 1	8	2	30	1500			1	2	180			1	20	12	CONVENIENCE RECEPTACLE						
				1500			3	4	800			1	20	12	GENERATOR BATTERY CHARGER						
CONTROLS	12	1	20			300	5	6			180	1	20	12	CONVENIENCE RECEPTACLE						
JACKET WATER HEATER NO. 2	8	2	30	1500			7	8	180			1	20	12	YARD LIGHT NO. 1						
				1500			9	10	180			1	20	12	YARD LIGHT NO. 2						
CONTROLS	12	1	20			300	11	12			180	1	20	12	YARD LIGHT NO. 3						
GENERATOR LIGHTS	12	1	20	180			13	14	-			1	20		SPARE						
GENERATOR RECEPTACLE	12	1	20		180		15	16	-			1	20		SPARE						
SHELTER LIGHTS	12	1	20			220	17	18				1	20		SPARE						
MCC LIGHTS	12	1	20	180			19	20	-			1	20		SPARE						
SPARE		1	20				21	22	-			1	20		SPARE						
SPARE		1	20				23	24	-			1	20		SPARE						
TOTAL PHASE A: 3720 VOLT-AMPS				TOTAL PHASE A CURRENT: 31 AMPS				TOTAL CONNECTED LOAD: 8300 VA													
TOTAL PHASE B: 4160 VOLT-AMPS				TOTAL PHASE B CURRENT: 35 AMPS																	
TOTAL PHASE C: 1180 VOLT-AMPS				TOTAL PHASE C CURRENT: 10 AMPS																	



IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS

ELECTRICAL SCHEDULES

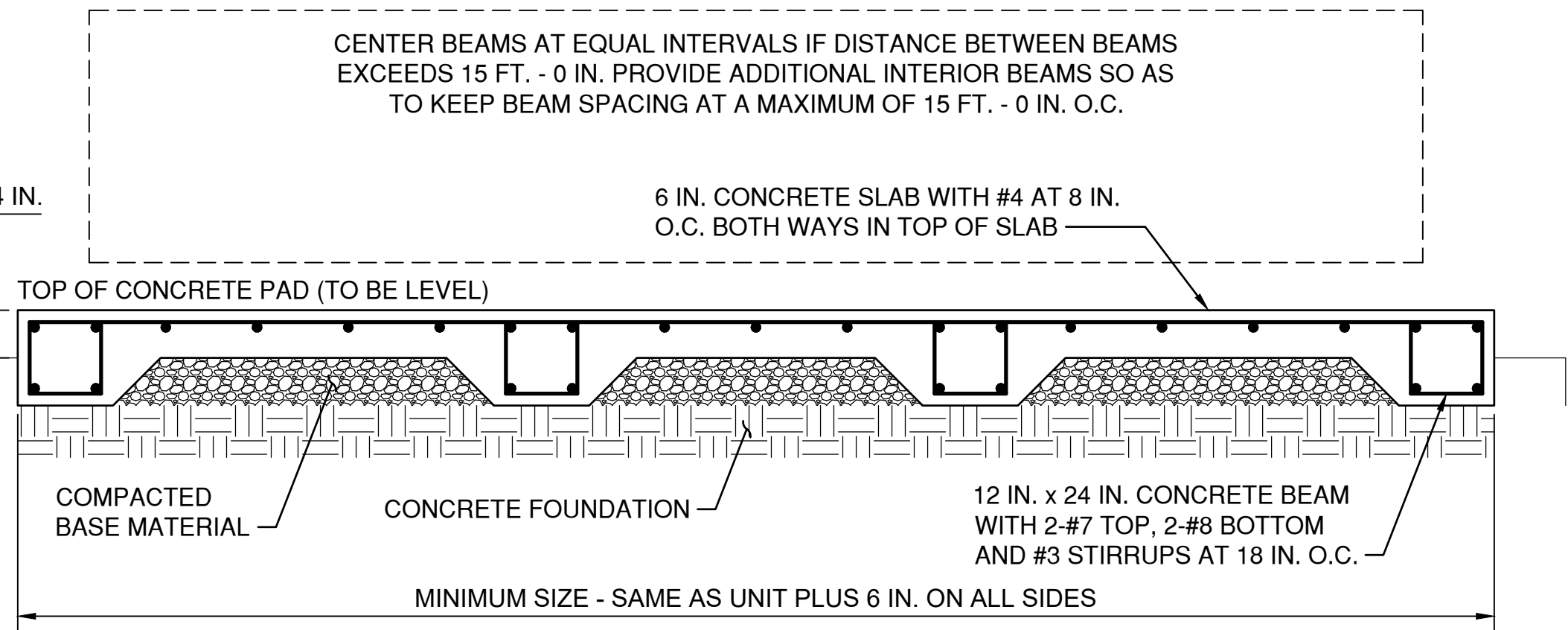
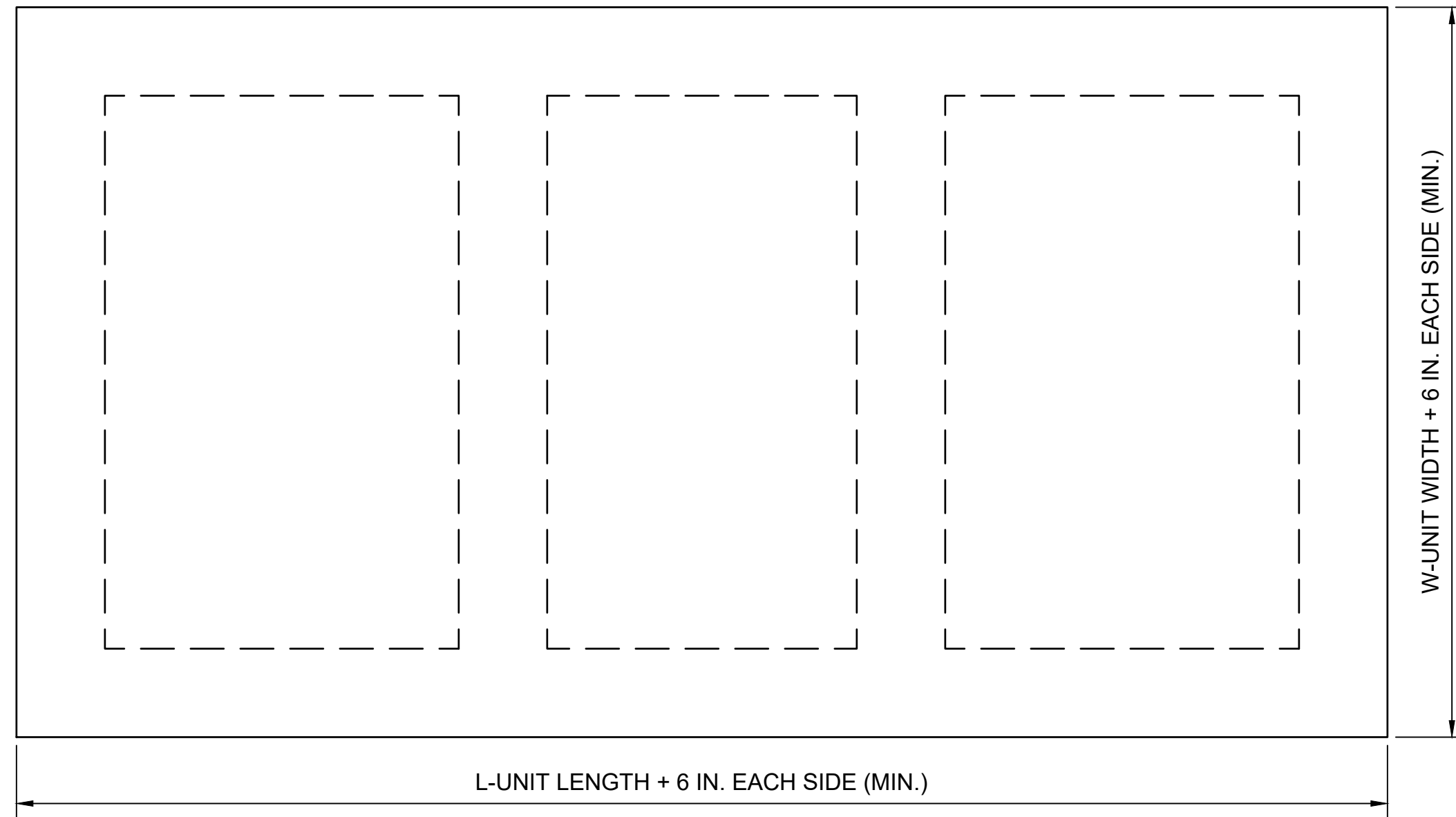
NO.	REVISIONS	APPD.	DATE

SCALE: N/A
 DATE: 26 January, 2023
 PROJECT NO:
 DESIGNED BY: CS
 DRAWN BY: JAA
 CHECKED BY: RG
 SHEET NO. 7
 OF 13 SHEETS



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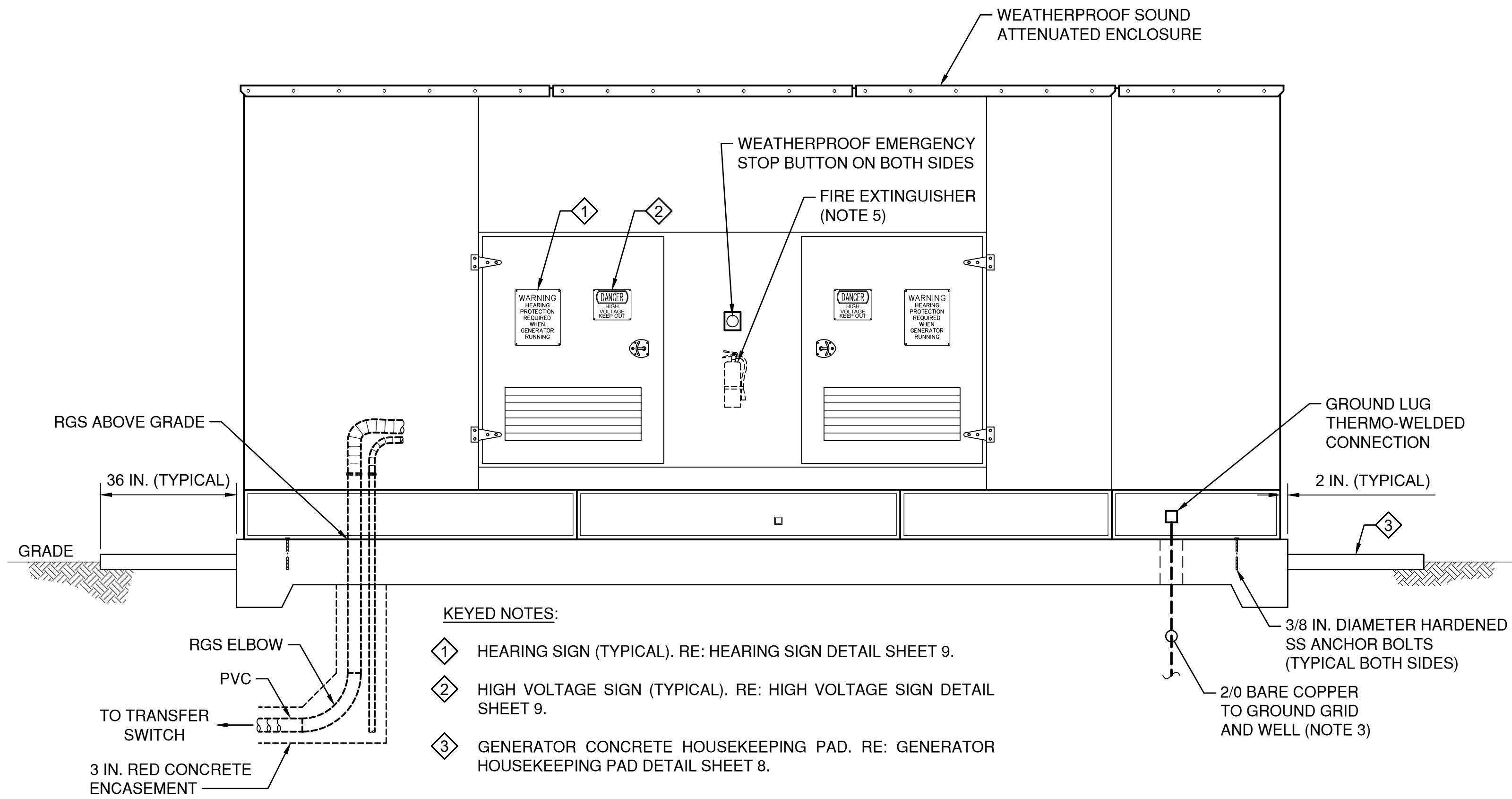
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GENERATOR CONCRETE HOUSEKEEPING PAD DETAIL
SCALE: N.T.S.

GENERATOR & TANK DATA	
ITEMS	DATA
GENERATOR*	80 KW (MIN.), 100 KVA, 120A W/ 300 GAL. SUB BASE DIESEL FUEL TANK (UL 142). FUEL CONSUMPTION RATE FULL LOAD - 6.3 GPH WT = 2,750 LBS. (GENERATOR AND ENCLOSURE)
ENCLOSURE*	SOUND ATTENUATING: 72dB @ 23 FT. (MIN.) (LEVEL 2) DIM. 120 IN. L x 46 IN. W x 64 IN. H
NFPA 110	CLASS 24, TYPE 10, LEVEL 2

* VERIFY EQUIPMENT PARAMETERS WITH THE SPECIFIC MANUFACTURER

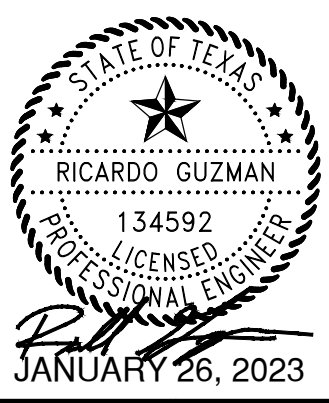


- KEYED NOTES:**
- ① HEARING SIGN (TYPICAL). RE: HEARING SIGN DETAIL SHEET 9.
 - ② HIGH VOLTAGE SIGN (TYPICAL). RE: HIGH VOLTAGE SIGN DETAIL SHEET 9.
 - ③ GENERATOR CONCRETE HOUSEKEEPING PAD. RE: GENERATOR HOUSEKEEPING PAD DETAIL SHEET 8.

- NOTE:**
- COORDINATE CONDUIT LOCATIONS WITH GENERATOR MANUFACTURER.
 - DO NOT ROUTE GROUND CONDUCTORS ACROSS TOP OF SLAB INSIDE OR OUTSIDE ENCLOSURE. INSTALL IN SCHEDULE 80 PVC SLEEVE IN SLAB.
 - PROVIDE UL RATED CLASS B FIRE EXTINGUISHER, PROPLUS MODEL PROPLUS5MP FOR FUEL TYPE, PER GENERATOR MANUFACTURER'S RECOMMENDATIONS AND FIELD LOCATE.

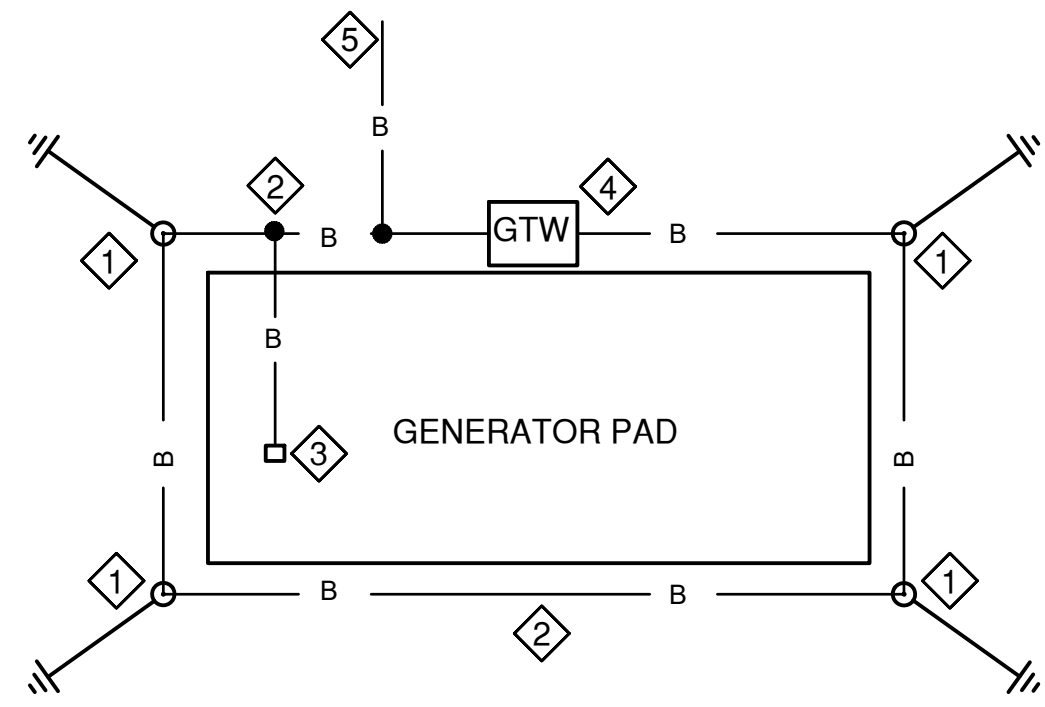
SOUND ATTENUATED GENERATOR ENCLOSURE DETAIL
SCALE: N.T.S.

- GENERAL NOTES:**
- CONDUCTING GENERATOR TESTS, SET MOTOR STARTER TIME DELAY RELAYS IN THE ORDER OF MOTOR SIZE SMALLEST TO LARGEST, WITH FIRST SETTING AT 10 SECONDS AND EACH CONSECUTIVE TIME DELAY AT 10 SECOND GREATER INCREMENTS. I.E. P1 TD = 10 SEC; P2 TD = 20 SEC, P3 TD = 30 SEC., ETC. THESE SETTINGS SHOULD NEVER BE CHANGED TO ASSURE PROPER LOAD SEQUENCING ON GENERATOR. RECORD SETTINGS AND INCLUDE IN RECORD-BUILT.
 - PROVIDE DIGITAL CONTROLLER, OR APPROVED EQUAL, WITH RJ-45 COMMUNICATION TO ETHERNET SWITCH.



NO.	REVISIONS	APPD.	DATE

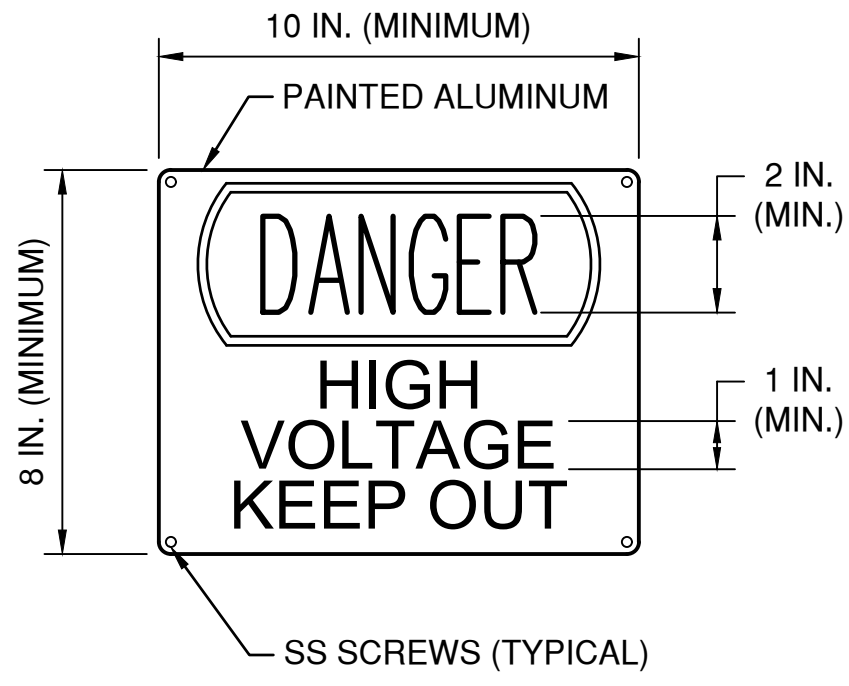
SCALE: N/A
DATE: 26 January, 2023
PROJECT NO:
DESIGNED BY: CS
DRAWN BY: JAA
CHECKED BY: RG
SHEET NO. 8
OF 13 SHEETS



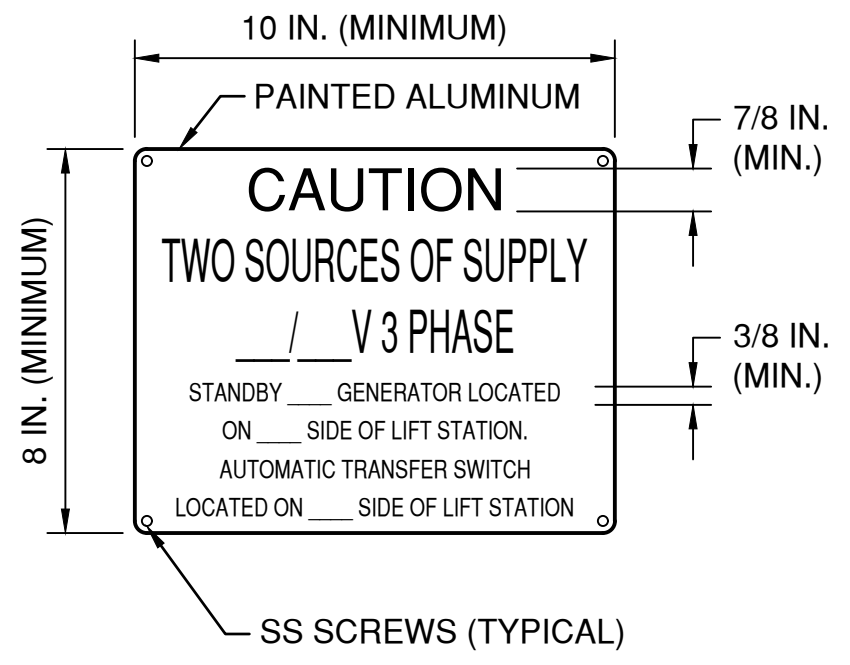
NOTES:
 1. THE GROUNDING SYSTEM SHALL BE TESTED BY AN APPROVED TESTING FIRM TO ENSURE THE RESISTANCE TO GROUND IS NO GREATER THAN 5 OHMS. CONTRACTOR TO SUBMIT GROUND TESTING REPORT TO OWNER'S REPRESENTATIVE.

- KEYED NOTES:**
- ① 3/4 IN. x 10 FT. COPPER CLAD GROUNDROD. EXOTHERMICALLY WELD TO GROUND CABLE BURIED 18 IN. (MINIMUM) BELOW GRADE.
 - ② 4/0 SOFT DRAWN BARE COPPER CABLE BURIED 18 IN. (MINIMUM) BELOW GRADE (TYPICAL ALL BELOW GRADE CABLE). EXOTHERMICALLY WELD ALL BELOW GRADE CONNECTIONS
 - ③ EXTEND #6 SOFT DRAWN BARE COPPER UP INTO EQUIPMENT.
 - ④ REFER TO GROUNDING TEST WELL INSTALLATION DETAIL.
 - ⑤ EXTEND #4/0 TO EXIST GROUND MAT AT ELECTRICAL EQUIPMENT CANOPY AND EXOTHERMICALLY WELD TO EXISTING GROUNDING SYSTEM.

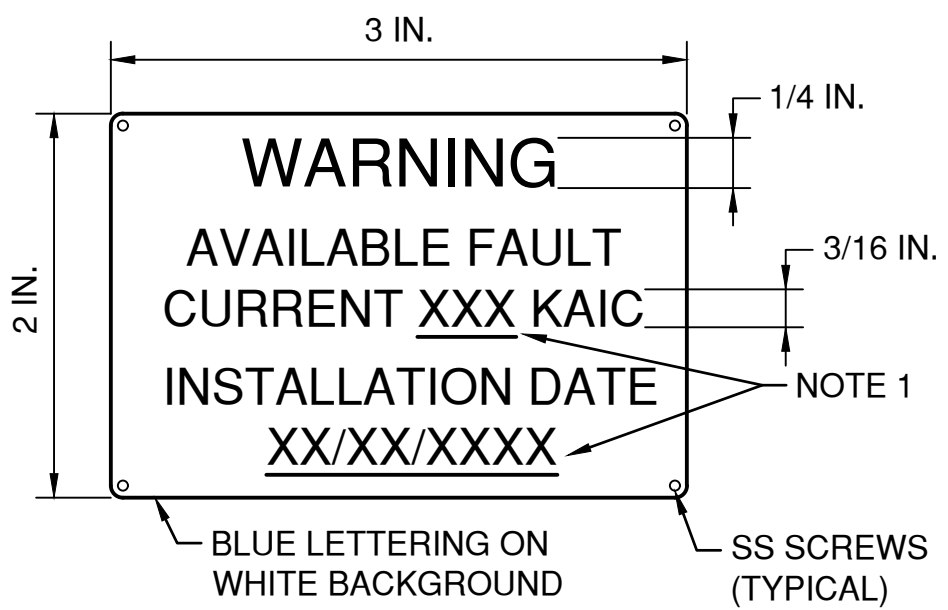
TYPICAL GENERATOR ELECTRICAL GROUNDING DETAIL
 SCALE: N.T.S.



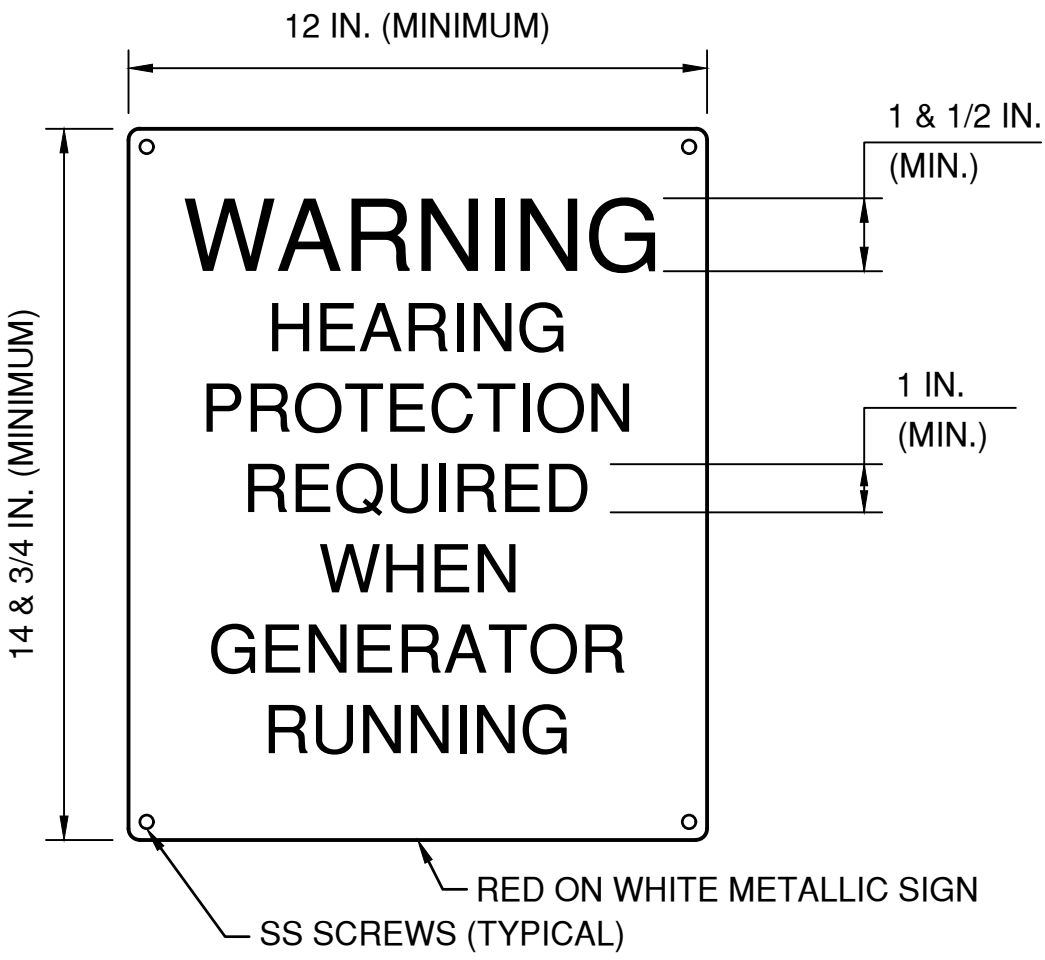
HIGH VOLTAGE SIGN DETAIL
 SCALE: N.T.S.



DUAL SOURCE SIGN DETAIL
 SCALE: N.T.S.



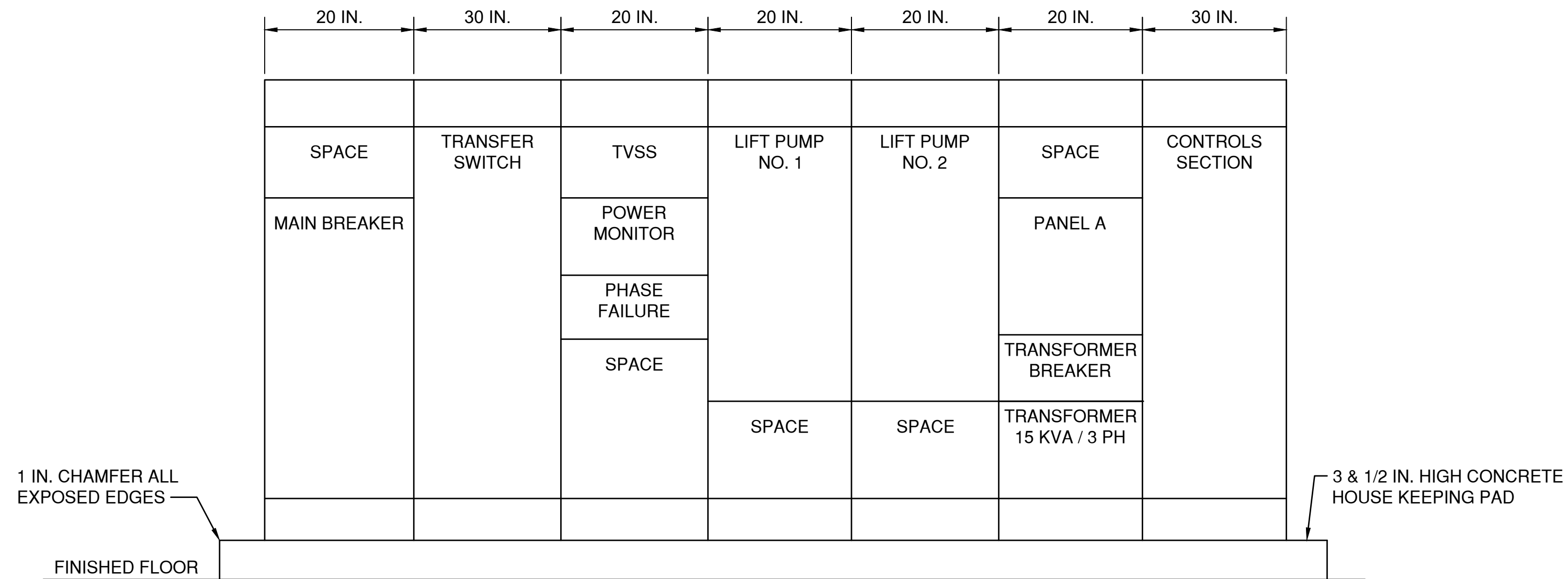
FAULT CURRENT WARNING SIGN DETAIL
 SCALE: N.T.S.



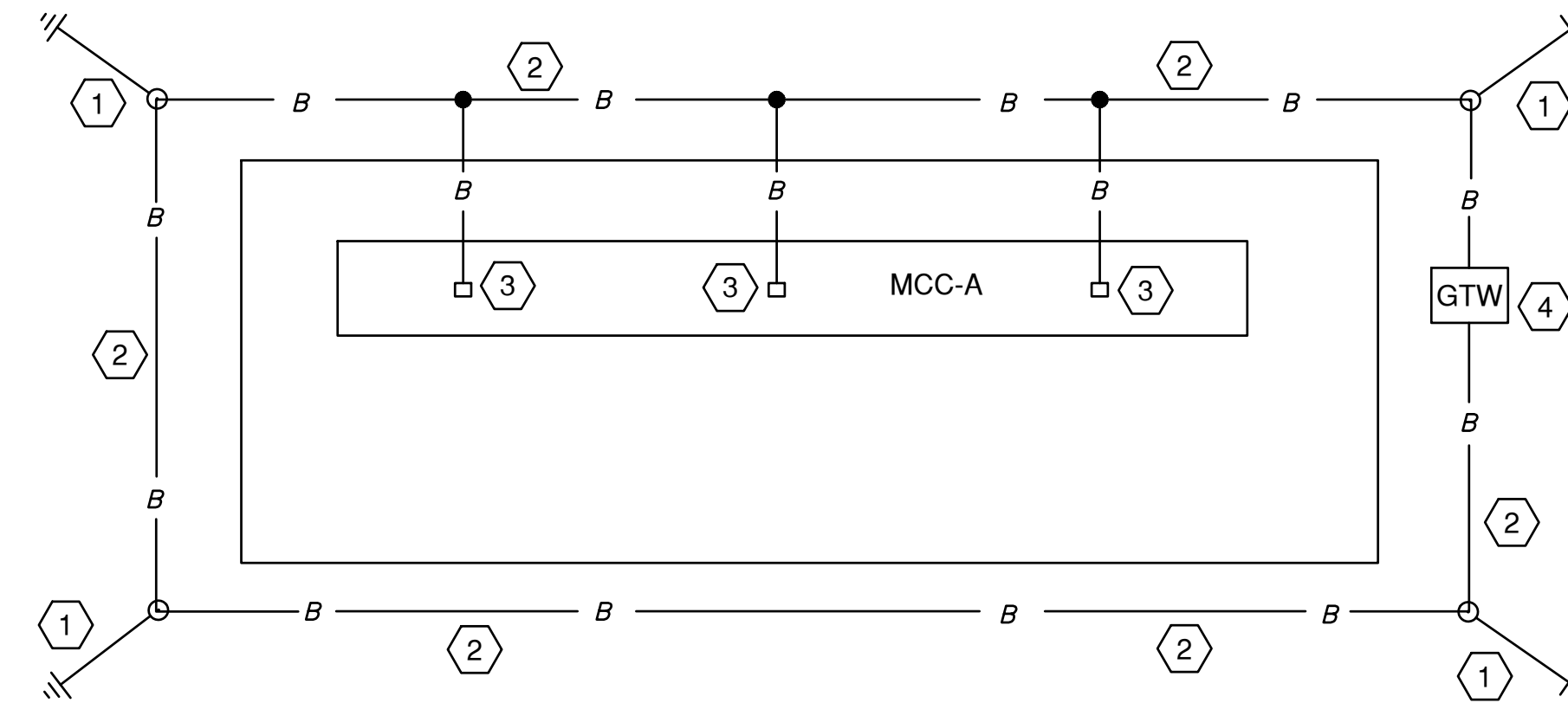
HEARING WARNING SIGN DETAIL
 SCALE: N.T.S.

NO.	REVISIONS	APPRD.	DATE

SCALE: N/A
 DATE: 26 January, 2023
 PROJECT NO:
 DESIGNED BY: CS
 DRAWN BY: JAA
 CHECKED BY: RG
 SHEET NO. 9
 OF 13 SHEETS



MOTOR CONTROL CENTER FRONT ELEVATION DETAIL
SCALE: N.T.S.



NOTE: COORDINATE EXACT SIZE OF FOUNDATION WITH ALL TRADES.

KEYED NOTES:

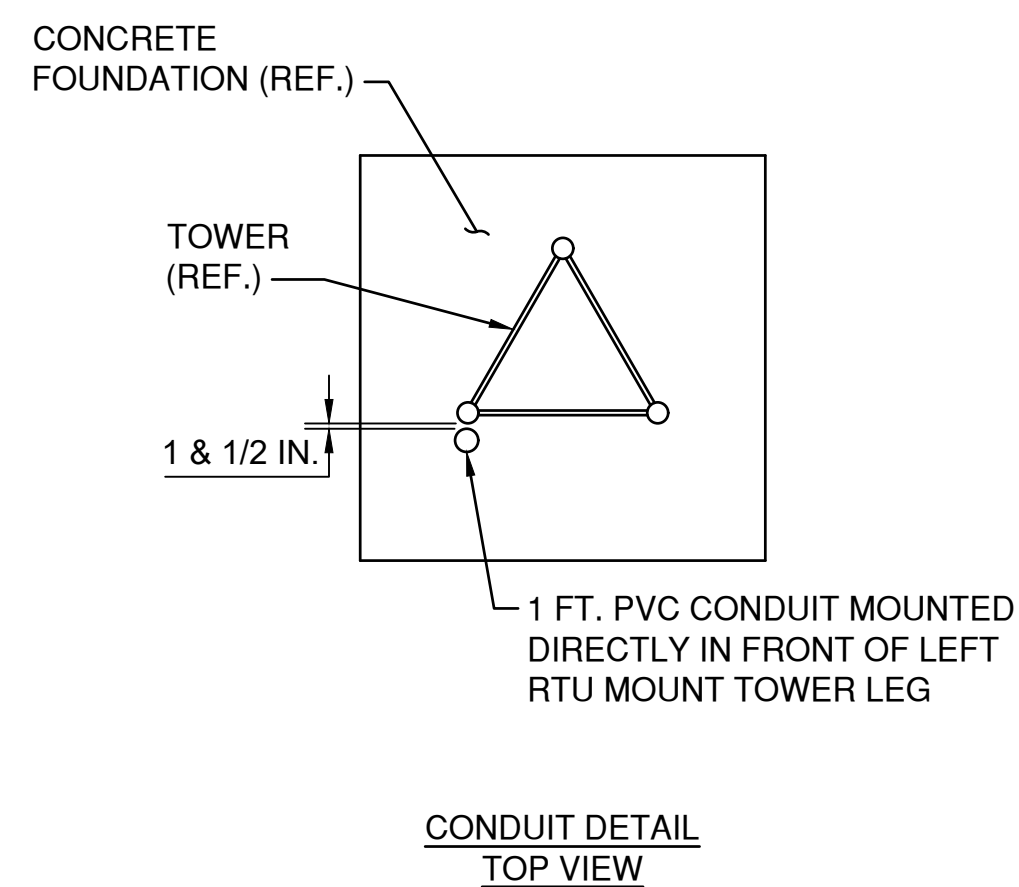
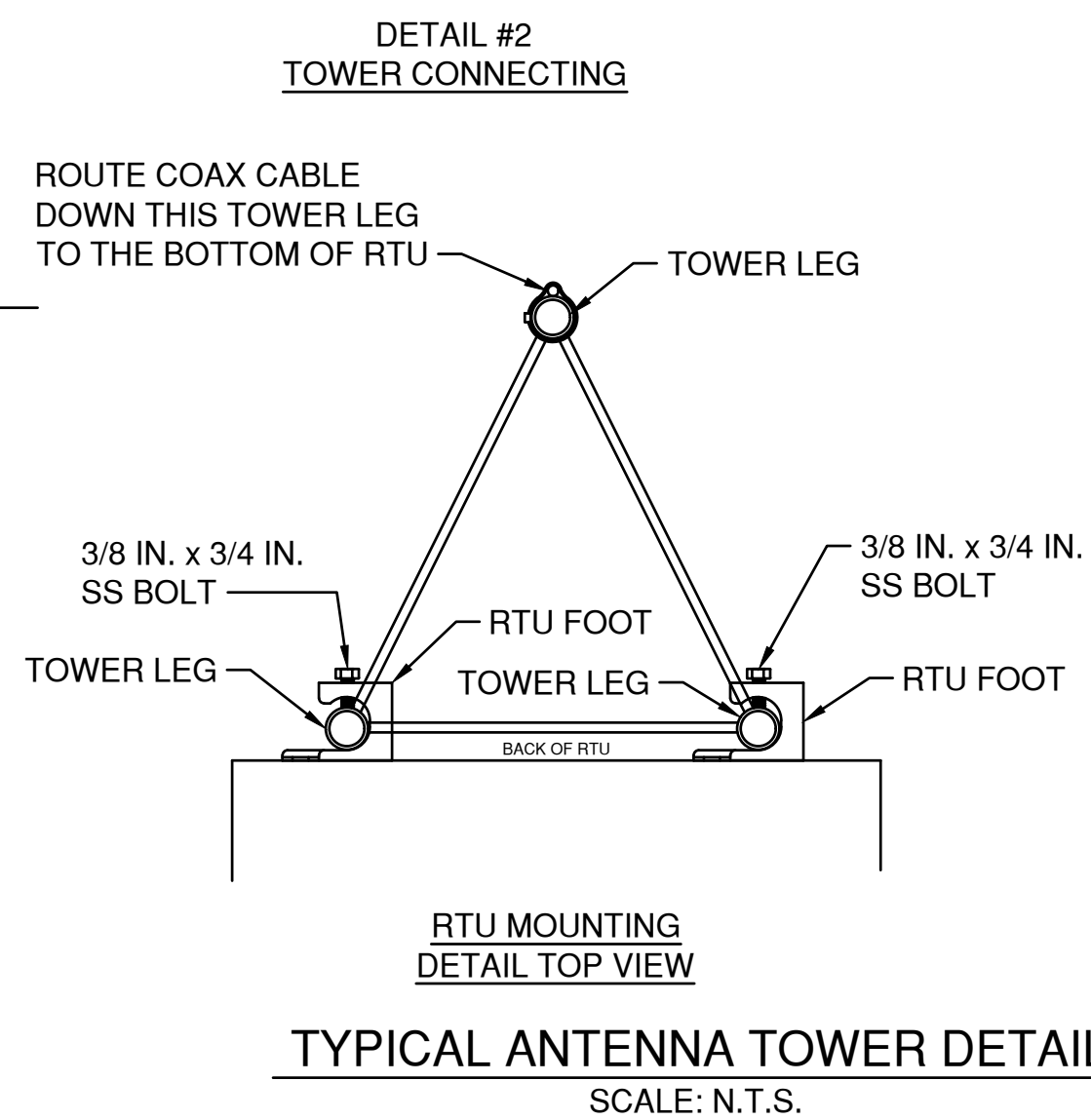
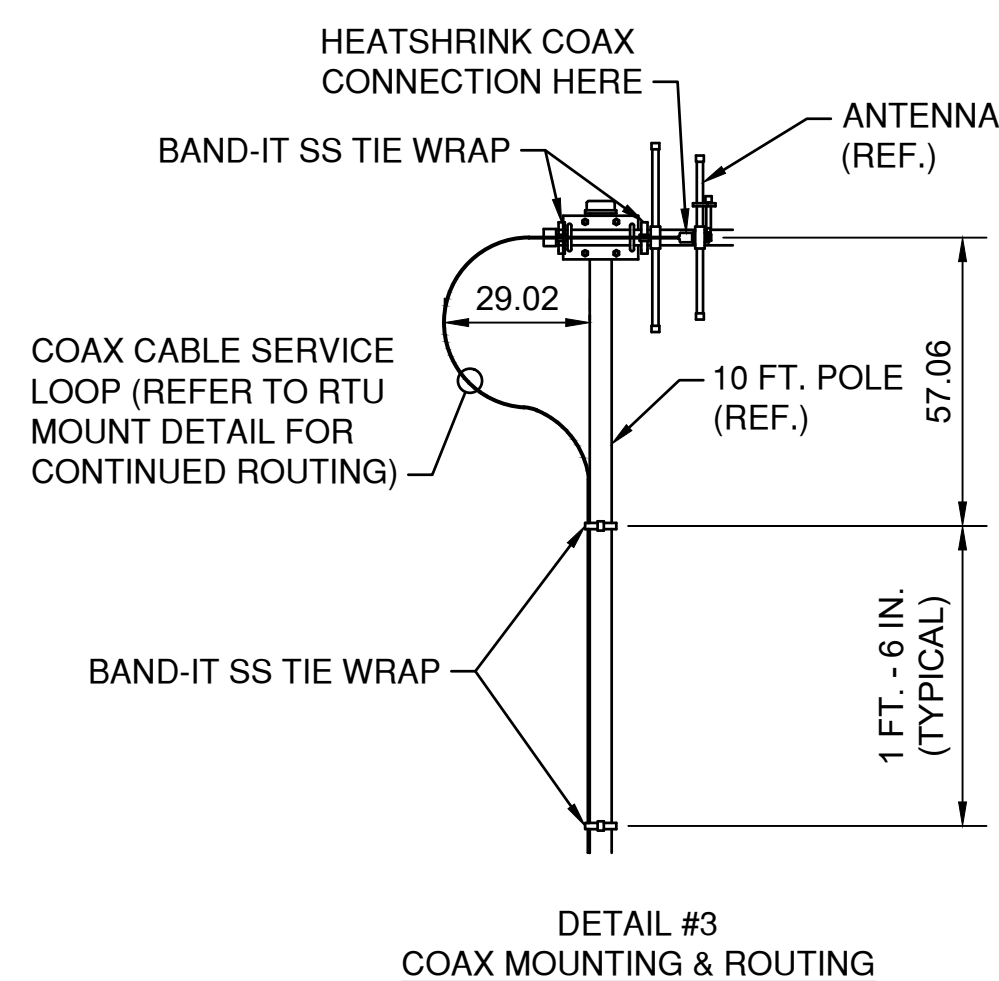
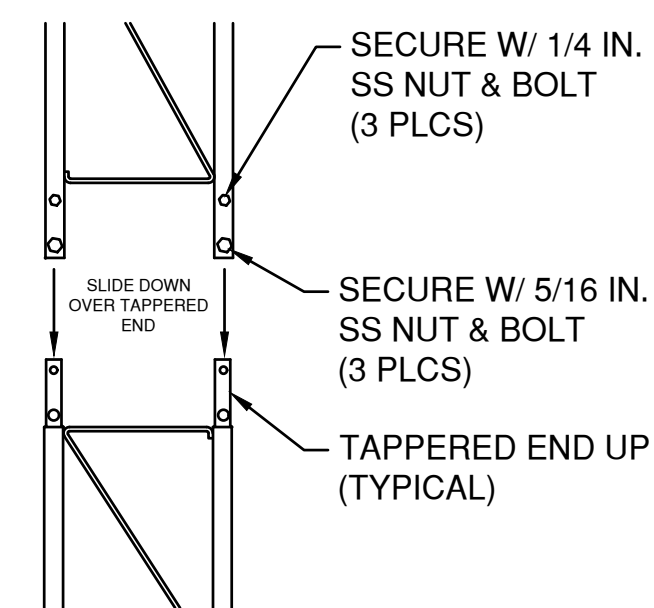
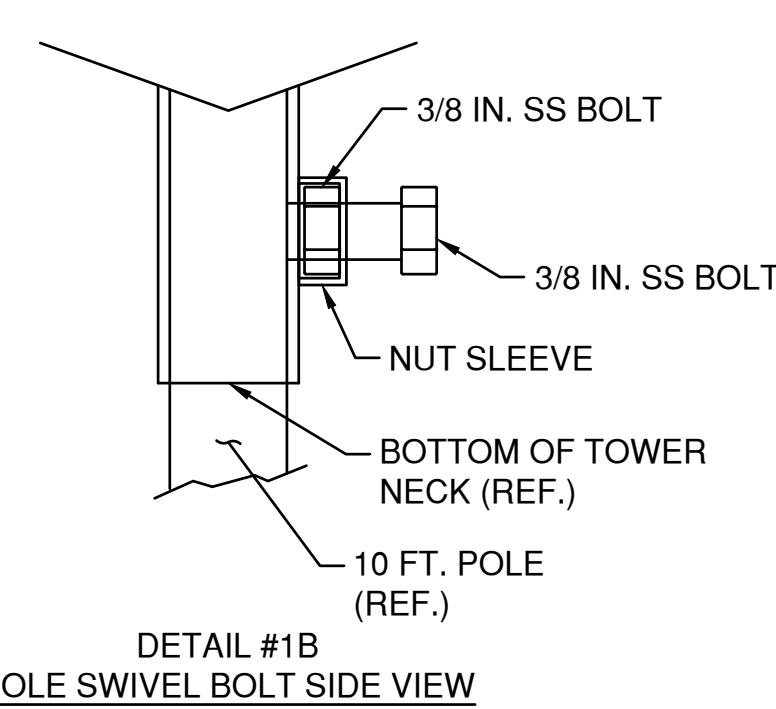
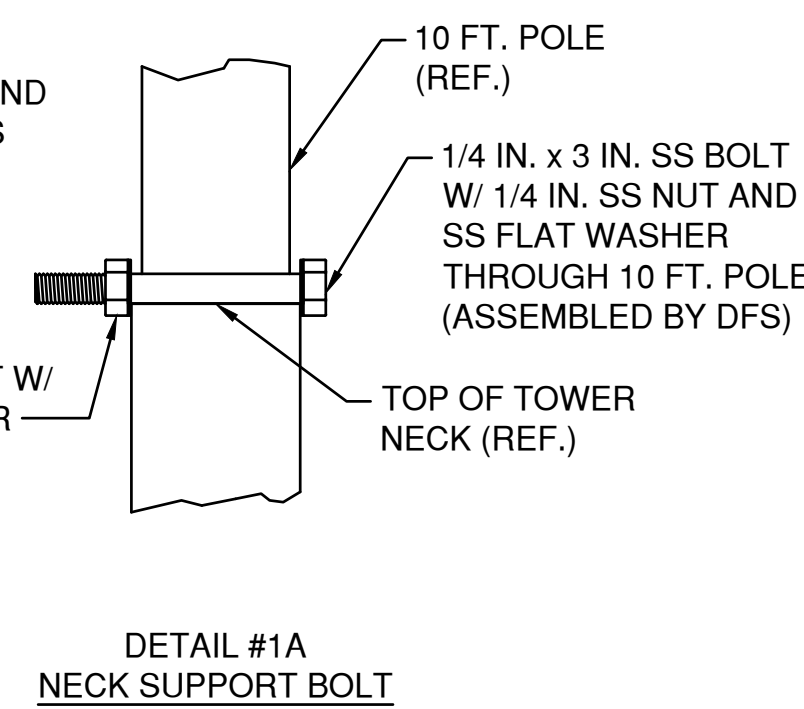
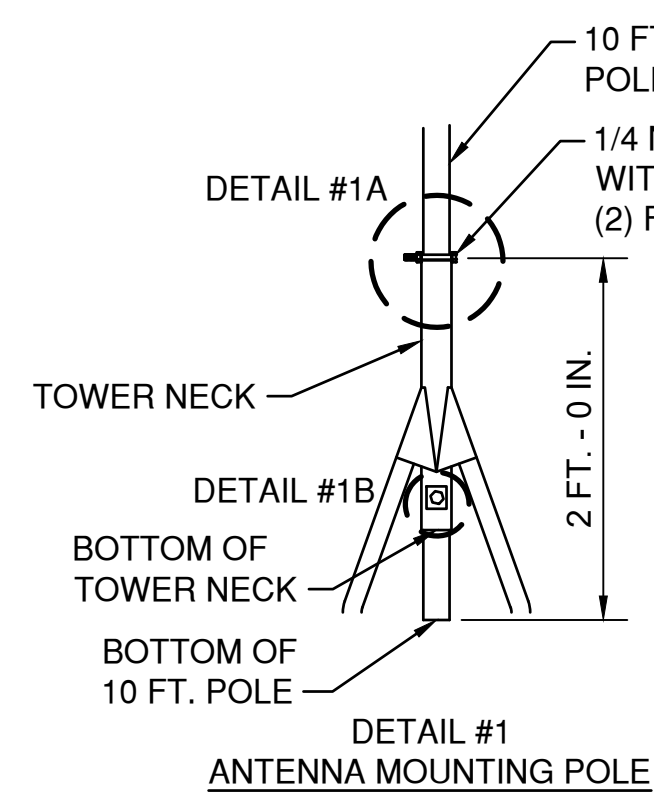
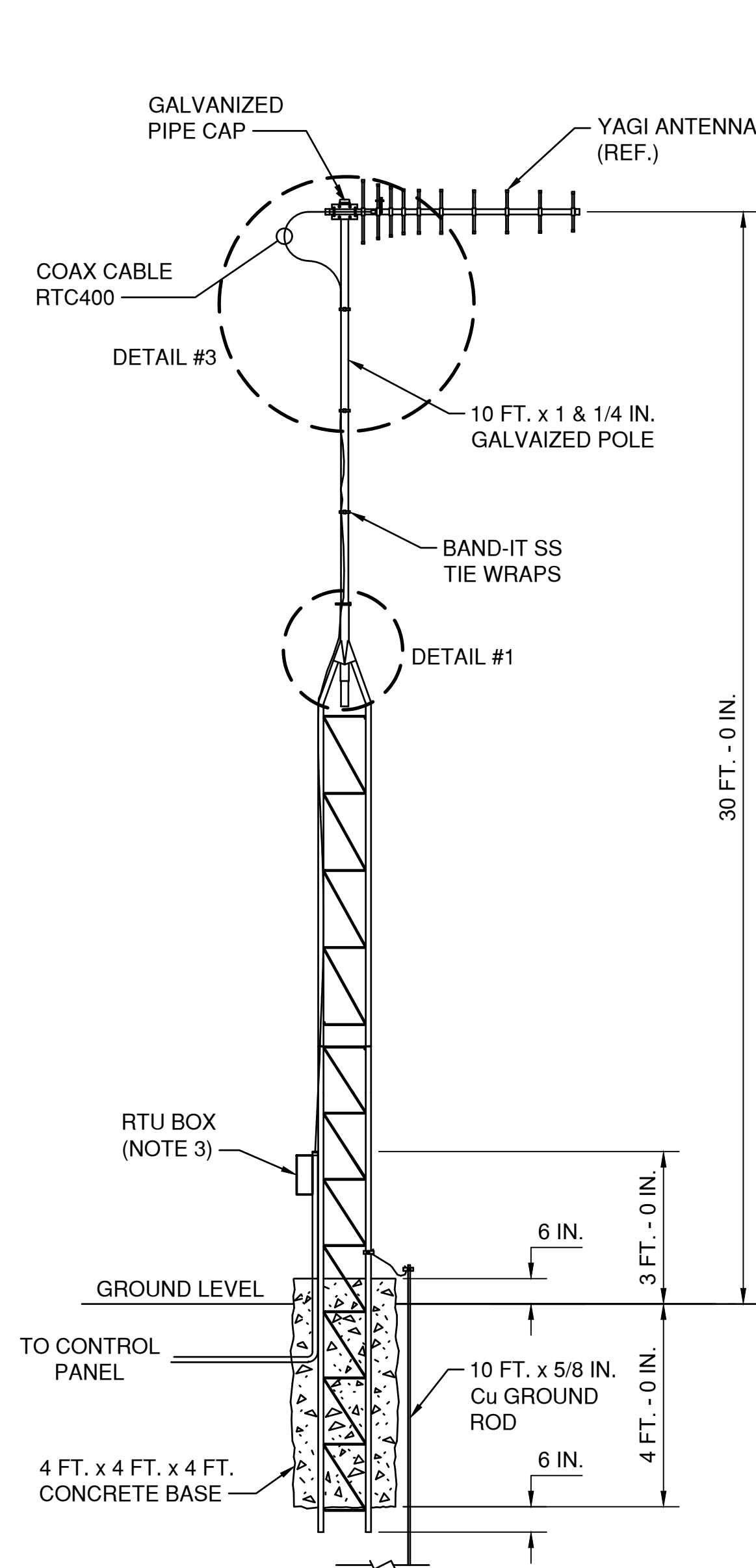
- 1 3/4"ØX10' COPPER CLAD GROUNDROD. EXOTHERMICALLY WELD TO GROUND CABLE BURIED MIN 18" BELOW GRADE
- 2 #4/0 SOFT DRAWN BARE COPPER CABLE BURIED MIN 18" BELOW GRADE (TYP ALL BELOW GRADE CABLE). EXOTHERMICALLY WELD ALL BELOW GRADE CONNECTIONS
- 3 EXTEND UP INTO MCC-A AND GROUND TO GROUND BUS
- 4 REFER TO GROUNDING SYSTEM TEST WELL

PROPOSED TYPICAL ELECTRICAL GROUNDING DETAIL
SCALE: N.T.S.

FILE: Y:\2023\IH-35\20230126_10_0000.dwg DATE: 2023/01/26 E-10: 00:00 PLOTTED: 1/26/2023 2:55 PM BY: JONATHAN ALLEN

NO.	REVISIONS	APPD.	DATE

SCALE:	N/A
DATE:	26 January, 2023
PROJECT NO:	
DESIGNED BY:	CS
DRAWN BY:	JAA
CHECKED BY:	RG
SHEET NO.	10
OF 13 SHEETS	



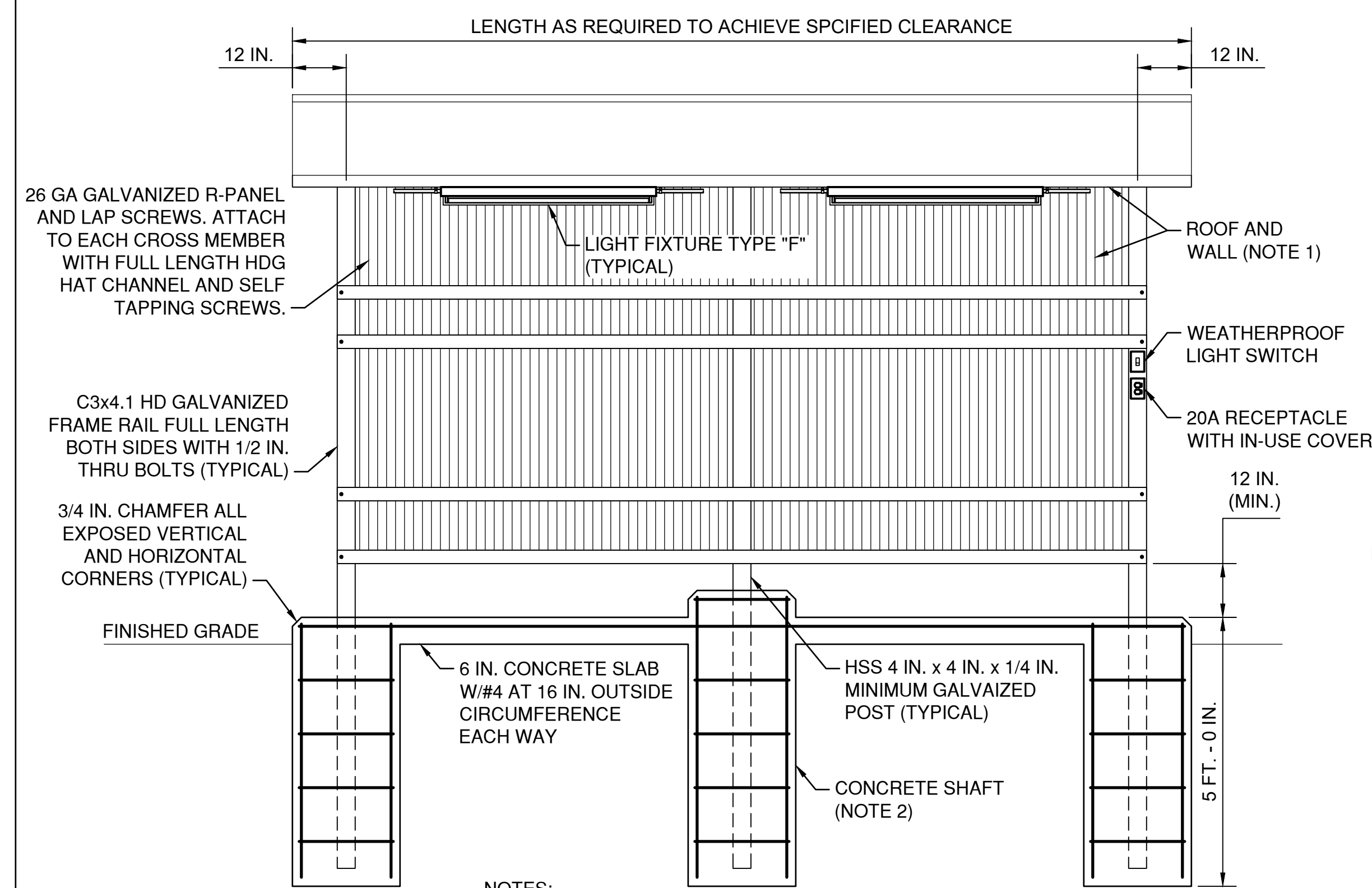
- GENERAL NOTES:**
- TOWER AND FOUNDATION SUBMITTALS SHALL BE PROVIDED BY PROFESSIONAL STRUCTURAL ENGINEER WITH AN ACTIVE LICENSE IN THE STATE OF TEXAS.
 - TOWER SHALL BE RATED FOR WIND CATEGORY FOR LIFT STATION PROJECT LOCATION.
 - RTU BOX SHALL BE DESIGNED, PROVIDED, INSTALLED, AND PROGRAMMED BY CITY SCADA CONSULTANT. REFER TO TECHNICAL SPECIFICATIONS FOR PRICING AND PAYMENT PROCEDURES.

NO.	REVISIONS	APPD.	DATE

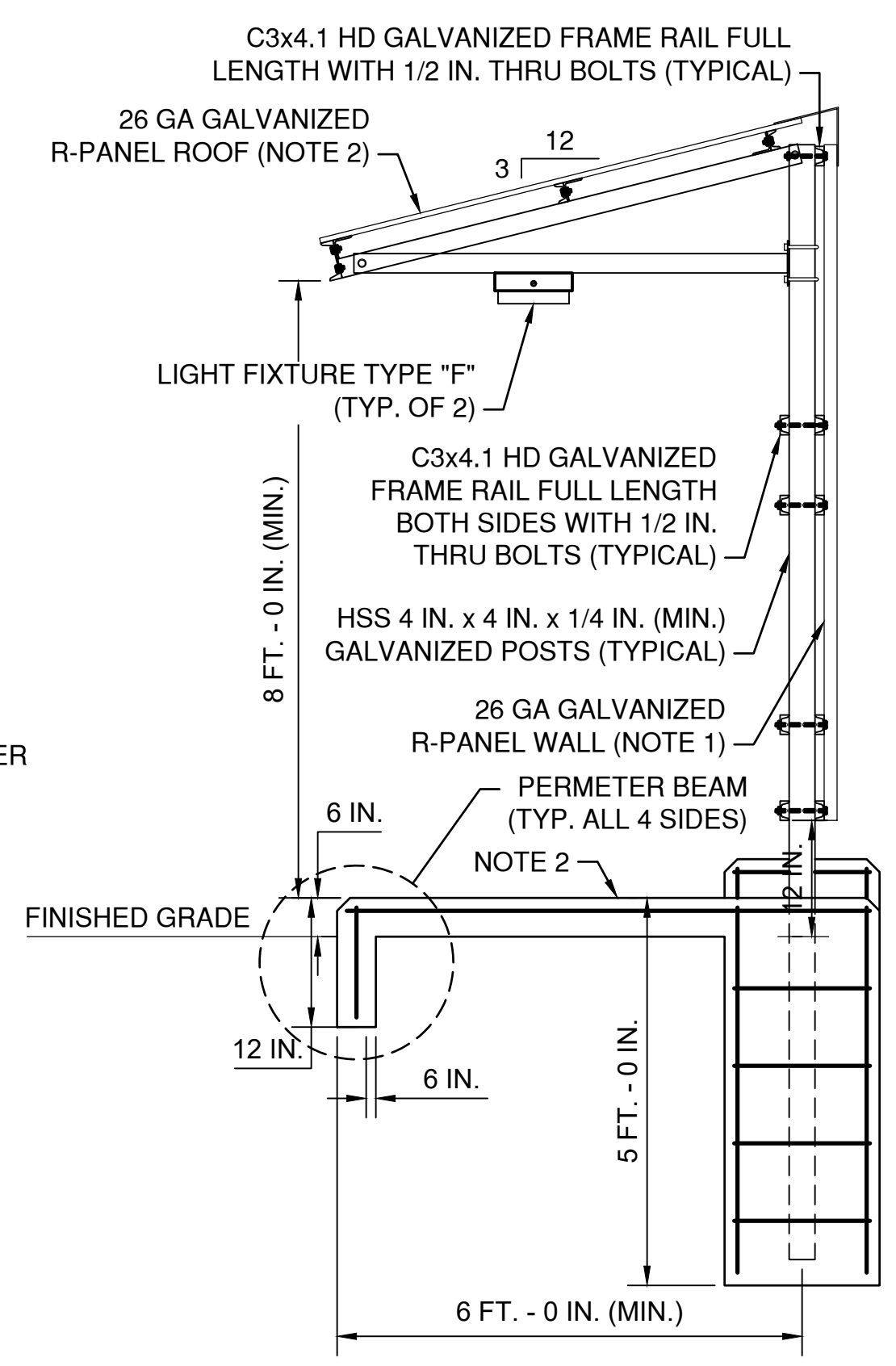
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 DATE: 26 January, 2023
 PROJECT NO:
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 SHEET NO.
 11
 OF 13 SHEETS

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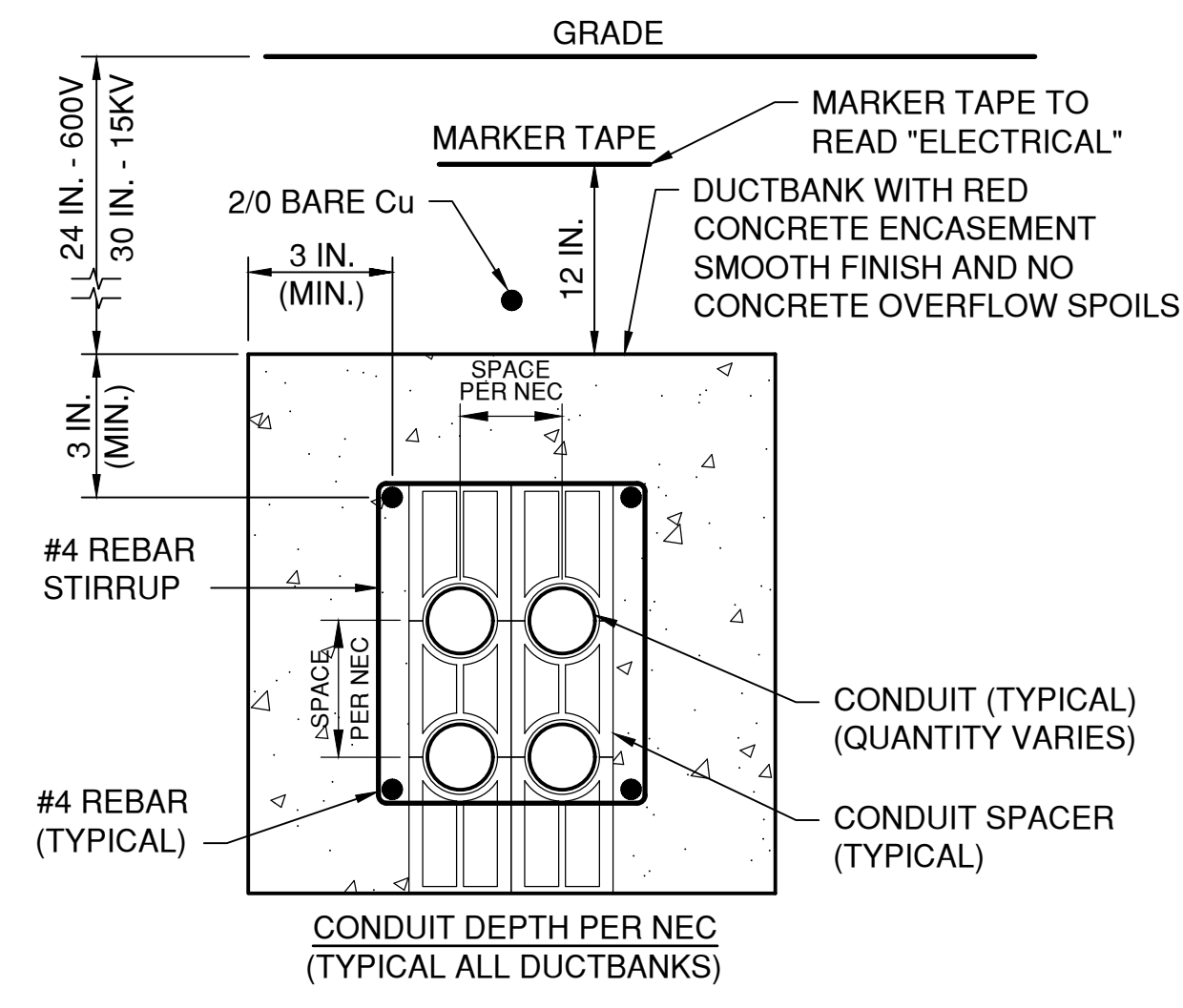
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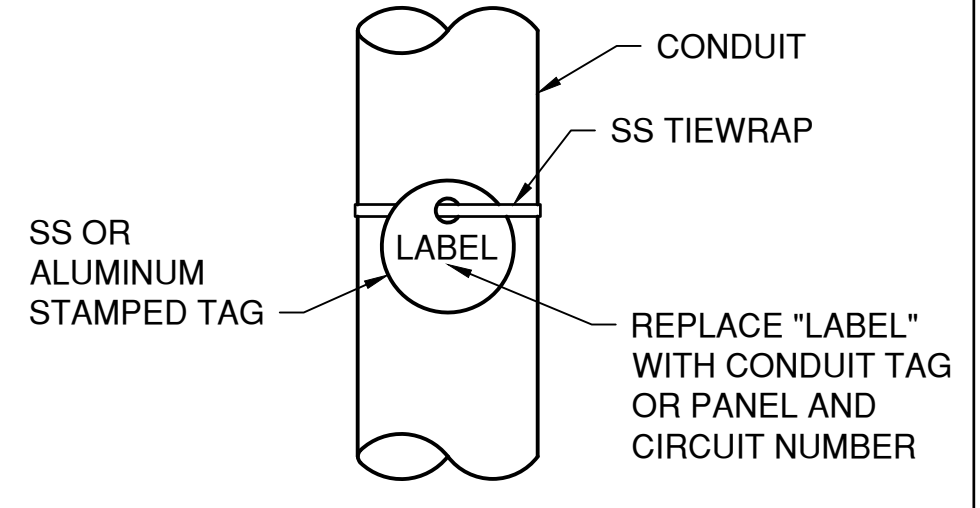
ELECTRICAL EQUIPMENT SHELTER DETAIL - FRONT VIEW
SCALE: N.T.S.



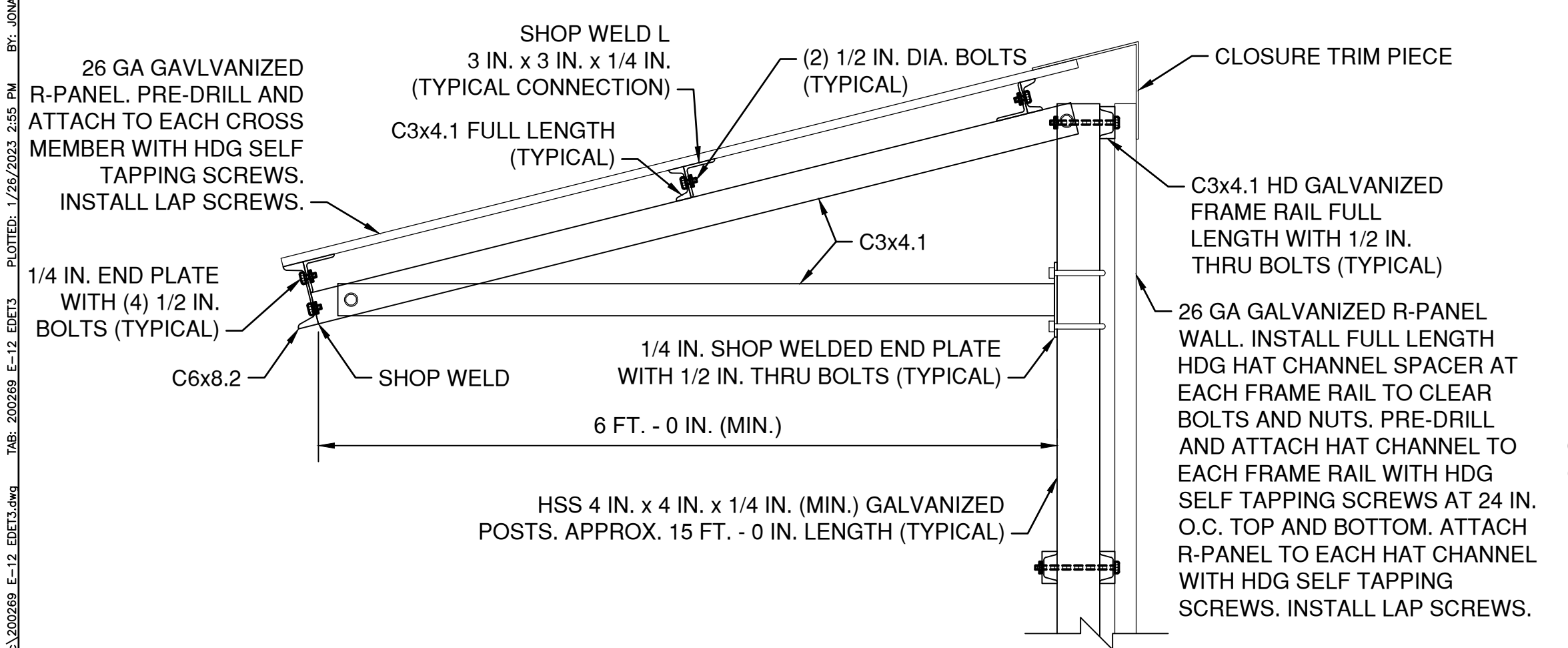
ELECTRICAL EQUIPMENT SHELTER DETAIL - END VIEW
SCALE: N.T.S.



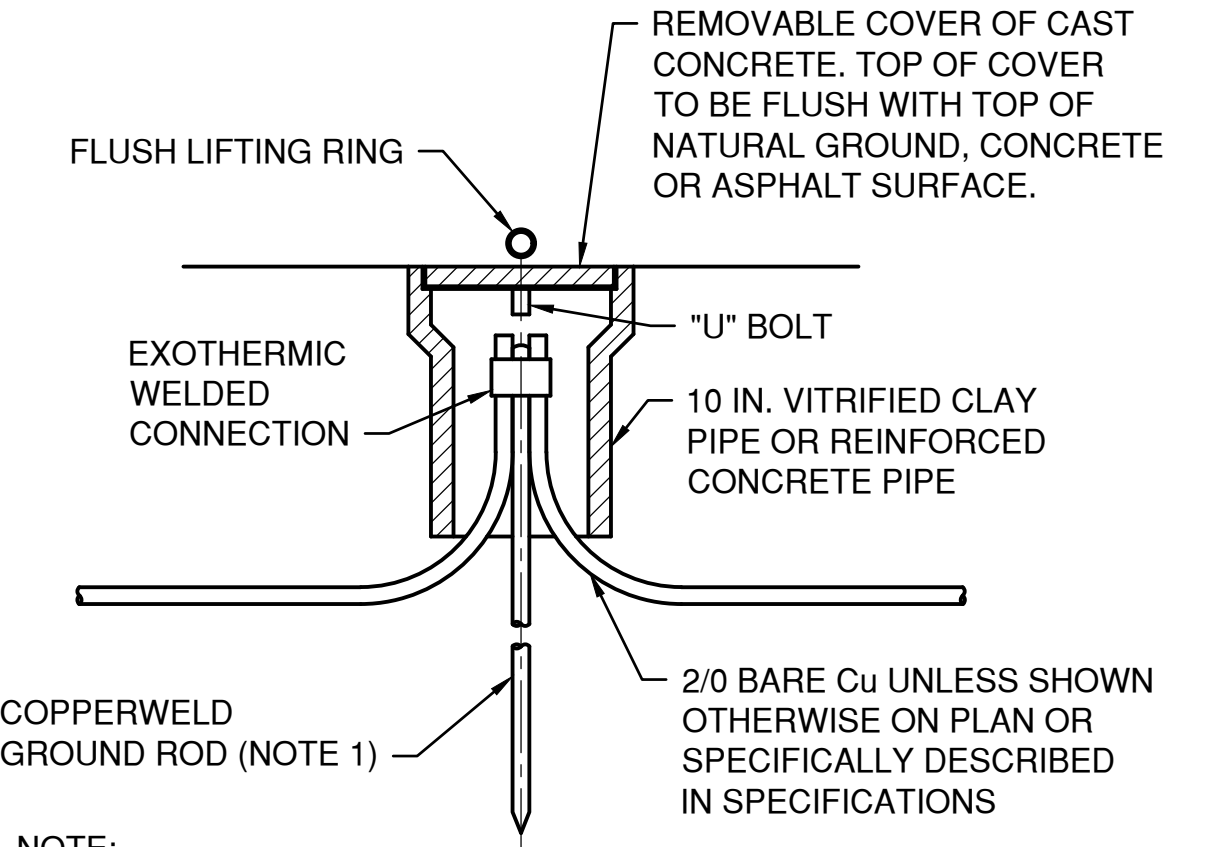
DUCTBANK CONSTRUCTION DETAIL
SCALE: N.T.S.



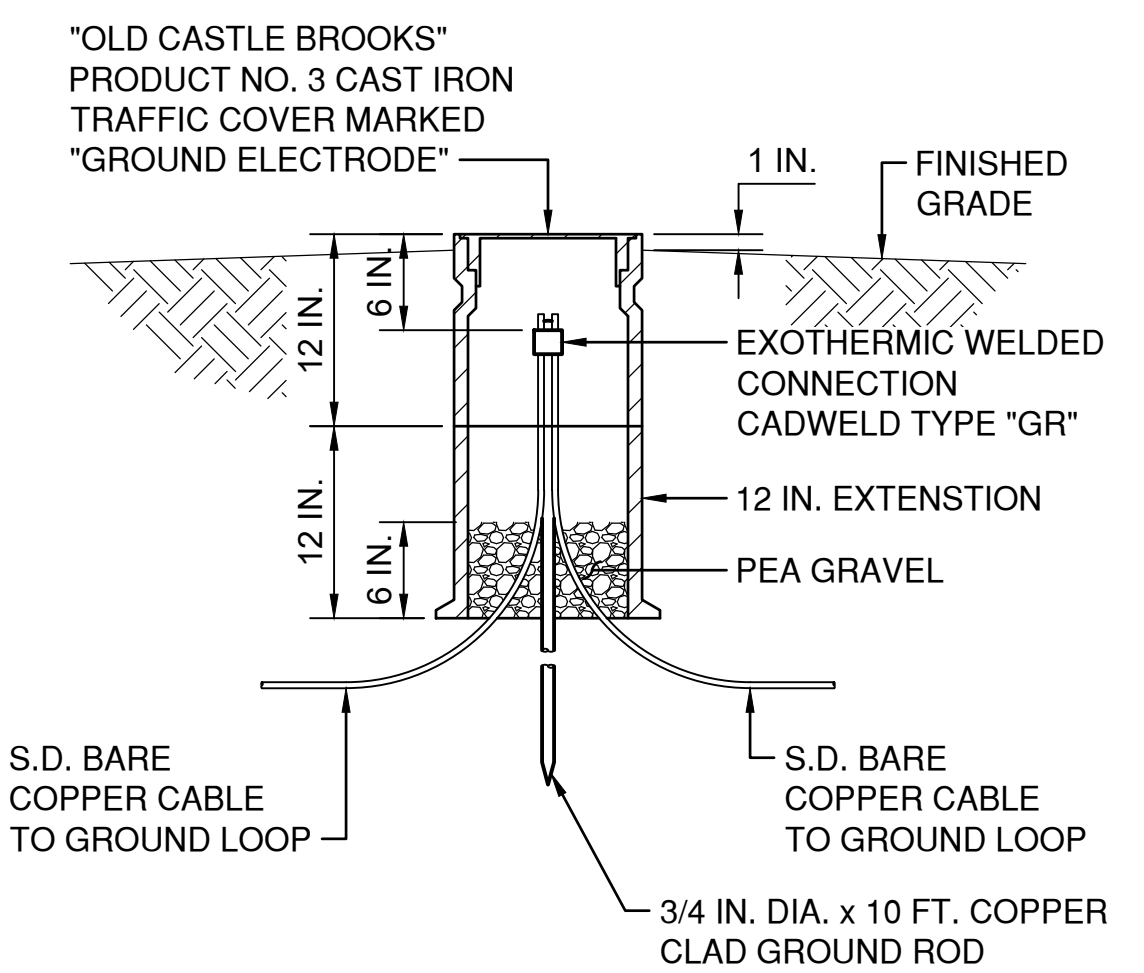
CONDUIT LABEL DETAIL
SCALE: N.T.S. (TYPICAL)



ROOF AND WALL DETAIL
SCALE: N.T.S.



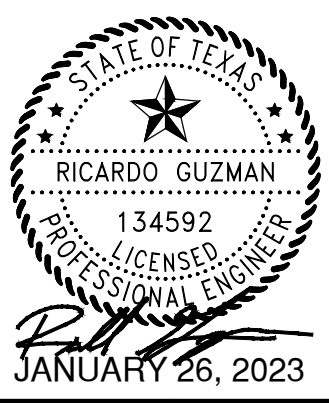
GROUND WELL DETAIL
SCALE: N.T.S.



GROUNDING SYSTEM TEST WELL DETAIL
SCALE: N.T.S. (TYPICAL)

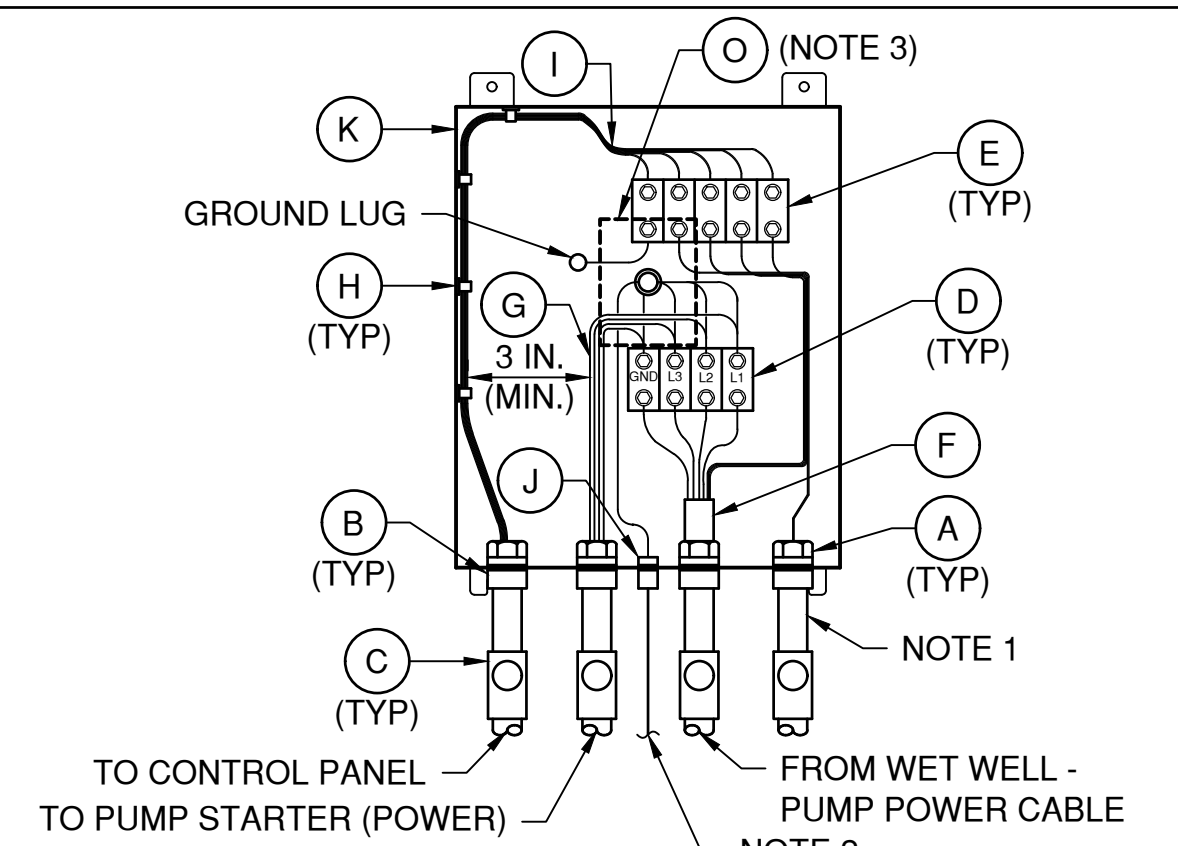
GENERAL NOTES:

1. PROVIDE MANUALLY CONTROLLED FULL CUTOFF LED SITE LIGHTING IN EACH PROCESS AREA: 15,000 LUMENS AND 4,000K. PROVIDE SWITCHES, PHOTOCELLS, AND RECEPTACLES AT ALL LIGHTING POLES.
2. ALL LIGHTING IS REQUIRED TO BE LED.
3. ALL ENCLOSURES, HARDWARE, STRAPS, AND ANCHORS TO BE 316 STAINLESS STEEL.
4. REFERENCE SHEET 21 FOR ADDITIONAL ELECTRICAL SHELTER REQUIREMENTS.
5. DO NOT PENETRATE THE TOP OR UPPER 2/3 OF ENCLOSURES.
6. PROVIDE A 6 IN. MINIMUM CLEARANCE BETWEEN ENCLOSURES
7. MAINTAIN 12 IN. MINIMUM CLEARANCE FROM THE EDGE OF THE OUTSIDE ENCLOSURE TO THE CENTER OF THE END POST.



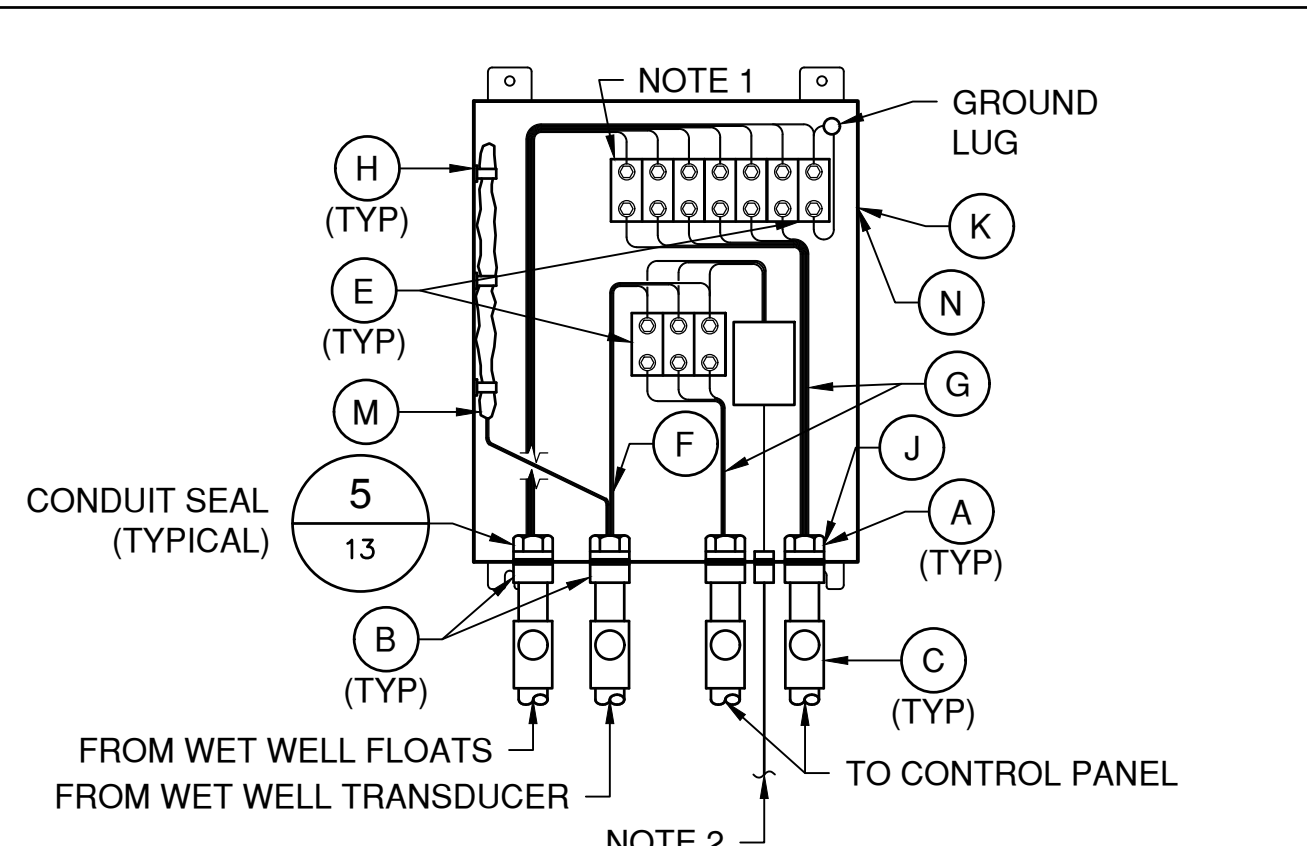
NO.	REVISIONS	APP'D.	DATE





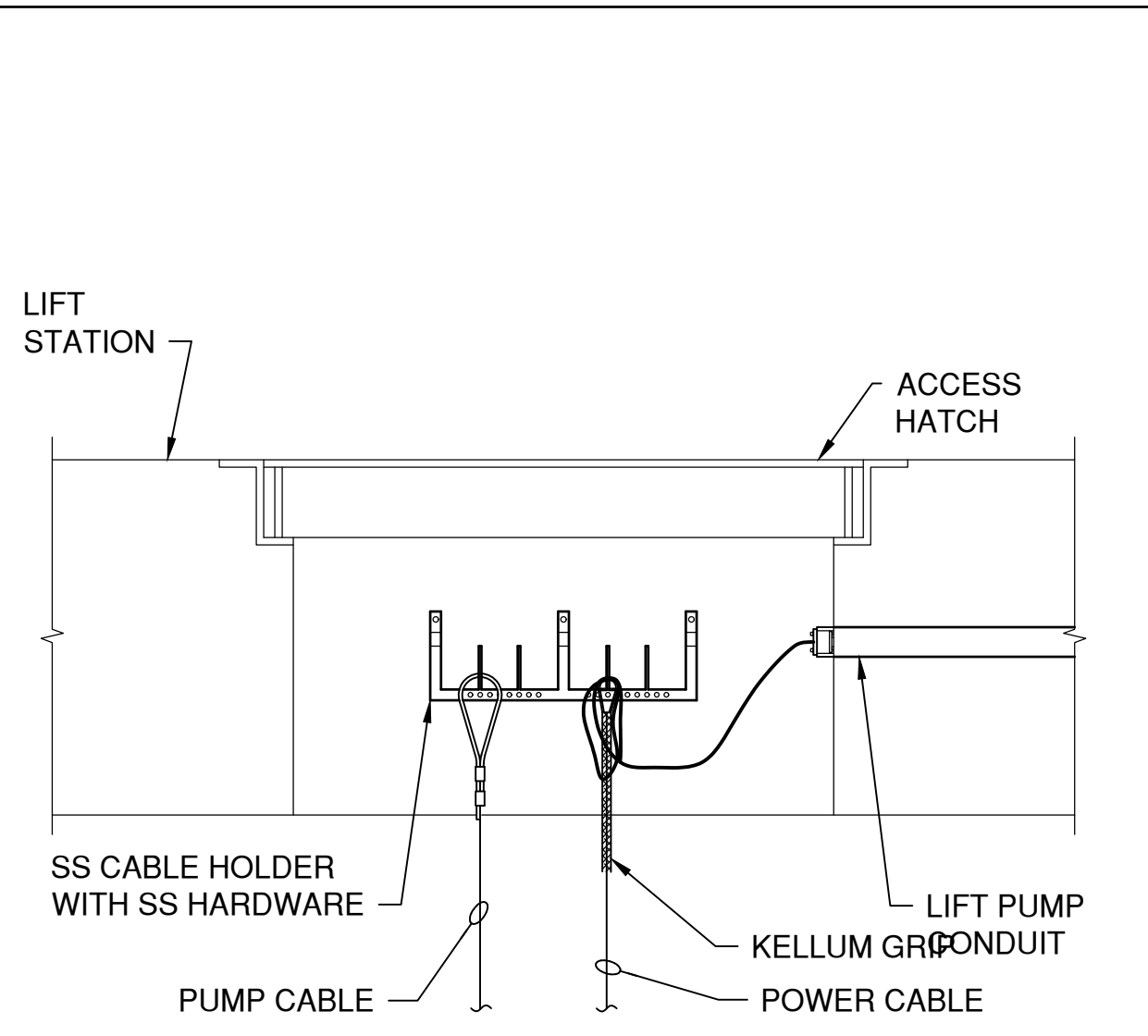
- NOTE:**
1. PROVIDE ADDITIONAL CONDUIT ONLY WHERE PUMP HAS 2 CABLES.
 2. ROUTE SURGE PROTECTION DEVICE GROUND CONDUCTOR STRAIGHT PATH TO STRUCTURE STEEL AND TO 20 FT. GROUND ROD.
 3. SURGE PROTECTOR MOUNTED ON BACK OF TERMINAL BOX.

1 LIFT PUMP TERMINAL BOX DETAIL
13 N.T.S.

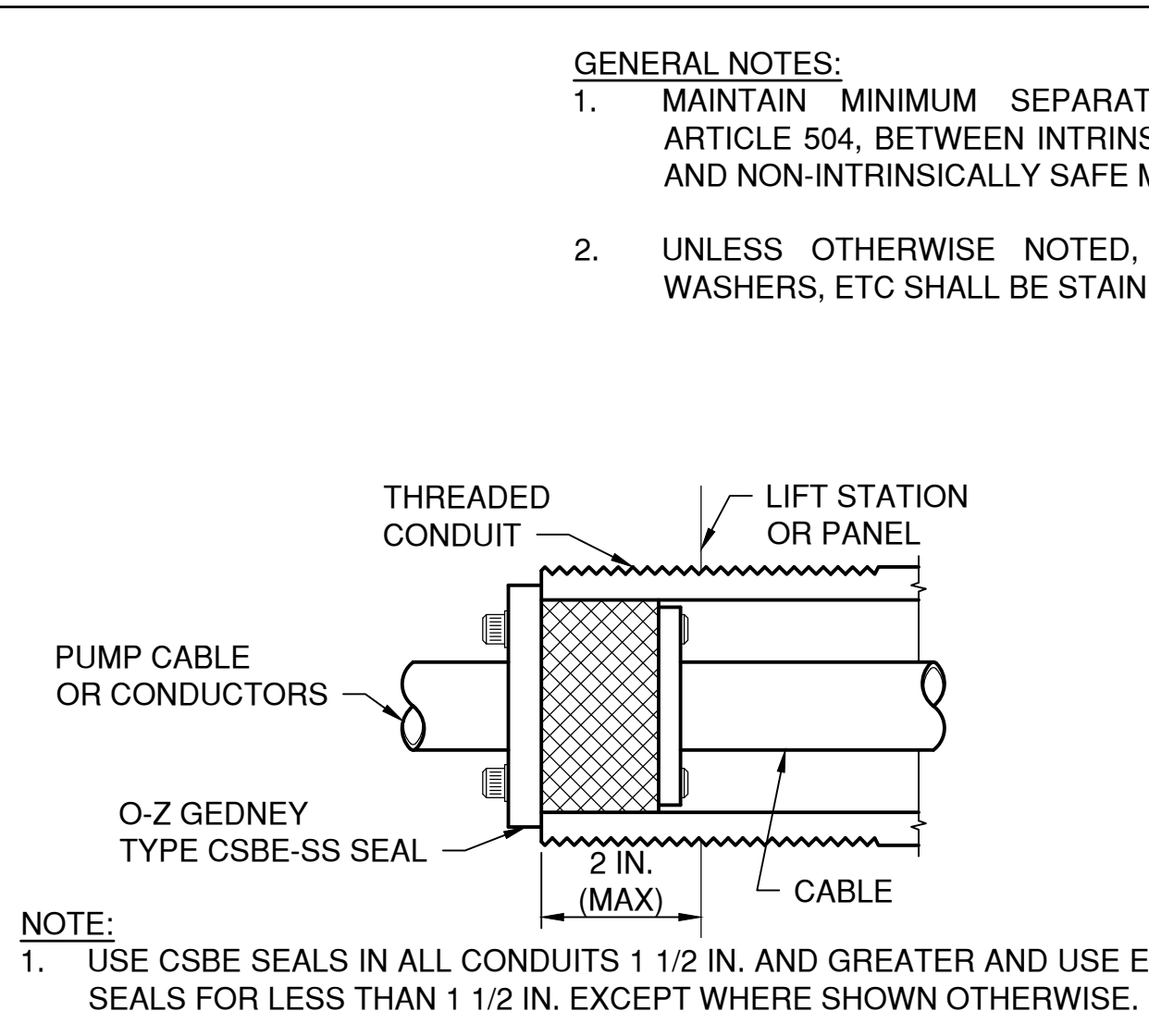


- NOTE:**
1. PROVIDE REQUIRED NUMBER OF TERMINAL BLOCKS RECOMMENDED BY LEVEL SENSOR PROBE MANUFACTURER.
 2. ROUTE SURGE PROTECTION DEVICE GROUND CONDUCTOR STRAIGHT PATH TO STRUCTURE STEEL AND TO 20 FT. GROUND ROD.

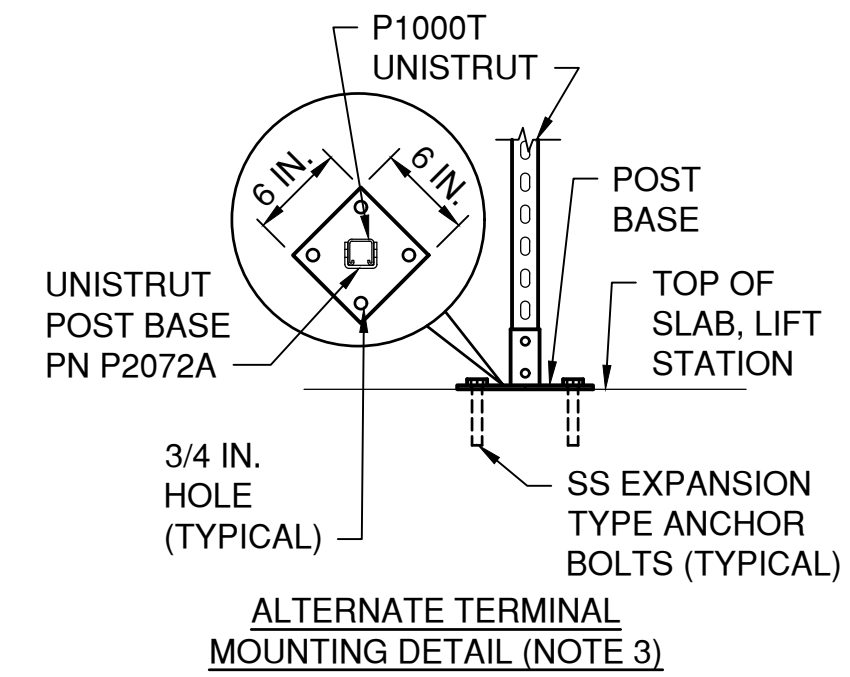
2 FLOATS/TRANSDUCER/PRESSURE LEVEL TERMINAL BOX DETAIL
13 N.T.S.



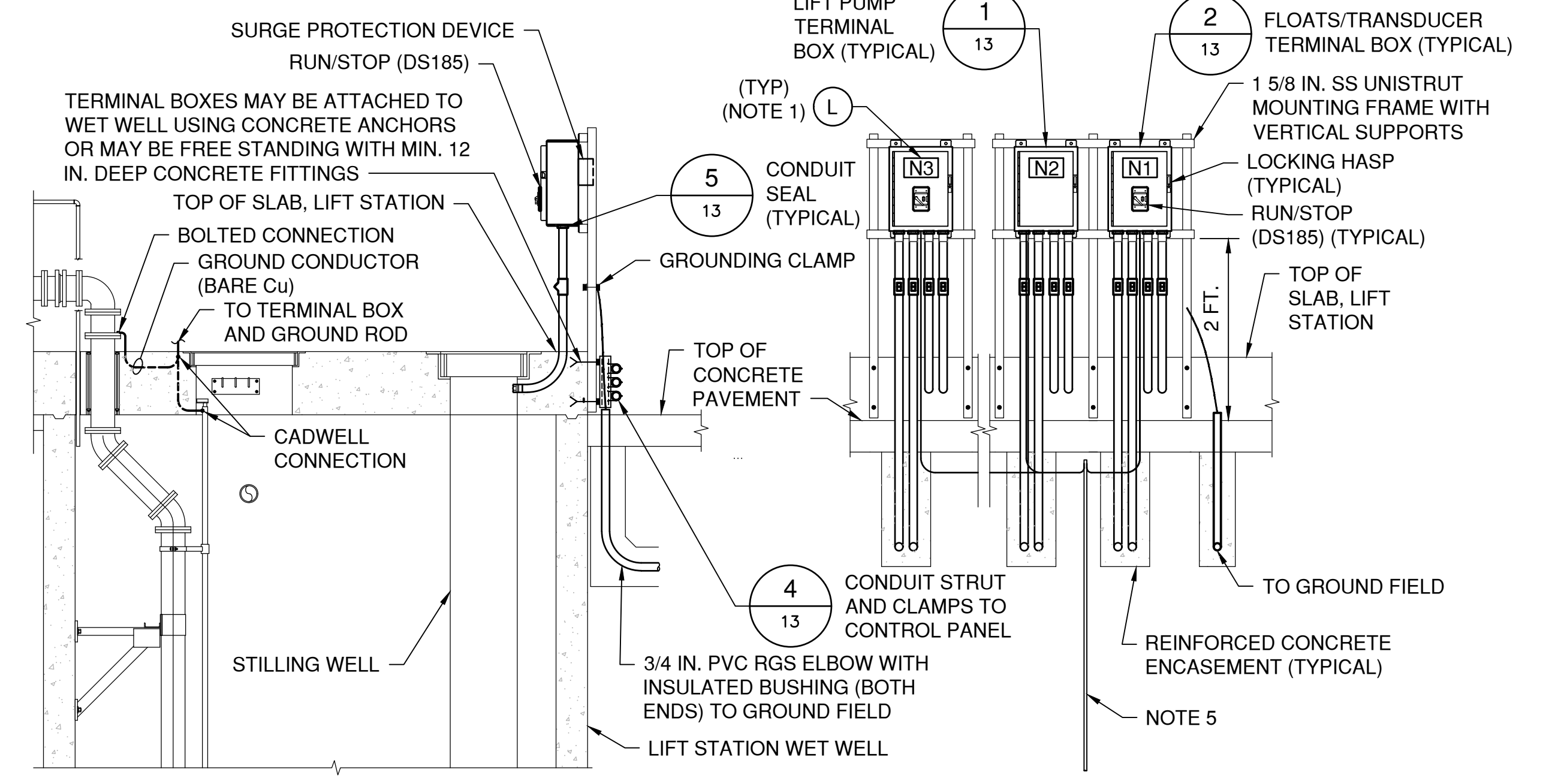
3 PUMP CABLE INSTALLATION DETAIL
N.T.S.



4 CONDUIT SEAL DETAIL
13 N.T.S. (TYPICAL)

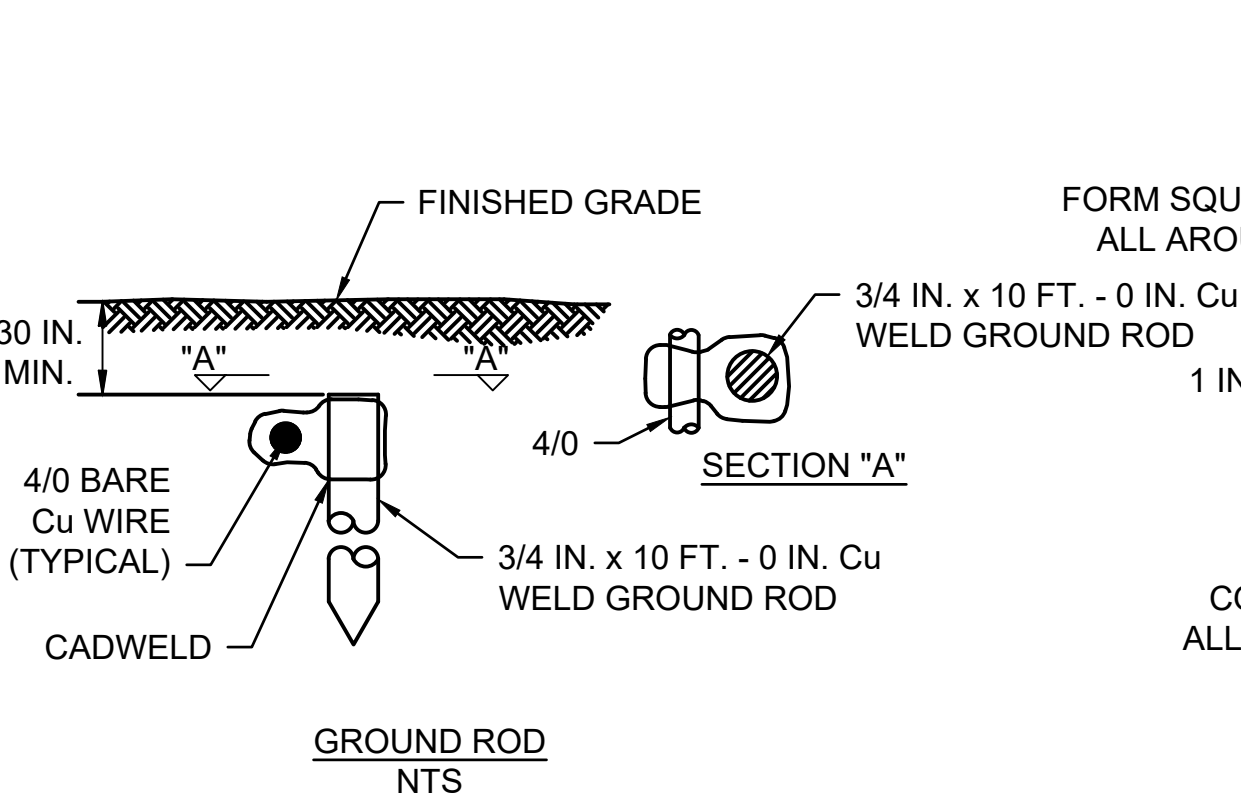


- TERMINAL BOX SCHEDULE**
- | | |
|--|--|
| A. OZ GEDNEY CSBE SEAL. | J. CGB FITTING. |
| B. WATERTIGHT CONDUIT HUB WITH INSULATED BUSHING. | K. HOFFMAN NEMA 4X STAINLESS STEEL JUNCTION BOX WITH GASKETED FRONT COVER, CONTINUOUS HINGE, SCREW-DOWN CLAMPS, HASP AND PADLOCKING PROVISIONS. MINIMUM SIZE: : 12 IN. W x 16 IN. H x 6 IN. D. |
| C. CLASS 1, DIV 1, EXPLOSION PROOF SEAL INSTALLED PER NEC DIV 501. | L. MICARTA NAMEPLATE, 3/8 IN. HIGH LETTERS IN WHITE ON BLACK BACKGROUND (SEE NAMEPLATE SCHEDULE). |
| D. POWER TERMINAL BLOCK W/SCREW DOWN BOX LUGS. | M. TRANSDUCER BREATHER. |
| E. CONTROL TERM BLOCK WITH SCREW DOWN BOX LUGS. | N. SURGE PROTECTION DEVICE: BLUE RIBBON CORP. No. BCP3000 SURGE PROTECTOR. |
| F. MULTI-CONDUCTOR CABLE, REMOVE OUTER JACKET AS SHOWN. | O. SURGE PROTECTION DEVICE: EATON MODEL No. CVX 100 480Y. SEE ONE-LINE DIAGRAM FOR VOLTAGE. |
| G. WIRING AS SCHEDULED. | |
| H. WIRING HARNESS PERMANENTLY AFFIXED. | |
| I. PUMP CONTROL WIRING. | |

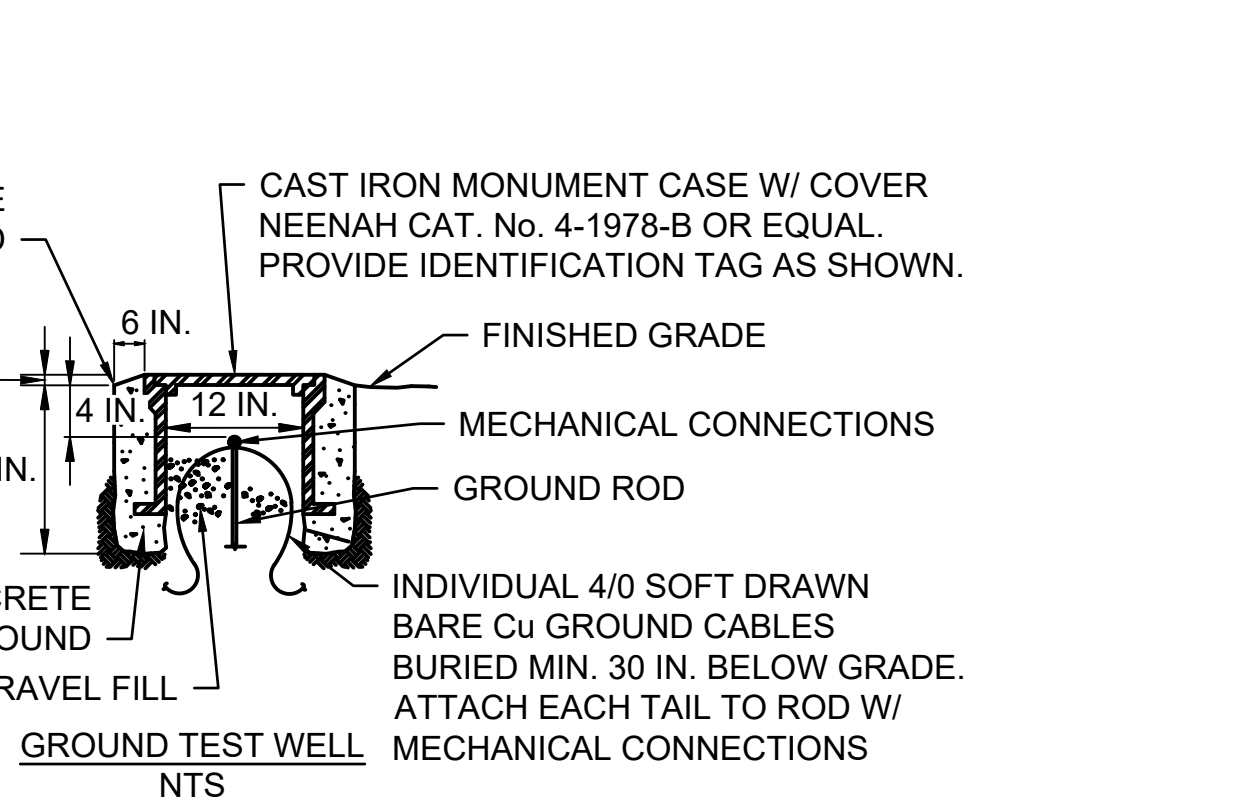


- NOTES:**
1. NAMEPLATES SHALL BE MOUNTED TO TERMINAL BOXES USING STAINLESS STEEL HARDWARE.
 2. TERMINAL BOX ARRANGEMENT VARIES. SEE ELECTRICAL PLAN.
 3. MOUNT TERMINAL BOX ON TOP OF LIFT STATION USING POST BASE WHERE TOP OF LIFT STATION IS FLUSH WITH GRADE.
 4. DOOR HINGE ON LEFT ONLY. DO NOT ROTATE ENCLOSURE.
 5. ROUTE SURGE PROTECTION DEVICE GROUND CONDUCTOR STRAIGHT PATH TO STRUCTURE STEEL AND TO 10 FT. GROUND ROD.

5 TERMINAL BOX INSTALLATION DETAIL
N.T.S.



7 STILLING WELL DETAIL
N.T.S.



8 FENCE POST AND GATE ROUNDING DETAIL
N.T.S.

NAMEPLATE SCHEDULE

DESIGNATION	ENGRAVED TRANSDUCER/FLOATS
N1	PUMP NO. 2
N2	PUMP NO. 1
N3	

- GENERAL NOTES:**
1. MAINTAIN MINIMUM SEPARATION REQUIRED UNDER NEC ARTICLE 504, BETWEEN INTRINSICALLY SAFE CONTROL WIRING AND NON-INTRINSICALLY SAFE MOTOR FEEDER WIRING.
 2. UNLESS OTHERWISE NOTED, ALL NUTS, BOLTS, SCREWS, WASHERS, ETC SHALL BE STAINLESS STEEL.

UTILITY ENGINEERING GROUP PLLC
1811 Union Ave NEW BRAUNFELS, TEXAS 76103 PH: (830) 214-0621
TEXAS ENGINEERING FIRM F-157122

STATE OF TEXAS
RICARDO GUZMAN
134592
LICENSED PROFESSIONAL ENGINEER
JANUARY 26, 2023

IH-35 RIATA LIFT STATION RELOCATION AND OFFSITE SEWER IMPROVEMENTS
ELECTRICAL DETAILS
SHEET 4

NO.	REVISIONS	APP'D.	DATE

SCALE: N/A
DATE: 26 January, 2023
PROJECT NO:
DESIGNED BY: CS
DRAWN BY: JAA
CHECKED BY: RG
SHEET NO. 13
OF 13 SHEETS

CLEARY ZIMMERMANN ENGINEERS
Firm No. F-9357 | ClearyZimmermann.com

Attachment "B" Accounting Method

Actual Cost Method of Accounting

The utility accumulates cost under a work order accounting procedure prescribed by the Federal or State regulatory body and proposes to request reimbursement for actual direct and related indirect costs.

Lump Sum Method of Accounting

Utility proposed to request reimbursement based on an agreed lump sum amount supported by a detailed cost analysis.

Initial _____ Date _____
TxDOT

Initial _____ Date _____
Utility



Riata Lift Station - City of Schertz
Lift Station and Off-Site Utilities Relocation Project



UTILITY ENGINEERING GROUP

Preliminary 100% Opinion of Probable Project Costs

Project Name and Phase:	Riata Lift Station Relocation Project		
Owner:	City of Schertz		
Engineering Firm:	Utility Engineering Group, PLLC		
Project Number:	8032-01		
Wastewater EDUs:	Sewer EDUs:	Date:	2/23/23
Prepared By:	David Kneuper		

Total Project

Bid Item	Bid Item Description	Quantity	Unit	Unit Price	Total Cost
General					
1	MOBILIZATION, BONDS & INSURANCE	1	EA	\$ 175,000.00	\$ 175,000.00
Subtotal General:					\$ 175,000.00

Erosion and Sedimentation Controls

1	SILT FENCE	660	LF	\$ 3.50	\$ 2,310.00
2	STABILIZED CONSTRUCTION ENTRANCE/EXIT	1	EA	\$ 2,500.00	\$ 2,500.00
3	TREE PROTECTION FENCING (11 TOTAL TREES)	245	LF	\$ 5.00	\$ 1,225.00
4	TREE REMOVAL	4	EA	\$ 250.00	\$ 1,000.00
5	SITE RESTORATION & REVEGETATION	4,675	SY	\$ 4.00	\$ 18,700.00
Subtotal Erosion and Sedimentation Controls					\$ 25,735.00

Off-Site Utilities

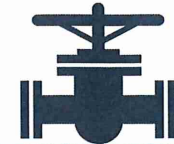
1	SITE CLEARING & RIGHT-OF-WAY PREPARATION	0.74	AC	\$ 10,000.00	\$ 7,400.00
2	TRENCH & EXCAVATION SAFETY (PLAN AND IMPLEMENTATION)	760	LF	\$ 45.00	\$ 34,200.00
3	6" PVC C900 DR 14 FORCE MAIN PIPING	360	LF	\$ 110.00	\$ 39,600.00
4	8" PVC SDR 26 GRAVITY MAIN PIPING (8' - 25')	400	LF	\$ 200.00	\$ 80,000.00
5	5' DIA. WW MANHOLE	1	EA	\$ 8,500.00	\$ 8,500.00
6	5' DIA. DOGHOUSE MANHOLE	1	EA	\$ 25,000.00	\$ 25,000.00
7	SMARTCOVER SYSTEM (MANHOLE A-2)	1	EA	\$ 12,000.00	\$ 12,000.00
8	EXTRA DEPTH MANHOLE	20	VF	\$ 350.00	\$ 7,000.00
9	DUCTILE IRON FITTINGS	0.5	TON	\$ 25,000.00	\$ 12,500.00
10	CONNECT TO EX. GRAVITY WW MAIN	1	EA	\$ 5,500.00	\$ 5,500.00
11	CONNECT TO EX. FORCE MAIN	1	EA	\$ 2,500.00	\$ 2,500.00
12	ABANDONMENT IN PLACE OF EX. GRAVITY MAIN AND MANHOLES	1	EA	\$ 20,000.00	\$ 20,000.00
13	ABANDONMENT AND REMOVAL OF EX. FORCE MAIN	1	EA	\$ 25,000.00	\$ 25,000.00
14	ASPHALT PAVEMENT REPAIR (INCL. CURB & GUTTER)	106	SY	\$ 250.00	\$ 26,500.00
15	BYPASS PUMPING (PLAN AND IMPLEMENTATION) TOTAL PROJECT	1	EA	\$ 25,000.00	\$ 25,000.00
16	DEWATERING PLAN & IMPLEMENTATION	1	EA	\$ 7,500.00	\$ 7,500.00
17	MATERIAL TESTING	1	EA	\$ 5,000.00	\$ 5,000.00
18	HYDROSTATIC TEST	1	EA	\$ 3,500.00	\$ 3,500.00
Subtotal Off-Site Utilities:					\$ 346,700.00

Lift Station

1	SITE CLEARING & RIGHT-OF-WAY PREPARATION	0.42	AC	\$ 10,000.00	\$ 4,200.00
2	LIFT STATION WET WELL EXCAVATION SAFETY (PLAN AND IMPLEMENTATION)	1	EA	\$ 100,000.00	\$ 100,000.00
3	LIFT STATION SITE PIPING*	1	EA	\$ 35,000.00	\$ 35,000.00
4	6" PLUG VALVE W/HAND WHEEL*	2	EA	\$ 3,750.00	\$ 7,500.00
5	6" CHECK VALVE*	3	EA	\$ 5,000.00	\$ 15,000.00
6	6" PLUG VALVE W/BOX*	2	EA	\$ 3,500.00	\$ 7,000.00
7	6" EMERGENCY BY-PASS INCLUDING CONCRETE EQUIPMENT PAD*	1	EA	\$ 12,500.00	\$ 12,500.00
8	COMBINATION AIR/VACUUM RELEASE VALVE*	1	EA	\$ 4,500.00	\$ 4,500.00
9	DUCTILE IRON FITTINGS	1.00	TON	\$ 20,000.00	\$ 20,000.00
10	SUBMERSIBLE PUMP*	2	EA	\$ 115,000.00	\$ 230,000.00
11	12' DIA. PRE-CAST CONCRETE WET WELL - 20.5' DEPTH	1	EA	\$ 425,000.00	\$ 425,000.00
12	PRE-CAST CONCRETE VALVE VAULT	1	EA	\$ 35,000.00	\$ 35,000.00
13	LIFT STATION APPURTENANCES* EX. LIFT STATION ABANDONMENT (INCLUDING SITE, PAVEMENT, WET WELL, ELECTRICAL, AND ALL APPURTENANCES DETAILED ON THE DEMO SHEETS)	1	EA	\$ 150,000.00	\$ 150,000.00
14	PIPE BOLLARD*	14	EA	\$ 1,350.00	\$ 18,900.00
15	ASPHALT PAVEMENT	826	SY	\$ 50.00	\$ 41,300.00
16	FLUSH CURB	664	LF	\$ 17.50	\$ 11,620.00
17	WEED PROTECTION AND ROCK AROUND SITE	1,205	SY	\$ 25.00	\$ 30,125.00
18	SITE WATER SERVICE*	1	EA	\$ 5,500.00	\$ 5,500.00
19	SECURITY FENCING	447	LF	\$ 75.00	\$ 33,525.00
20	SECURITY GATE*	2	EA	\$ 4,000.00	\$ 8,000.00
21	DEWATERING PLAN & IMPLEMENTATION	1	EA	\$ 35,000.00	\$ 35,000.00
22	MATERIAL TESTING	1	EA	\$ 5,000.00	\$ 5,000.00
23	HYDROSTATIC TEST	1	EA	\$ 7,500.00	\$ 7,500.00
24	DEMONSTRATION TESTING	1	EA	\$ 10,000.00	\$ 10,000.00
25	ELECTRICAL SHELTER INCLUDING CONCRETE FOUNDATION*	1	EA	\$ 45,000.00	\$ 45,000.00
26	ELECTRICAL INSTRUMENTATION & CONTROLS, & SITE LIGHTING*	1	EA	\$ 265,000.00	\$ 265,000.00
27	SCADA TOWER INCLUDING FOUNDATION*	1	EA	\$ 25,000.00	\$ 25,000.00
28	EMERGENCY GENERATOR INCLUDING CONCRETE FOUNDATION*	1	EA	\$ 135,000.00	\$ 135,000.00
29					



Riata Lift Station - City of Schertz
Lift Station and Off-Site Utilities Relocation Project



UTILITY ENGINEERING GROUP

Preliminary 100% Opinion of Probable Project Costs

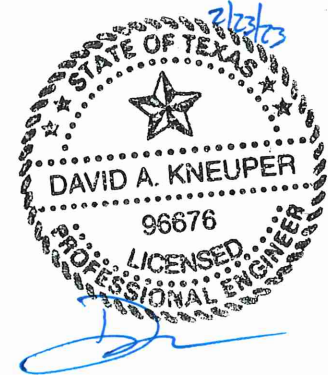
Project Name and Phase :	Riata Lift Station Relocation Project	Date: 2/23/23
Owner:	City of Schertz	
Engineering Firm:	Utility Engineering Group, PLLC	
Project Number:	8032-01	
Wastewater EDUs:	Sewer EDUs:	
Prepared By:	David Kneuper	

Total Project

Bid Item	Bid Item Description	Quantity	Unit	Unit Price	Total Cost
CONSTRUCTION COST TOTAL:					\$ 2,389,605.00
Professional Services					
1	UEG - Principal	38	HR	\$ 185.00	\$ 7,030.00
2	UEG - Project Manager	148	HR	\$ 155.00	\$ 22,940.00
3	UEG - Graduate Engineer	224	HR	\$ 100.00	\$ 22,400.00
4	UEG - Design Technician	144	HR	\$ 85.00	\$ 12,240.00
5	UEG - Administrative	12	HR	\$ 55.00	\$ 660.00
6	Sub-Consultant - Electrical Engineering	103	HR	\$ 200.00	\$ 20,600.00
7	Sub-Consultant - Survey	42	HR	\$ 250.00	\$ 10,500.00
8	Sub-Consultant - Geotechnical Engineering	39.5	HR	\$ 130.00	\$ 5,135.00
9	Sub-Consultant - Structural Engineering	27.5	HR	\$ 200.00	\$ 5,500.00
10	Sub-Consultant - ROW Agent	50	HR	\$ 150.00	\$ 7,500.00
11	Sub-Consultant - Environmental	110	HR	\$ 139.00	\$ 15,290.00
Subtotal Professional Services:					\$ 129,795.00
PERMANENT UTILITY/ACCESS/SITE EASEMENT		39,730.0	SF	\$ 6.50	\$ 258,245.00
TEMPORARY CONSTRUCTION EASEMENT		10,796	SF	\$ 1.30	\$ 14,034.80
TOTAL PROJECT					\$ 2,791,679.80

This Preliminary Opinion of Probable Cost is based on Utility Engineering Group's (UEG) experience and Qualifications, and represents UEG's best judgment. However, since UEG has no control over the cost of labor, materials, equipment, inflation and/or services provided by others, UEG does not guarantee that the actual construction cost will not vary from this Preliminary Opinion of Probable Cost

All material items that must meet Buy America or Steel and Iron Preference Provision requirements are indicated with an asterisk ()



Attachment “C” Schedule of Work

Estimated Start Date: July 10, 2023, (subject to physical work restrictions prior to the issuance of environmental clearance as required by the provisions of this agreement)

Estimated Duration (days): 420

Estimated Completion Date: September 2, 2024

Initial Date
TxDOT

Initial Date
Utility

Attachment "D" Statement Covering Contract Work

(ROW-U-48)
(ROW-U-48-1, if applicable)

Construction Contract:

- Utility performing with their own forces (timesheets will be required at the time of billing).
- Utility will use outside forces to perform the adjustment, complete attached ROW-U-48 or ROW-U-48-1 (joint bid).

Engineering Contract:

- Utility performing with their own forces (timesheets will be required at the time of billing).
- Utility will use consultant contract (continuing contract rate sheets or fee schedule will be required).
- TxDOT will procure utility consultant.

Initial Date
TxDOT

Initial Date
Utility



STATEMENT COVERING UTILITY CONSTRUCTION CONTRACT WORK
(AS APPEARING IN ESTIMATE)

U-Number: U00014203

ROW CSJ Number: 0016-05-116 District: San Antonio
County: Comal Highway No.: IH 35
Federal Project No.: NH 1720(809)

I, Steve Williams, a duly authorized and qualified representative of City of Schertz, hereinafter referred to as Owner, am fully cognizant of the facts and make the following statements in respect to work which will or may be done on a contract basis as it appears in the estimate to which this statement is attached.

It is more economical and/or expedient for Owner to contract this adjustment, or Owner is not adequately staffed or equipped to perform the necessary work on this project with its own forces to the extent as indicate on the estimate.

Procedure to be Used in Contracting Work

- A. Solicitation for bids is to be accomplished through open advertising and contract is to be awarded to the lowest qualified bidder who submits a proposal in conformity with the requirements and specifications for the work to be performed. Associated bid tabulations will be provided to the State.
B. Solicitation for bids is to be accomplished by circulating to a list of pre-qualified contractors or known qualified contractors and such contract is to be awarded to the lowest qualified bidder who submits a proposal in conformity with the requirements and specifications for the work to be performed. Associated bid tabulations will be provided to the State. Such presently known contractors are listed below:
1.
2.
3.
4.
5.
C. The work is to be performed under an existing continuing contract under which certain work is regularly performed for Owner and under which the lowest available costs are developed. The existing continuing contract will be made available to the State for review at a location mutually acceptable to the Owner and the State. If only part of the contract work is to be done under an existing contract, give detailed information by attachment hereto.
D. The utility proposes to contract outside the foregoing requirements and therefore evidence in support of its proposal is attached to the estimate in order to obtain the concurrence of the State, and the Federal Highway Administration Division Engineer where applicable, prior to taking action thereon (approval of the agreement shall be considered as approval of such proposal).
E. The utility plans and specifications, with the consent of the State, will be included in the construction contract awarded by the State. In the best interest of both the State and the Owner, the Owner requests the State to include the plans and specifications for this work in the general contract for construction of Highway in this area, so that the work can be coordinated with the other construction operations; and the construction contract is to be awarded by the State to the lowest qualified bidder who submits a proposal in conformity with the requirements and specifications for the work to be performed. If this option is chosen, attach form ROW-U-48-1, the terms of which are incorporated herein by reference.

Signature
City Manager
Title

Date

Attachment “E”

Utility Joint Use Agreement – (ROW-U-JUA) and/or Utility Installation Request – (Form 1082)

Utility Joint Use Agreement (ROW–U–JUA)

Utility Installation Review/Permit Number:

Initial Date
TxDOT

Initial Date
Utility

Attachment “F” Eligibility Ratio

Eligibility Ratio established: %

- Non-interstate Highway (Calculations attached)
- Interstate Highway

ROW Utility Manual Chapter 8, Section 2

In developing the ratio, line length or number of poles is restricted to facilities located within the existing and proposed highway right of way. Facilities located outside the existing and proposed right of way limits will not be used in developing the ratio.

Please see example of eligibility ratio calculations below.

Plan Sheet or Page#	In Easement (Eligible) Existing # of Poles or LF	In Public ROW (Ineligible) Existing # of Poles or LF
1	0	0
2	84	22
3	90	385
4	238	96
Totals	412	503

Total Existing # of Poles or LF (Eligible)	412
Total Existing # of Poles or LF (Ineligible)	503
Total Existing # of Poles or LF	915
Total Existing # of Poles or LF (Eligible) divided by the Total Existing # of Poles or LF	45.03%

Initial _____ Date _____
 TxDOT

Initial _____ Date _____
 Utility

Attachment "G" Betterment Calculation and Estimate

- Elective Betterment Ratio established: _____ %
(Calculation attached and justification below)

- Forced Betterment
(Provide supporting documentation)

- Not Applicable

Elective betterment justification statement:

Initial Date
TxDOT

Initial Date
Utility

Attachment “H” Proof of Property Interest

Supporting documentation of compensable property interest that establishes reimbursement eligibility as referenced in Texas Transportation Code §203.092.

Property interest documented through applicable affidavits and required attachments.

ROW-U-Affidavit

The roadway improvement project is designated as an Interstate Highway project; therefore, no supporting documentation of compensable interest is required.

Initial Date
TxDOT

Initial Date
Utility