DESIGN CRITERIA

1. THE CONSTRUCTION DOCUMENTS ARE BASED ON THE REQUIREMENTS OF THE *INTERNATIONAL BUILDING CODE* WITH LOCAL AMENDMENTS FROM THE AUTHORITY HAVING JURISDICTION. 2015 INTERNATIONAL BUILDING CODE
   - A. BUILDING CODE VERSION: CITY OF TEMPLE
   - B. AUTHORITY HAVING JURISDICTION:
2. DEAD LOADS:
   - A. DEAD LOADS ARE BASED UPON THE ACTUAL WEIGHTS OF MATERIALS OF CONSTRUCTION AND FIXED SERVICE EQUIPMENT.
   - B. HANGING CEILING AND MECHANICAL LOADS: AN ALLOWANCE OF 5 PSF HAS BEEN MADE FOR HANGING CEILING AND MECHANICAL EQUIPMENTS SUCH AS DUCT WORK AND SPRINKLER PIPES.
3. LIVE LOADS:
   - A. PUMP STATION.....100 PSF
   - B. BRIDGE CRANE
     - a. VERTICAL LOADS
       - MAXIMUM STATIC WHEEL LOAD.....4,000 LB
       - DYNAMIC IMPACT FACTOR.....1.10
     - b. LATERAL LOAD
       - MAXIMUM LOAD (PERPENDICULAR TO BEAM).....0.20x RATED CAPACITY
       - MAXIMUM LOAD (PARALLEL TO BEAM).....0.10x RATED CAPACITY
4. ROOF LIVE LOAD
   - a. ORDINARY, FLAT, PITCHED AND CURVED UNOCCUPIED ROOFS:.....20 PSF, 300 LB
5. SNOW LOAD:
   - A. GROUND SNOW LOAD, Pg:..... 5 PSF
6. WIND:
   - A. ULTIMATE DESIGN WIND SPEED Vult:..... 119 MPH (3-SEC PEAK GUST)
   - B. NOMINAL DESIGN WIND SPEED, Vasd:..... 92 MPH (3-SEC PEAK GUST)
   - C. RISK CATEGORY:..... IV
   - D. WIND EXPOSURE CATEGORY:..... B
   - E. INTERNAL PRESSURE COEFFICIENT:..... ± 0.18
   - F. COMPONENTS AND CLADDING PRESSURES:..... SEE SCHEDULE
   - G. MAIN WIND FORCE RESISTING SYSTEM:..... STEEL MOMENT FRAMES AND CABLE-BRACE FRAMES
7. RAIN
   - A. 100-YEAR RAINFALL INTENSITY (IN/HR):..... 4.04
   - B. MAXIMUM ROOF RAIN LOAD:..... 20 PSF
   - C. MAXIMUM RAINWATER LEVEL - PONDING (STATIC + HYDRAULIC HEAD):... 4"
   - D. THE STRUCTURAL ENGINEER SHALL BE NOTIFIED IF THE TOTAL RAIN WATER LEVEL EXCEEDS THE DESIGNED RAIN ROOF LOAD.
8. SEISMIC:

   MAPPED SPECTRAL RESPONSE VALUES, DESIGN SPECTRAL RESPONSE VALUES, AND AS SITE CLASS, HAVE BEEN PROVIDED BY :
   - A. GEOTECHNICAL COMPANY AND REPORT NO.:..... LFE REPORT NO. W21-052
   - B. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS, S_S & S_1..... 0.10 & 0.04
   - C. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS, S_{DS} & S_{D1}:..... 0.072 & 0.062
   - D. SITE CLASS:..... D
   - E. RISK CATEGORY:..... II
   - F. SEISMIC DESIGN CATEGORY, SDC:..... A
   - G. DESIGN BASE SHEAR:..... 1% SEISMIC WEIGHT

FOUNDATION DESIGN CRITERIA

1. GEOTECHNICAL REPORT: THIS FOUNDATION DESIGN IS BASED ON THE RECOMMENDATIONS PROVIDED IN SITE-SPECIFIC GEOTECHNICAL REPORT. IN DESIGNING THE FOUNDATION FOR THE PROPOSED STRUCTURE, THE FOUNDATION DESIGN ENGINEER DOES NOT ASSUME RESPONSIBILITY FOR THE ACCURACY OF THE GEOTECHNICAL ENGINEER'S REPORT OR ANY INFORMATION CONTAINED THEREIN. INFORMATION CONTAINED IN THE GEOTECHNICAL REPORT(S) REFLECTS CONDITIONS AS FOUND AT THE LOCATION OF THE BORINGS. ACTUAL CONDITIONS AT LOCATIONS BETWEEN AND SURROUNDING THE BORINGS MAY DIFFER FROM THE SOIL STRATIGRAPHY DEPICTED BY THE BORINGS. IF THERE ARE ANY CONDITIONS DIFFERING FROM THOSE DESCRIBED IN THE GEOTECHNICAL REPORT, OR IF ANY CHANGES HAVE BEEN IMPOSED ON THE SOILS IN QUESTION SINCE THE REPORT WAS WRITTEN, THEN THE DESIGN ENGINEER OF RECORD SHOULD BE NOTIFIED IN WRITING PRIOR TO CONSTRUCTION OF THE FOUNDATION IN ORDER TO REVIEW THE EFFECTS ON THE PERFORMANCE OF THE DESIGNED FOUNDATION.
   - A. GEOTECHNICAL ENGINEER: LANGERMAN FOSTER ENGINEERING COMPANY
   - B. REPORT NUMBER: W21-052
   - C. REPORT DATE: AUGUST 9, 2021
   - D. THE FOUNDATION DESIGN PARAMETERS PROVIDED WILL NOT ELIMINATE POST-CONSTRUCTION FOUNDATION MOVEMENT. AS SUCH, MEASURES SHALL BE TAKEN TO INCREASE THE TOLERANCE OF THE STRUCTURE SUPPORTED BY THE FOUNDATION. MEASURES INCLUDE BUT ARE NOT LIMITED TO FREQUENT CONTROL JOINTS FOR MASONRY/BRICK/STONE/STUCCO EXTERIOR VENEER (15'-0 MAXIMUM), VERTICALLY SLOTTED CLIPS TO ATTACH ROOF TRUSSES TO NON-LOAD BEARING WALLS, ETC.
2. **ABNORMAL CONDITIONS:** IF THE FOUNDATION IS INSTALLED DURING A DRY OR WET PERIOD, WHICH IS CONSIDERED EXTREME OR ABNORMAL, THEN THE BUILDER SHALL NOTIFY THE GEOTECHNICAL ENGINEER AND FOUNDATION ENGINEER PRIOR TO CONSTRUCTION FOR POSSIBLE SOIL CONDITIONING OR FOUNDATION RE-DESIGN .
3. **FOUNDATION MOVEMENT:** THE FOUNDATION HAS BEEN DESIGNED WITH THE ASSUMPTION THAT MOVEMENT CAN BE TOLERATED WITHIN A STANDARD PERFORMANCE LIMIT:
   - A. STANDARD PERFORMANCE DEFLECTION LIMIT: ***L/360***
   - B. STANDARD PERFORMANCE TILT LIMIT: ***1%***
4. **SOIL MOISTURE LEVEL:** A REASONABLY UNIFORM SOIL MOISTURE LEVEL IS MAINTAINED AROUND THE FOUNDATION FOR THE LIFE OF THE STRUCTURE.
5. **FOUNDATION MAINTENANCE:** POSITIVE DRAINAGE AWAY FROM THE STRUCTURE SHALL BE MAINTAINED FOR THE LIFE OF THE STRUCTURE AND THE CONTRACTOR SHALL CONVEY THIS REQUIREMENT TO THE OWNER. THE INITIAL AND ALL SUBSEQUENT OWNERS MAINTAIN THE FOUNDATION IN ACCORDANCE WITH THE LATEST REVISION OF DOCUMENT NO. FPA-SC-07, "FOUNDATION MAINTENANCE AND INSPECTION GUIDE FOR RESIDENTIAL AND OTHER LOW-RISE BUILDINGS", AVAILABLE ON THE FOUNDATION PERFORMANCE ASSOCIATION'S WEBSITE: WWW.FOUNDATIONPERFORMANCE.ORG. CONTRACTOR SHALL PROVIDE THIS DOCUMENT TO OWNER.
6. **EXPIRATION:** PLANS ARE VALID FOR 6-MONTHS FROM THE DATE THE PLANS ARE ISSUED OR REVISED BY THE ENGINEER. CONTACT ENGINEER FOR REVIEW IF PLANS HAVE EXPIRED OR IF CONSTRUCTION OF THE FOUNDATION HAS NOT COMMENCED WITHIN THIS TIME FRAME.

LATERAL LOAD RESISTING SYSTEM

1. ALL LATERAL LOAD RESISTANCE AND STABILITY OF THE BUILDING IS PROVIDED EXCLUSIVELY BY VERTICAL LATERAL LOAD RESISTING SYSTEM. THE HORIZONTAL DIAPHRAGMS DISTRIBUTE THE LATERAL WIND AND SEISMIC FORCES HORIZONTALLY TO THE VERTICAL LATERAL LOAD RESISTING SYSTEM.
   - A. VERTICAL LATERAL LOAD RESISTING SYSTEM: STEEL MOMENT FRAMES AND CABLE-BRACE FRAMES
   - B. HORIZONTAL LATERAL LOAD RESISTING SYSTEM: HORIZONTAL CABLE BRACES

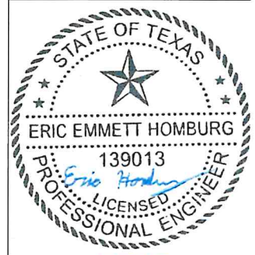
STRUCTURAL DEFERRED SUBMITTALS:

1. STRUCTURAL DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN WHICH REQUIRE STRUCTURAL ENGINEERING THAT ARE NOT SUBMITTED AT THE TIME OF THE APPLICATION BUT ARE TO BE SUBMITTED TO THE BUILDING OFFICIAL AT A LATER DATE. DEFERRED SUBMITTALS SHALL BE SUBMITTED TO AND APPROVED BY THE BUILDING OFFICIAL PRIOR TO INSTALLATION OF ANY SAID WORK.
2. COMPLETE STRUCTURAL SHOP DRAWINGS FOR CONSTRUCTION OF EACH BUILDING COMPONENT NOT DESIGNED BY THE STRUCTURAL ENGINEER-OF-RECORD (SER) AND NOT SPECIFIED ON THE PROJECT CONSTRUCTION DOCUMENTS SHALL BE SEALED AND SIGNED BY A SPECIALTY STRUCTURAL ENGINEER (SSE) WHO IS A LICENED PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS BEING CONSTRUCTED WHO IS QUALIFIED TO PERFORM SAID WORK. A SEAL BY A LICENSED PROFESSIONAL ENGINEER IS NOT REQUIRED FOR EITHER PRODUCTS WHICH HAVE BEEN TESTED AND CERTIFIED BY AN APPROVED AGENCY SUCH AS THE ICC NOR FOR COMPONENTS WHICH ARE FABRICATED BY A FABRICATOR THAT IS CERTIFIED BY AN APPROVED AGENCY IN WHICH THE AGENCY SPECIFIED THAT SEALING OF THE SHOP DRAWINGS IS NOT REQUIRED (E.G. STEEL JOIST INSTITUTE IN REGARDS TO OPEN WEB STEEL JOISTS)
3. THE SPECIALTY STRUCTURAL ENGINEER (SSE) SHALL SPECIFICALLY INDICATE IN A COVER PAGE AT THE FRONT OF THE SHOP DRAWING THAT THEY ARE THE STRUCTURAL ENGINEER IN RESPONSIBLE CHARGE FOR THE DEFERRED SUBMITTAL AND THAT THEY HAVE REVIEWED THE SHOP DRAWING TO ENSURE COMPLIANCE WITH THEIR DESIGN AND CALCULATIONS.
4. ALL STRUCTURAL DEFERRED SUBMITTALS SHALL BE REVIEWED BY THE SER AND MARKED AS EITHER NO EXCEPTIONS OR EXCEPTION NOTED, PRIOR TO SUBMITTING TO THE "FOR CONSTRUCTION" VERSION TO THE AUTHORITY HAVING JURISDICTION (AHJ) AND PRIOR TO RELEASE FOR FABRICATION.
5. STRUCTURAL DEFERRED SUBMITTALS ON THIS PROJECT INCLUDE:
   - A. STAIRS, GUARDRAIL, HANDRAILS, GRAB BARS, LADDERS, ETC.
   - B. AWNINGS, CANOPIES, AND LOUVERS, ETC.
   - C. WINDOWS
   - D. SITE: LIGHT POLES, FLAG POLES, ANTENNAS, MONUMENT SIGNS, TRASH ENCLOSURES, RETAINING WALLS
   - E. BOLLARDS, TRAFFIC BARRIERS, ETC.

GENERAL CONDITIONS

1. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR QUALITY CONTROL, INCLUDING WORKMANSHIP AND MATERIALS FURNISHED BY SUBCONTRACTORS AND SUPPLIERS.
3. REFER TO DRAWINGS OTHER THAN STRUCTURAL FOR COMPLETE INFORMATION REGARDING: SLEEVES, CURBS, INSERTS, DEPRESSIONS, OPENINGS, ETC.
4. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN ALL CONTRACT DOCUMENTS AND LATEST REVISIONS/ADDENDA AND TO SUBMIT SUCH DOCUMENTS TO ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS OR MATERIAL PROCUREMENT.
5. THE USE OR REPRODUCTIONS OF THESE CONTRACT DRAWINGS BY ANY CONTRACTOR OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP DRAWINGS SIGNIFIES HIS ACCEPTANCE OF ALL INFORMATION SHOWN HEREON AS CORRECT, AND OBLIGATES HIMSELF TO ANY JOB EXPENSE, REAL OR IMPLIED, DUE TO ANY ERRORS THAT MAY OCCUR HEREON.
6. ALL WORK SHALL CONFORM TO OSHA STANDARDS.
7. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES IN ACCORDANCE WITH ALL CODES AND REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
8. THE GENERAL CONTRACTOR SHALL COMPARE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND REPORT ANY DISCREPANCIES BETWEEN EACH SET OF DRAWINGS AND WITHIN EACH SET OF DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE FABRICATION AND INSTALLATION OF ANY STRUCTURAL MEMBERS.
9. FRAMING LAYOUTS ARE PROVIDED TO REPRESENT DESIGN CONCEPTS AND SYSTEMS CONSTRUCTION. THE CONTRACTOR AND SUBCONTRACTORS ARE RESPONSIBLE FOR MATERIAL QUANTITIES AND ANY AND ALL UNSPECIFIED COMPONENTS REQUIRED FOR CONSTRUCTION.
10. WHERE MEMBER LOCATIONS ARE NOT SPECIFICALLY DIMENSIONED, MEMBERS ARE EITHER LOCATED ON COLUMN LINES OR ARE EQUALLY SPACED BETWEEN THE LOCATED MEMBERS.
11. IF CERTAIN FEATURES ARE NOT FULLY SHOWN OR SPECIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS SHOWN OR SPECIFIED IN SIMILAR CONDITIONS.
12. WHERE CONFLICT EXISTS AMONG THE VARIOUS PARTS OF THE STRUCTURAL CONTRACT DOCUMENTS, STRUCTURAL DRAWINGS, GENERAL NOTES AND SPECIFICATIONS, THE STRICTEST REQUIREMENTS, AS INDICATED BY THE ENGINEER, SHALL GOVERN.
13. THE FLOOR DESIGN LIVE LOAD FOR EACH ELEVATED FLOOR STRUCTURE OR PORTION THEREOF THAT EXCEEDS 50 POUNDS PER SQUARE FOOT (PSF) SHALL BE STATED ON DURABLE SIGNS AND CONSPICUOUSLY POSTED BY THE OWNER IN THE APPLICABLE AREA(S) OF THE BUILDING.
14. ALL STRUCTURES REQUIRE PERIODIC MAINTENANCE TO EXTEND LIFESPAN AND ENSURE STRUCTURAL INTEGRITY FROM EXPOSURE TO THE ENVIRONMENT. A PLANNED PROGRAM OF MAINTENANCE SHALL BE ESTABLISHED BY THE BUILDING OWNER. THIS PROGRAM SHALL INCLUDE SUCH ITEMS AS, BUT NOT LIMITED TO, PAINTING OF STRUCTURAL STEEL, PROTECTIVE COATING FOR CONCRETE, SEALANTS, CAULKED JOINTS, EXPANSION JOINTS, CONTROL JOINTS, SPALLS AND CRACKS IN CONCRETE, AND PRESSURE WASHING OF EXPOSED STRUCTURAL ELEMENTS EXPOSED TO A SALT ENVIRONMENT OR OTHER HARSH CHEMICALS.
15. THE STRUCTURAL ENGINEER'S ROLE DURING CONSTRUCTION
   - A. THE ENGINEER SHALL NOT HAVE CONTROL NOR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, FOR THE ACTS OR OMISSION OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
   - B. PERIODIC SITE OBSERVATION BY FIELD REPRESENTATIVES OF THE STRUCTURAL ENGINEER IS SOLELY FOR THE PURPOSE OF BECOMING GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE WORK COMPLETED AND DETERMINING, IN GENERAL, IF THE WORK OBSERVED IS BEING PERFORMED IN A MANNER INDICATING THAT THE WORK, WHEN FULLY COMPLETED, WILL BE IN ACCORDANCE WITH THE STRUCTURAL CONTRACT DOCUMENTS. THIS LIMITED SITE OBSERVATION SHOULD NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS TO CHECK THE QUALITY OR QUANTITY OF THE WORK, BUT RATHER PERIODIC IN AN EFFORT TO GUARD THE OWNER AGAINST DEFECTS OR DEFICIENCIES IN THE WORK OF THE CONTRACTOR.

Revision Schedule		
Revision Number	Revision Description	Revision Date



4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

DUDLEY
GEOTECHNICAL | STRUCTURAL | ENVIRONMENTAL
Dudley Engineering LLC dba **DUDLEY**
6102 Imperial Loop Drive | College Station, Texas 77845
(o) 979.777.0729 | TBPE Firm No. F-18677

GENERAL NOTES

S0.0

Date:	04/14/2022
Project No:	21-139

C&C - GROSS ALLOWABLE WIND PRESSURES

Cladding Type	Location	Effective Area (sf)	Coefficients +GCp	Coefficients -GCp	Wind pressures +p (psf)	Wind pressures -p (psf)
Wall	Interior	10	0.90	-0.99	+23.3	-25.3
		40	0.80	-0.89	+21.2	-23.2
		50	0.79	-0.88	+20.9	-22.9
		100	0.74	-0.83	+19.9	-21.8
		200	0.69	-0.78	+18.9	-20.8
Wall	Edge	10	0.90	-1.26	+23.3	-31.1
		40	0.80	-1.07	+21.2	-27.0
		50	0.79	-1.04	+20.9	-26.3
		100	0.74	-0.94	+19.9	-24.2
		200	0.69	-0.85	+18.9	-22.2
Roof	Interior	10	0.30	-1.00	+10.4	-25.5
		40	0.24	-0.94	+10.0	-24.2
		50	0.23	-0.93	+10.0	-24.0
		100	0.20	-0.90	+10.0	-23.3
		200	0.20	-0.90	+10.0	-23.3
Roof	Edge	10	0.30	-1.80	+10.4	-42.7
		40	0.24	-1.38	+10.0	-33.6
		50	0.23	-1.31	+10.0	-32.2
		100	0.20	-1.10	+10.0	-27.6
		200	0.20	-1.10	+10.0	-27.6
Roof	Corner	10	0.30	-2.80	+10.4	-64.3
		40	0.24	-1.78	+10.0	-42.2
		50	0.23	-1.61	+10.0	-38.7
		100	0.20	-1.10	+10.0	-27.6
		200	0.20	-1.10	+10.0	-27.6
Overhang	Interior & Edge	10	0.00	-1.70	+10.0	-36.7
		40	0.00	-1.64	+10.0	-35.4
		50	0.00	-1.63	+10.0	-35.2
		100	0.00	-1.60	+10.0	-34.5
		200	0.00	-1.38	+10.0	-29.9
Overhang	Corner	10	0.00	-2.80	+10.0	-60.4
		40	0.00	-1.60	+10.0	-34.5
		50	0.00	-1.40	+10.0	-30.3
		100	0.00	-0.80	+10.0	-17.3
		200	0.00	-0.80	+10.0	-17.3
Parapet	Interior	10	2.70	-1.89	+58.3	-40.8
		40	2.18	-1.70	+47.1	-36.7
		50	2.10	-1.67	+45.3	-36.0
		100	1.84	-1.57	+39.7	-33.9
		200	1.79	-1.48	+38.7	-31.9
Parapet	Edge	10	3.70	-2.16	+79.9	-46.6
		40	2.58	-1.87	+55.7	-40.4
		50	2.40	-1.83	+51.8	-39.4
		100	1.84	-1.68	+39.7	-36.3
		200	1.79	-1.54	+38.7	-33.2

a = MINIMUM OF (10% OF LEAST HORIZONTAL DIMENSION OR 0.4h) BUT NOT LESS THAN 4% OF LEAST HORIZONTAL DIMENSION OR 3FT

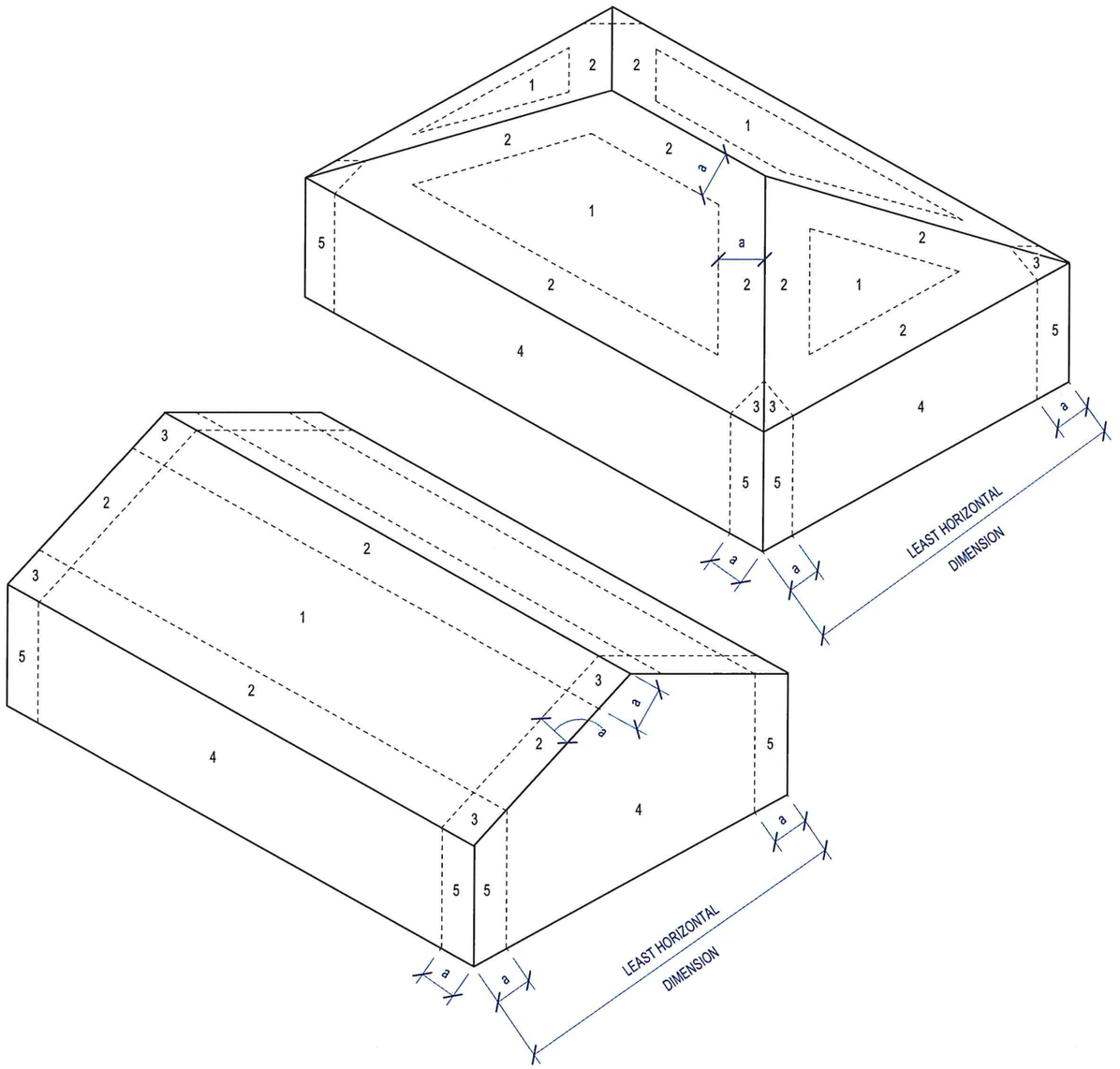
h = MEAN ROOF HEIGHT OF A BUILDING, EXCEPT THAT EAVE HEIGHT SHALL BE USED FOR ROOF ANGLES LESS THAN OR EQUAL TO 10° (~2:12 ROOF PITCH)

MEAN ROOF HEIGHT = THE AVERAGE OF THE ROOF EAVE HEIGHT AND HEIGHT TO THE HIGHEST POINT ON THE ROOF SURFACE.

COMPONENTS AND CLADDING ZONES	
DESCRIPTION	ZONE
ROOF INTERIOR	1
ROOF EDGE	2
ROOF CORNER	3
WALL INTERIOR	4
WALL EDGE	5

EXISTING CONDITIONS

1. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS OF THE EXISTING BUILDING AT THE JOB SITE AND REPORT ANY DISCREPANCIES FROM ASSUMED CONDITIONS SHOWN ON THE DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE FABRICATION AND ERECTION OF ANY MEMBERS.
2. WORK SHOWN ON THE DRAWINGS IS NEW, UNLESS NOTED AS EXISTING.
3. EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS WAS OBTAINED FROM EXISTING CONSTRUCTION DOCUMENTS AND LIMITED SITE OBSERVATION. THESE DRAWINGS OF EXISTING CONSTRUCTION ARE AVAILABLE FOR CONTRACTOR USE. HOWEVER, THE AVAILABLE DRAWINGS OF EXISTING CONSTRUCTION ARE NOT NECESSARILY COMPLETE. THE CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT INFORMATION.
4. DEMOLITION, CUTTING, DRILLING, ETC. OF EXISTING WORK SHALL BE PERFORMED WITH GREAT CARE SO AS NOT TO JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE EXISTING BUILDING. IF ANY ARCHITECTURAL, STRUCTURAL, OR MEP MEMBERS NOT DESIGNATED FOR REMOVAL INTERFERE WITH THE NEW WORK, THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY AND APPROVAL OBTAINED PRIOR TO REMOVAL OF THOSE MEMBERS.
5. THE CONTRACTOR SHALL SAFELY SHORE EXISTING CONSTRUCTION WHEREVER EXISTING SUPPORTS ARE REMOVED TO ALLOW THE INSTALLATION OF NEW WORK. ALL SHORING METHODS AND SEQUENCING OF DEMOLITION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND HIS ENGINEER. THE SHORING SHALL BE IN ACOMPLIANCE WITH ASCE/SEI 37 (LATEST ED.) "DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION".
6. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION AND TAKE CARE TO PROTECT EXISTING UTILITIES THAT ARE TO REMAIN IN SERVICE.
7. THE CONTRACTOR SHALL REPAIR ALL DAMAGE CAUSED DURING CONSTRUCTION WITH SIMILAR MATERIALS AND WORKMANSHIP TO RESTORE CONDITIONS TO LEVELS ACCEPTABLE TO THE ARCHITECT/OWNER.



Revision Schedule		
Revision Number	Revision Description	Revision Date

THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE FOLLOWING PROJECT:

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT THE APPROVAL AND PARTICIPATION OF THE ENGINEER. REPRODUCTION IS PROHIBITED.

STATE OF TEXAS
ERIC EMMETT HOMBURG
139013
LICENSED PROFESSIONAL ENGINEER

4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS
TEMPLE, TX

DUDLEY
GEOTECHNICAL | STRUCTURAL | ENVIRONMENTAL

Dudley Engineering LLC dba DUDLEY
6103 Imperial Loop Drive | College Station, Texas 77845
(o) 979.777.0726 | TBPE Firm No. F-18677

GENERAL NOTES

S0.1

Date: 04/14/2022

Project No: 21-139

STAIR, HANDRAILS, RESTROOM ACCESSORIES AND GUARDRAIL SPECIFICATIONS:

1. ALL STAIRS, GUARDRAILS AND HANDRAILS SHALL BE DESIGNED BY A REGISTERED STRUCTURAL ENGINEER BASED ON THE FOLLOWING DESIGN CRITERIA:
   - A. STAIRS:
     - a. STAIR STRINGERS, TREADS AND RISERS SHALL BE DESIGNED TO SUPPORT 100 PSF LIVE LOAD.
     - b. INDIVIDUAL STAIR TREADS SHALL BE DESIGNED TO SUPPORT A 300 LB CONCENTRATED LOAD PLACED IN A POSITION THAT WOULD CAUSE THE MAX STRESS.
   - B. HANDRAIL AND GUARDS
     - a. GUARD TOP RAIL AND HANDRAILS: THE TOP RAIL OF GUARDRAILS AND HANDRAILS SHALL BE DESIGNED TO WITHSTAND A LOAD OF 50 PLF APPLIED HORIZONTALLY AT RIGHT ANGLES, OR A 200 LB CONCENTRATED LOAD IN ANY DIRECTION.
     - b. INTERMEDIATE RAILS, PANEL FILLER AND THEIR CONNECTIONS SHALL BE DESIGNED TO WITHSTAND A LOAD OF 50 PSF APPLIED HORIZONTALLY AT RIGHT ANGLES OVER THE ENTIRE TRIBUTARY AREA, INCLUDING OPENINGS AND SPACES BETWEEN RAILS.
   - C. RESTROOM ACCESSORIES:
     - a. GRAB BARS, TUB AND SHOWER SEATS, FASTENERS, AND MOUNTING DEVICES SHALL BE DESIGNED TO RESIST A CONCENTRATED LOAD OF 250 POUNDS AT ANY LOCATION AND IN ANY DIRECTION.

CONTRACTOR QUALIFICATION

1. WORK SHALL BE PERFORMED BY A QUALIFIED CONSTRUCTION CONTRACTOR AND SUBCONTRACTOR EXPERIENCED IN THIS TYPE OF WORK. SUCH KNOWLEDGE SHALL INCLUDE MAKING ALLOWANCES FOR PERFORMING WORK OF THIS NATURE FOLLOWING INDUSTRY STANDARDS OF CARE.
2. THE CONSTRUCTION CONTRACTOR AND SUBCONTRACTORS SHALL UNDERSTAND THE NATURE OF DRAWING PRODUCTION AND COORDINATION BETWEEN CONSULTANTS AND SHALL NOT ENTER INTO A CONTRACT BASED ON DRAWINGS THAT ARE BELIEVED TO CONTAIN DISCREPANCIES OR ARE OTHERWISE INCOMPLETE UNLESS PROPER ALLOWANCES HAVE BEEN MADE FOR COST IMPLICATIONS THAT MAY ARISE DUE TO FUTURE DRAWING CHANGES MADE IN PREPARATION OF FINAL CONSTRUCTION DOCUMENTS.
3. IN THE COURSE OF PRODUCING AND ISSUING DRAWINGS, VARIOUS STAGES OF COMPLETION ARE DEVELOPED. THE CONSTRUCTION CONTRACTOR AND SUBCONTRACTORS SHALL UNDERSTAND THE PURPOSE AND CONTENT CONTAINED IN PERMIT, PRICING, AND CONSTRUCTION DRAWINGS. COST IMPLICATIONS AND CONTRACTIBILITY ARE THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR AND SUBCONTRACTORS UNLESS PRIOR ARRANGEMENTS HAVE BEEN MADE WITH THE OWNER.

BUILDING MOVEMENT AND DEFLECTION CRITERIA

1. THE BUILDING MOVEMENT SPECIFIED HEREIN IS ANTICIPATED TO OCCUR AND SHOULD BE CONSIDERED BY THE CONTRACTOR IN PERFORMANCE OF THE WORK.
   - A. LATERAL FRAME WIND DEFLECTION (DRIFT): THE FOLLOWING PROVISION FOR LATERAL FRAME DEFLECTION IN THE PLANE OF THE WALL OF ONE FLOOR RELATIVE TO AN ADJACENT FLOOR SHALL BE MADE IN THE DESIGN, FABRICATION AND INSTALLATION FOR THE BUILDING CLADDING.
     - a. TYPICAL FLOOR TO FLOOR DRIFT: H/400
       - H = FLOOR TO FLOOR HEIGHT
   - B. FLOOR DEFLECTIONS: THE FOLLOWING PROVISION FOR SUPERIMPOSED LOAD DEFLECTIONS SHALL BE MADE IN THE DESIGN, FABRICATION, AND INSTALLATION OF ALL PARTITIONS, GLASS WALLS, AND OTHER ELEMENTS SUPPORT BY AND ATTACHED TO THE STRUCTURE:
     - a. TYPICAL FLOOR MEMBERS: SPAN / 360 BUT NOT LESS THAN 1/2"
     - b. TYPICAL ROOF MEMBERS: SPAN / 360 BUT NOT LESS THAN 1/2"
   - C. EXTERIOR WALL DEFLECTIONS: THE FOLLOWING PROVISION FOR SUPERIMPOSED LOAD DEFLECTIONS SHALL BE MADE IN THE DESIGN, FABRICATION, AND INSTALLATION OF ALL PARTITIONS, GLASS WALLS, AND OTHER ELEMENTS SUPPORT BY AND ATTACHED TO THE STRUCTURE:
     - a. EXTERIOR WALLS SUPPORTING MASONRY VENEER: SPAN / 600
     - b. EXTERIOR WALLS SUPPORTING FLEXIBLE FINISHES (METAL PANEL, FIBER-CEMENT SIDING, ETC.): SPAN / 360

FUTURE EXPANSION

1. NO PROVISIONS FOR ANY FUTURE EXPANSION HAVE BEEN MADE IN THE STRUCTURAL DESIGN.

SUBSTITUTIONS:

1. ALL REQUESTS FOR SUBSTITUTIONS OF MATERIALS OR DETAILS SHOWN IN THE CONTRACT DOCUMENTS SHALL BE SUBMITTED FOR APPROVAL DURING THE BIDDING PERIOD. ONCE BIDS ARE ACCEPTED, PROPOSED SUBSTITUTIONS WILL BE CONSIDERED ONLY WHEN THEY ARE OFFICIALLY SUBMITTED WITH AN IDENTIFIED SAVINGS TO BE DEDUCTED FROM THE CONTRACT.

REQUEST FOR INFORMATION (RFI)

1. RFI'S MUST INCLUDE A TRANSMITTAL SHEET THAT INDICATES THE FOLLOWING:
   - A. RFI NUMBER
   - B. RFI CATEGORY:
     - a. REQUEST FOR SUBSTITUTION
     - b. CORRECTIVE REPAIR
     - c. ADDITIONAL INFORMATION REQUIRED
     - d. DISCREPANCY BETWEEN CONSTRUCTION DOCUMENTS
   - C. DATE SUBMITTED
   - D. DATE RESPONSE NEED BY
   - E. SUBMITTED BY (INCLUDE EMAIL AND PHONE NUMBER)
   - F. RFI DESCRIPTION INCLUDING:
     - a. SHEET NUMBER, DETAIL AND/OR SPECIFICATION NUMBER IF APPLICABLE
     - b. SKETCHES IF APPLICABLE
     - c. PHOTOS IF APPLICABLE.

SUBMITTALS

1. SUBMITTAL LIST AND SCHEDULE
   - A. THE GENERAL CONTRACTOR SHALL PREPARE A DETAILED LIST AND SCHEDULE OF ALL SUBMITTAL ITEMS TO BE SENT TO THE STRUCTURAL ENGINEER PRIOR TO THE START OF CONSTRUCTION. THIS LIST SHALL BE UPDATED AND REVISED AS THE JOB PROGRESSES.
2. SUBMITTAL REQUIREMENTS:
   - A. ALL SUBMITTALS MUST BE REVIEWED AND ELECTRONICALLY STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL TO THE DESIGN TEAM AS NO EXCEPTIONS.
   - B. ALL SUBMITTALS MUST INCLUDE A TRANSMITTAL SHEET WHICH INDICATES:
     - a. SUBMITTAL NUMBER PER THE FOLLOWING FORMAT: E.G. 03 30 00-01.00 (DIVISION, SUBMITTAL # FOR DIVISION, ISSUE # - THE EXAMPLE INDICATES THE FIRST SUBMITTAL, FIRST ISSUE OF A CONCRETE SUBMITTAL)
     - b. BRIEF DESCRIPTION OF SUBMITTAL CONTENTS
     - c. DATE ISSUED
     - d. REQUESTED RETURN DATE
     - e. ISSUING PARTY INCLUDING NAME, PHONE NUMBER AND EMAIL
   - C. CONTRACTOR SHALL PROVIDE THE SUBMITTAL IN ELECTRONIC (PDF) FORMAT. SUBMITTALS SHALL NOT BE SCANNED COPIES OF PRINTED DOCUMENTS.
   - D. THE OMISSION FROM THE SHOP DRAWINGS OF ANY MATERIALS REQUIRED BY THE CONTRACT DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF FURNISHING AND INSTALLING SUCH MATERIALS, REGARDLESS OF WHETHER SHOWN OR COMMENTED IN THE SHOP DRAWING
   - E. THE CONTRACTOR MUST ALLOW A MINIMUM OF 14 DAYS FOR STRUCTURAL REVIEW OF ALL SUBMITTALS. THE CONTRACTOR CAN REQUEST AN EXPEDITED REVIEW AT AN AGREED UPON FEE WITH THE STRUCTURAL ENGINEER.
   - F. STRUCTURAL STEEL SUBMITTALS MUST BE ACCOMPANIED BY THE SDS/2 OR TEKLA MODEL WHICH WILL BE USED BY THE DESIGN TEAM AS A VISUAL AID TO THE SHOP DRAWINGS.
3. REFER TO THE SPECIFICATIONS FOR A LIST OF ALL THE REQUIRED SUBMITTALS.
4. ENGINEER REVIEW STAMP DESIGNATIONS: ALL DESIGNATIONS ARE INDICATIVE OF A REVIEW FOR GENERAL CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS.
   - A. NO EXCEPTIONS
     - a. NO ITEMS WERE FOUND TO BE IN CONFLICT WITH THE CONSTRUCTION DOCUMENTS, NO "FOR REVIEW" RESUBMITTAL REQUIRED.
   - B. EXCEPTIONS NOTED
     - a. ITEMS WERE FOUND IN CONFLICT WITH THE CONSTRUCTION DOCUMENTS AND NEED TO BE REVISED PRIOR TO SUBMITTING "FOR CONSTRUCTION" SUBMITTAL.
   - C. REVISE AND RESUBMIT
     - a. SIGNIFICANT ITEMS WERE FOUND IN CONFLICT WITH THE CONSTRUCTION DOCUMENTS. THE SUBMITTAL NEEDS TO BE RESUBMITTED "FOR REVIEW".
   - D. NOT REVIEWED
     - a. THE SUBMITTAL WAS NOT STRUCTURAL.
   - E. FOR INFORMATION ONLY
     - a. THE SUBMITTAL DID NOT REQUIRE REVIEW BUT HAS BEEN FILED FOR THE RECORD.
   - F. IMPACT TO STRUCTURE
     - a. THE SUBMITTAL HAS BEEN REVIEWED FOR THE STRUCTURALLY IMPACT TO THE STRUCTURE ONLY.

INSPECTIONS:

1. CONSTRUCTION OR WORK FOR WHICH A PERMIT IS REQUIRED SHALL BE SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL AND SUCH CONSTRUCTION OR WORK SHALL REMAIN ACCESSIBLE AND EXPOSED FOR INSPECTION PURPOSES UNTIL APPROVED. REQUIRED TESTING INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:
   - A. FOUNDATION INSPECTION:
     - a. FOOTING AND FOUNDATION INSPECTIONS SHALL BE MADE AFTER EXCAVATIONS FOR FOOTINGS ARE COMPLETE AND ANY REQUIRED REINFORCING STEEL IS IN PLACE. FOR CONCRETE FOUNDATIONS, ANY REQUIRED FORMS SHALL BE IN PLACE PRIOR TO INSPECTION. MATERIALS FOR THE FOUNDATION SHALL BE ON THE JOB, EXCEPT WHERE CONCRETE IS READY MIXED IN ACCORDANCE WITH ASTM C94, THE CONCRETE NEED NOT BE ON THE JOB.
   - B. CONCRETE SLAB AND UNDER-FLOOR INSPECTION:
     - a. CONCRETE SLAB AND UNDER-FLOOR INSPECTIONS SHALL BE MADE AFTER IN-SLAB OR UNDER-FLOOR REINFORCING STEEL AND BUILDING SERVICE EQUIPMENT, CONDUIT, PIPING ACCESSORIES AND OTHER ANCILLARY EQUIPMENT ITEMS ARE IN PLACE, BUT BEFORE ANY CONCRETE IS PLACED OR FLOOR SHEATHING INSTALLED, INCLUDING THE SUBFLOOR.
   - C. FRAME INSPECTION:
     - a. FRAMING INSPECTIONS SHALL BE MADE AFTER THE ROOF DECK OR SHEATHING, ALL FRAMING, FIREBLOCKING AND BRACING ARE IN PLACE AND PIPES, CHIMNEYS AND VENTS TO BE CONCEALED ARE COMPLETE AND THE ROUGH ELECTRICAL, PLUMBING, HEATING WIRES, PIPES AND DUCTS ARE APPROVED.
2. SPECIAL INSPECTIONS - REFER TO THE STATEMENT OF SPECIAL INSPECTION FOR REQUIRED STRUCTURAL SPECIAL INSPECTIONS
3. ADDITIONAL INSPECTIONS REQUIRED BY STRUCTURAL ENGINEER: REFERENCE SPECIFICATIONS

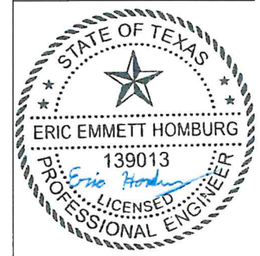
DRAWING INTERPRETATION:

1. DRAWINGS VIEWS LABELED AS TYPICAL
   - A. PARTIAL PLANS, ELEVATIONS, SECTIONS, DETAIL OR SCHEDULES LABELED WITH "TYPICAL" AT THE BEGINNING OF THEIR TITLE SHALL APPLY TO ALL SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THE THOSE SPECIFICALLY SHOWN. THE APPLICABILITY OF THE CONTENT OF THESE VIEWS TO LOCATIONS ON THE PLAN CAN BE DETERMINED FROM THE TITLE OF THE VIEW. SUCH VIEWS SHALL APPLY WHETHER OR NOT THEY ARE KEYED IN AT EACH LOCATION. DECISIONS REGARDING APPLICABILITY OF THESE "TYPICAL" VIEWS SHALL BE DETERMINED BY THE STRUCTURAL ENGINEER.

Revision Schedule		
Revision Number	Revision Description	Revision Date

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX



4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS TEMPLE, TX

DUDLEY
GEOTECHNICAL | STRUCTURAL | ENVIRONMENTAL
Dudley Engineering LLC dba DUDLEY
6102 Imperial Loop Drive | College Station, Texas 77845
(o) 979.777.0720 | TBPE Firm No. F-18677

GENERAL NOTES

S0.2

Date:	04/14/2022
Project No:	21-139

REINFORCING STEEL - 03 20 00

1. DETAILING OF CONCRETE REINFORCEMENT BARS AND ACCESSORIES SHALL CONFORM TO THE RECOMMENDATIONS OF THE ACI DETAILING MANUAL ACI 315 AND SP-66 (ACI DETAILING MANUAL).
2. CONCRETE REINFORCEMENT BARS SHALL CONFORM TO ASTM A615, GRADE 60, WITH SUPPLEMENTARY REQUIREMENTS.
3. COMPLETE REINFORCING PLACEMENT DRAWINGS PREPARED IN ACCORDANCE WITH ACI315 SHALL BE REVIEWED BY THE ENGINEER AND AVAILABLE ON THE JOB SITE PRIOR TO & DURING THE PLACING OF CONCRETE.
4. ALL REINFORCING STEEL SHALL BE SUPPORTED AT DESIGNED DEPTH USING PLASTIC OR METALLIC CHAIRS SPACED AT 48" OC IN ALL DIRECTIONS TO SUPPORT FULL LENGTH OF REINFORCEMENT. IF ALTERNATE IS TO BE USED, PROPOSED CHAIR IS TO BE SUBMITTED IN WRITING AND APPROVED BY E.O.R.
5. END HOOKS, DEVELOPMENT LENGTHS, AND SPLICES SHALL CONFORM TO THE REQUIREMENTS OF ACI 318.
6. REINFORCEMENT MAY BE PLACED IN BUNDLES OF NOT MORE THAN TWO W/ THE CLEAR DISTANCE BETWEEN BUNDLES OF REINFORCEMENT OR TENDONS OF 3 INCHES MINIMUM. CONCRETE COVER NOT SPECIFICALLY DETAILED ON THE DRAWINGS SHALL BE IN ACCORDANCE WITH ACI 318.
7. COVERAGE: THE FOLLOWING SHALL BE THE MINIMUM REINFORCEMENT CONCRETE COVERAGE (INCLUDING TENDONS):
   - A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ..... 3"
   - B. CONCRETE EXPOSED TO EARTH OR WEATHER:
     - a. NO. 6 AND LARGER ..... 2"
     - b. NO. 5 BAR AND SMALLER ..... 1½"
   - C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND ..... ¾"
8. UNO, ALL LAP SPLICES OF REINFORCEMENT IN GROUND SUPPORTED ELEMENTS (GRADE BEAMS, FOOTINGS, MAT FOUNDATIONS) SHALL BE A MINIMUM OF 48Ø, WHERE Ø = THE DIAMETER OF THE BAR, REINFORCEMENT IN ELEVATED STRUCTURES SHALL REFER TO THE TYPICAL LAP SPLICE DETAIL.

REINFORCED CONCRETE - 03 30 00

1. GENERAL
   - A. CONCRETE WORK SHALL CONFORM TO THE LATEST ED. OF ACI 301 (SPECIFICATIONS FOR STRUCTURAL CONCRETE) UNO IN THESE CONSTRUCTION DOCUMENTS.
2. MIX DESIGN:
   - A. ALL CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED REGISTERED ENGINEER. MIX DESIGN DATA RESULTS EITHER COMPLYING WITH THE FIELD EXPERIENCE OR TRIAL MIXTURE METHOD PER ACI 318 SHALL BE SUBMITTED FOR EACH CONCRETE MIX. PROPORTIONS OF MATERIALS FOR CONCRETE SHALL BE ESTABLISHED TO:
     - a. PROVIDE WORKABILITY AND CONSISTENCY TO PERMIT CONCRETE TO BE WORKED READILY INTO FORMS AND AROUND REINFORCEMENT UNDER CONDITIONS OF PLACEMENT TO BE EMPLOYED, WITHOUT SEGREGATION OR EXCESSIVE BLEEDING.
     - b. MEET REQUIREMENTS FOR APPLICABLE EXPOSURE REQUIREMENTS.
     - c. MEET OR EXCEED THE REQUIRED F'C.
     - d. NOT EXCEED THE MAXIMUM W/C RATIO.
   - B. THE CONTRACTOR MUST INDICATE THE PLANNED PLACEMENT METHOD FOR EACH CONCRETE MIX
   - C. WATER MAY NOT BE ADDED TO THE CONCRETE MIX IN THE FIELD TO ADJUST THE SLUMP (RETEMPERING) WITHOUT THE SPECIAL INSPECTOR BEING PRESENT TO CONFIRM THAT IT DOES NOT EXCEED THE W/C RATIO OR DESIGN SLUMP. THE READY-MIX COMPANY MUST INDICATE THE MAXIMUM WATER WITHELD AT THE PLANT. IF THE AMOUNT, THE W/C RATIO OR DESIGN SLUMP IS EXCEEDED THEN THE CONCRETE SHALL BE REJECTED.
   - D. AIR-ENTRAINED CONCRETE SHALL NOT BE USED IN ANY NORMALWEIGHT CONCRETE FLOOR SLAB THAT IS TO RECEIVE A HARD-TROWELED FINISH.
3. CONCRETE MATERIALS:
   - A. HYDRAULIC CEMENT:
     - a. USE ASTM C150 TYPE I OR TYPE III.
   - B. FLY ASH:
     - a. FLY ASH MAY BE USED TO REPLACE A PORTION OF THE PORTLAND CEMENT, SUBJECT TO THE APPROVAL OF THE ARCHITECT AND STRUCTURAL ENGINEER NOT TO EXCEED THE AMOUNTS LISTED IN THE CONCRETE TABLE.
     - b. USE ASTM C618 CLASS C OR F.
   - C. NORMAL WEIGHT AGGREGATE:
     - a. USE ASTM C33.
     - b. MATERIAL CERTIFICATES FROM THE AGGREGATE SUPPLIER MUST BE SUBMITTED WITH THE CONCRETE MIX DESIGN.
     - c. RIVER ROCK OR PEA STONE AGGREGATES ARE NOT ACCEPTABLE.
   - D. WATER
     - a. COMPLY WITH THE REQUIREMENTS OF ASTM C1602.
4. PLACEMENT:
   - A. CONCRETE SHALL BE PLACED CAREFULLY SO AS NOT TO DEVIATE TENDONS AND REINFORCEMENT FROM THE DESIGN LOCATION.
   - B. CONCRETE SHALL BE PROPERLY VIBRATED, ESPECIALLY AROUND POST-TENSIONED ANCHORAGES AND CONGESTED AREAS SUCH AS COLUMN JOINTS.
   - C. TOLERANCES FOR CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST ED. OF ACI 117 (SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS).

ELEMENT	f'c	EXPOSURE CATEGORY	MAX CL-	MAX FLY ASH	MAX W/CM RATIO	MAX COARSE AGG. SIZE	MIN. AIR CONTENT
MAT SLAB	3,500	F0,S0,W0,C1	0.30	20%	0.45	1"	N/A

CONCRETE FINISHING AND CURING

1. FINISHING: FINISHING OPERATIONS AND BULL FLOATING SHALL BE COMPLETED PRIOR TO THE ACCUMULATION OF BLEED WATER ON THE SURFACE. FINAL FINISHING SHOULD NOT BEGIN UNTIL THE BLEED WATER HAS EVAPORATED AND THE WATER SHEEN HAS DISAPPEARED FROM THE SURFACE. TROWELLING THE WET SURFACE WILL WEAKEN IT AND CAN RESULT IN SURFACE CRAZING AND DUSTING. REFER TO ARCHITECTURE FOR FINAL FINISHING REQUIREMENTS (STEEL TROWEL, BROOM FINISH, ETC.).
2. EXCESSIVE BLEED WATER REMOVAL: BLEEDING (FREE SURFACE WATER) OCCURS AS AGGREGATES SETTLE IN THE PLACED CONCRET, DISPLACING WATER TO THE SURFACE. IF ALLOWED TO REMAIN ON THE SURFACE, IT DILUTES THE CEMENT CONTENT, SIGNIFICANTLY REDUCING THE STRENGTH NEAR THE SURFACE. THE CONTRACTOR SHALL REMOVE BLEED WATER. ONE METHOD OF REMOVING BLEED WATER IS TO DRAG THE SURFACE WITH A GARDEN HOSE.
3. CONTROL JOINTS (SAW CUTS) IF REQUIRED, SHALL BE MADE AS SOON AS THE CONCRETE CAN SUPPORT THE WEIGHT OF WORKER AND THE EQUIPMENT.
4. CURING: IMMEDIATELY AFTER FINISHING THE SLAB, THE SLAB MUST BE CURED FOR A MINIMUM OF 7 DAYS BY EITHER:
   - A. APPLYING A WATER-BASED DISSIPATING RESIN TYPE CURING COMPOUND WHICH CHEMICALLY BREAKS DOWN AFTER APPROXIMATELY 4 WEEKS. MEMBRANE FORMING COMPOUND SHALL ADHERE TO ASTM C 309, TYPE O OR 1D, CLASS B. THE COMPOUND SHALL BE APPLIED IN TWO COATS, EACH AT RIGHT ANGLES TO THE OTHER TO ENSURE A TIGHTLY SEALED SURFACE.
   - B. WET-CURED BY KEEPING THE SURFACE WET AFTER THE CONCRETE HAS SET AND FINISHING IS COMPLETE.

CONCRETE CRACKS

1. EVEN WITH PROPER DESIGN AND CONSTRUCTION ALL CONCRETE WILL CRACK. PLASTIC SHRINKAGE CRACKS CONTINUE TO OPEN AS THE SLAB AGES UP TO APPROXIMATELY ONE YEAR, AND REACH 50% OF THEIR FINAL SIZE IN APPROXIMATELY 30 DAYS. MANY PLASTIC SHRINKAGE CRACKS ARE VERY SMALL WHICH MAKE THEM BARELY NOTICABLE AND INCONSEQUENTIAL TO THE STRUCTURAL PERFORMANCE OF THE CONCRETE. CRACKS WIDER THAN APPROXIMATLEY 0.06" ARE LIKELY INDICATIVE OF CONCRETE THAT DID NOT ADHERE TO THE CONCRETE MIX REQUIREMENTS, PLACEMENT, FINISHING AND CURING REQUIREMENTS. IN ADDITION TO BEING VISIBLY OBJECTIONABLE, IF THESE CRACKS EXIST IN REGULAR CONSISTENCY, THEY MAY REDUCE THE STRUCTURAL PERFORMANCE OF THE CONCRETE AND REQUIRE STRUCTURAL REPAIR (FILL CRACKS WITH EPOXY PRODUCT) OR REPLACEMENT.
2. PLASTIC SHRINKAGE CRACKS: OCCUR SOONS AFTER THE CONCRETE IS PLACED AND WHILE IT IS STILL PLASTIC. IT IS CAUSED BY OVERLY RAPID DRYING OF THE SURFACE, USUALLY DUE TO HOT WEATHER, HIGH WIND, LOW HUMIDITY, OR A DELAY IN APPLYING THE CURING MEMBRANE.

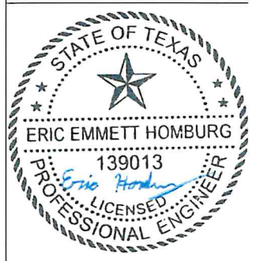
RETEMPERING

1. WATER SHALL NOT BE ADDED TO THE MIX TRUCKS ON THE JOB SITE IN EXCESS OF THE VOLUME OF WATER THAT IS SPECIFICALLY INDICATED TO HAVE BEEN WITHELD FROM THE READY MIX SUPPLIER.
2. PRIOR TO ADDING WATER, THE CONTRACTOR SHALL CONFIRM THAT THE MIX IS NOT ALREADY WITHIN TOLERANCE ON SLUMP. WATER SHALL ONLY BE ADDED IF THE SLUMP IS BELOW TOLERANCE AND THE READY MIX SUPPLIER HAD INDICATE THE VOLUME OF WITHELD WATER.

COLD-FORMED METAL FRAMING - 05 40 00

1. THE COLD-FORMED FRAMING MATERIALS SHALL BE MFRD BY ANY SSMA MEMBER MFR. IN ACCORDANCE WITH ASTM C 955. MATERIAL SIZES AND GAUGES ARE INDICATED ON THE DRAWINGS. ALL COLD-FORMED MEMBERS SHALL BE MANUFACTURED FROM SHEET STEEL AND GALVANIZED IN ACCORDANCE WITH ASTM A 1003, WITH A MIN G60 COATING.
2. THE MINIMUM YIELD STRENGTH OF THE COLD-FORMED FRAMING COMPONENTS SHALL BE AS FOLLOWS:
   - A. 54 MIL (16 GA.) OR HEAVIER - Fy = 50 KSI MIN (ASTM A 1003 STRUCTURAL GRADE 50 (GRADE 340)TYPE H)
   - B. 43 MIL (18 GA) OR LIGHTER - Fy = 33 KSI MIN (ASTM A 1003 STRUCTURAL GRADE 33 (GRADE 230) TYPE H)
   - C. ALL ACCESSORIES - Fy - 33 KSI MIN (ASTM A 1003 STRUCTURAL GRADE 33 (GRADE 230) TYPE H)
3. THE COLD-FORMED FRAMING HAD BEEN DESIGNED IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND SPECIFICATIONS:
   - A. AISI S100-16: NORTH AMERICAN SPECIFICATION FOR DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS
   - B. AISI S202-15: CODE OF STANDARD PRACTICE FOR STRUCTURAL COLD-FORMED STEEL FRAMING
   - C. AISI S240-15: STANDARD FOR COLD-FORMED STEEL FRAMING: PRODUCT DATA
   - D. AISI S213-07: NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL FRAMING - LATERAL DESIGN 2007 ED. WITH SUPPLEMENT 1.
4. ALL CONNECTIONS SHALL BE FASTENED AS INDICATED ON THESE DRAWINGS.
   - A. COLD-FORMED TO COLD-FORMED CONNECTIONS: SCREWS - #10 SELF DRILLING SCREWS (UNLESS NOTED OTHERWISE) MFRD BY HILTI, GRABBER, BUILDEX, COMPASS OR EQUAL AND INSTALLED PER THE MFR SPECIFICATIONS. MINIMUM 1/2" LENGTH .
     - a. SCREWS SHALL COMPLY WITH ASTM C 1513.
     - b. MINIMUM EDGE DISTANCE SHALL BE 1.5 X FASTENER Ø.
     - c. MINIMUM SPACING SHALL BE 3 X FASTENER Ø.
   - B. COLD-FORMED TO TIMBER CONNECTIONS: #10 WOOD SCREWS UNLESS NOTED OTHERWISE. MINIMUM 1½" LENGTH.
   - C. POWDER-ACTUATED FASTENERS: MINIMUM SHANK Ø =0.138". APPROVED MRS INCLUDE HILTI, RAMSET, POWER OR APPROVED EQUAL.
     - a. PROVIDE MIN 1¼" LONG PAF FOR COLD-FORMED TO CONCRETE CONNECTIONS. SPACING SHALL BE A MIN OF 4" WITH A MIN EDGE DISTANCE OF 3".
     - b. PROVIDE MIN. 1/2" LONG PAF WITH KNURLED SHANK FOR COLD-FORMED TO STRUCTURAL STEEL CONNECTIONS. MIN SPACING AND EDGE DISTANCE SHALL BE 1".
5. ALL MEMBERS SHALL BE CUT SQUARE FOR ATTACHMENT TO PERPENDICULAR MEMBERS OR SLOPE CUT AS REQUIRED FOR AN ANGULAR FIT AGAINST ABUTTING MEMBERS.
6. FIELD CUTTING OF COLD-FORMED MEMBERS SHALL BE DONE BY SAWING OR SHEARING. TORCH CUTTING OF COLD-FORMED MEMBERS IS NOT ALLOWED.
7. DO NOT CUT OR SPLICE COLD-FORMED FRAMING MEMBERS UNLESS INDICATED BY THESE DRAWINGS.
8. DO NOT BEAR OR CONNECT COLD-FORMED MEMBERS WITHIN 10" OF THE PUNCHED OPENINGS IN THE MEMBER WEBS UNLESS THE MEMBERS ARE REINFORCED WITH A MINIMUM 18" LONG UNPUNCHED TRACK OR STUD AT THE PUNCH OPENING. THE TRACK OR STUD REINFORCING PIECE SHALL BE THE SAME SIZE AND GA. AS THE PUNCHED MEMBER. FASTEN THE REINFORCING PIECE TO THE MEMBER WITH A MINIMUM OF (4) -#10 SCREWS.
9. THE COLD-FORMED FRAMING HAS BEEN DESIGNED TO SUPPORT THE LOADS INDICATED IN THE CALCULATIONS. ADDITIONAL TEMPORARY BRACING AND SHORING SHALL BE PROVIDED AS REQUIRED TO STABILIZE THE FRAMING AND TO SUPPORT CONSTRUCTION LOADS. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL PERMANENT BRACING IS INSTALLED AND/OR ADDITIONAL CONSTRUCTION LOAD ARE REMOVED.
10. THE CONTRACTOR SHALL PROVIDE COLD-FORMED MEMBERS AT THE SIZE AND SPACING INDICATED ON THESE DRAWINGS. LARGER SIZE AND/OR CLOSER SPACING MAY BE SUBSTITUTED PROVIDED THE SUBSTITUTIONS ARE COORDINATED WITH THE PROJECT ARCHITECT.
11. THESE DRAWINGS ARE INTENDED TO INDICATE THE MEMBERS SIZES AND CONNECTIONS RELEVANT TO THE COLD-FORMED FRAMING. THESE SHOP DRAWINGS ARE NOT INTENDED TO BE "DIMENSIONED" DRAWINGS AND SHOULD NOT BE USED FOR MATERIAL TAKE-OFFS
12. SHEATHING OF THE COLD FORMED FRAMING SHALL BE INSTALLED AS INDICATED IN THE PROJECT CONSTRUCTION DOCUMENTS UNLESS MORE STRINGENT REQUIREMENTS ARE CALLED FOR IN THESE DRAWINGS.
13. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH OSHA STANDARDS.
14. SUBSTITUTION OF SPECIFIED CONNECTORS AND FASTENERS MUST BE APPROVED BY DUDLEY DUNHAM ENGINEERING

Revision Schedule		
Revision Number	Revision Description	Revision Date



4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

DUDLEY
GEOTECHNICAL | STRUCTURAL | ENVIRONMENTAL
Dudley Engineering LLC dba DUDLEY
6102 Imperial Loop Drive | College Station, Texas 77845
(o) 979.777.0726 | TBPE Firm No. F-18677

GENERAL NOTES

S0.3

Date: 04/14/2022

Project No: 21-139

CRANE LOADS:

1. DESIGN LOADS FOR THE RUNWAY BEAMS, CONNECTIONS, AND SUPPORT BRACKETS OF MOVING BRIDGE CRANES AND MONORAIL CRANES SHALL INCLUDE THE FOLLOWING CRANE LOADS:
   - A. MAXIMUM WHEEL LOADS
   - B. VERTICAL IMPACT FORCES
   - C. LATERAL FORCES
   - D. LONGITUDINAL FORCES
2. CRANE LIVE LOAD SHALL BE THE RATED CAPACITY OF THE CRANE.
3. **MAXIMUM WHEEL LOAD:** SHALL BE THE SUM OF THE WHEEL LOADS PRODUCED BY THE WEIGHT OF THE BRIDGE, THE RATED CAPACITY OF THE CRANE, AND THE WEIGHT OF THE TROLLEY WITH THE TROLLEY POSITIONED ON ITS RUNWAY AT THE LOCATION WHERE THE RESULTING LOAD EFFECT IS MAXIMUM.
4. **VERTICAL IMPACT FORCE:** THE MAXIMUM WHEEL LOADS SHALL BE INCREASED BY THE FOLLOWING PERCENTAGES TO DETERMINE THE VERTICAL IMPACT OR VIBRATION FORCE:
   - A. MONORAIL CRANES (POWERED).....25 PERCENT
   - B. CAB-OPERATED OR REMOTELY OPERATED BRIDGE CRANES (POWERED).....25 PERCENT
   - C. PENDANT-OPERATED BRIDGE CRANES (POWERED).....10 PERCENT
   - D. BRIDGE CRANES OR MONORAIL CRANES WITH HAND-GEARED BRIDGE, TROLLEY AND HOIST.....0 PERCENT
5. **LATERAL FORCE:** THE LATERAL FORCE ON RUNWAY BEAMS WITH ELECTRICALLY POWERED TROLLEYS SHALL BE 20 PERCENT OF THE SUM OF THE RATED CAPACITY OF THE CRANE AND THE WEIGHT OF THE HOIST AND TROLLEY.
6. **LONGITUDINAL FORCE:** THE LONGITUDINAL FORCE ON RUNWAY BEAMS, EXCEPT FOR BRIDGE CRANES WITH HAND-GEARED BRIDGES, SHALL BE CALCULATED AS 10 PERCENT OF THE MAXIMUM WHEEL LOADS OF THE CRANE.

STRUCTURAL STEEL - 05 12 00

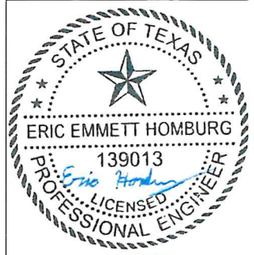
1. GENERAL
   - A. ALL STRUCTURAL STEEL IS TO BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF AISC 360 (SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS).
2. MATERIAL
   - A. ALL HOT ROLLED STEEL PLATES, SHAPES AND BARS SHALL BE NEW STEEL CONFORMING TO ASTM SPECIFICATION A6, LATEST ED.
     - a. W-SHAPES: A992
     - b. CHANNELS, ANGLES, PLATES: A36
     - c. RECTANGULAR HSS: A500, GR.C (F_Y = 50 KSI)
     - d. ROUND HSS: A500, GR.B (F_Y = 42 KSI)
3. SUBMITTALS
   - A. STRUCTURAL STEEL SUBMITTALS MUST BE ACCOMPANIED BY THE SDS/2 OR TEKLA MODEL WHICH WILL BE USED BY THE DESIGN TEAM AS A VISUAL AID TO THE SHOP DRAWINGS
   - B. SHOP DRAWINGS MUST BE PRODUCED IN ACCORDANCE WITH THE AISC CODE OF STANDARD PRACTICE.
4. CONNECTIONS
   - a. CONNECTION DESIGN: ALL STEEL CONNECTIONS NOT FULLY DETAILED WITHIN THESE DRAWINGS SHALL BE DESIGNED BY A CONNECTION ENGINEER TO BE HIRED BY THE CONTRACTOR. THE CONTRACTOR'S CONNECTION ENGINEER SHALL BE A PROFESSIONAL ENGINEER FAMILIAR WITH THE DESIGN OF SUCH ELEMENTS AND SHALL BE LICENSED TO PRACTICE ENGINEERING IN THE STATE IN WHICH THE PROJECT IS BEING CONSTRUCTED. CONNECTION DESIGNS AND DETAILS SHOWN ON THE DRAWINGS ARE CONCEPTUAL. THE FINAL CONFIGURATION, PLATE AND ANGLE THICKNESS, NUMBER OF BOLTS ETC. SHALL BE DESIGNED BY THE CONNECTION ENGINEER.
   - b. STRUCTURAL BOLTS: ALL BOLTS IN STRUCTURAL CONNECTION SHALL CONFORM TO ASTM A325 TYPE 1, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
   - c. THREADED ROUND STOCK: THREADED RODS SHALL CONFORM TO ASTM F1554 GR36.
   - d. WELDING: UNLESS NOTED OTHERWISE, ELECTRODES FOR WELDING SHALL CONFORM TO E70XX (SMAW), F7XX-EXX (SAW), ER70S-X (GMAW) OR E8XT-X (FCAW).
     - FIELD WELDING TO BE DONE BY CERTIFIED WELDERS FOR STRUCTURAL STEEL. CONTINUOUS INSPECTION BY A SPECIAL INSPECTOR IS REQUIRED.
     - SHOP WELDS MUST BE PERFORMED IN FABRICATION SHOP THAT IS CERTIFIED BY THE AUTHORITY HAVING JURISDICTION.
   - e. ANCHOR RODS: ALL ANCHOR RODS SHALL CONFORM TO ASTM F1554. THE TYPICAL SIZE SHALL BE 3/4"Ø AND SHALL BE EMBEDDED A MINIMUM OF 1'-0" WITH A HEAVY HEX NUT AT THE EMBEDDED UNLESS NOTED OTHERWISE.
   - f. GROUT: GROUT BELOW STRUCTURAL STEEL BASE PLATES SHALL BE NON-METALLIC, NON-SHRINK GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 6,000 PSI WHEN BEARING ON A 3,000 PSI CONCRETE OR LESS.
   - g. ALL STEEL LOCATED IN UNCONDITIONED SPACE AND/OR OUTSIDE THE BUILDING ENVELOPE SHALL EITHER BE HOT-DIP GALVANIZED OR PAINTED WITH A ZINC RICH PAINT. THE CONTRACTOR SHALL PREPARE THE STEEL IN ACCORDANCE WITH THE GALVANIZING OR PAINT REQUIREMENTS.
   - h. SPLICING STEEL MEMBERS WHERE NOT DETAILED ON THE DRAWINGS IS PROHIBITED WITHOUT WRITTEN APPROVAL FROM EOR.
   - i. THE CONTRACTOR SHALL NOTIFY STRUCTURAL ENGINEER OF ANY MISFABRICATED STRUCTURAL STEEL PRIOR TO ERECTION OF SAME.
   - j. PENETRATIONS SHALL NOT BE CUT IN STRUCTURAL STEEL MEMBERS UNLESS SO INDICATED IN THE DRAWINGS OR AS REVIEWED BY THE ENGINEER.
   - k. HEADED CONCRETE STUD ANCHORS ("HSA") SHALL BE NELSON OR KSM HEADED CONCRETE ANCHORS (OR APPROVED ALTERNATIVE), AND SHALL CONFORM TO ASTM A108, GRADES C-1010 THROUGH C-1020. ANCHORS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE STUD WELDING EQUIPMENT IN THE SHOP OR IN THE FIELD. WELDING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE NELSON STUD WELDING COMPANY OR THE KSM WELDING SYSTEMS COMPANY.
   - l. DEFORMED BAR ANCHORS ("DBA") SHALL BE NELSON OR KSM DEFORMED BAR ANCHORS (OR APPROVED ALTERNATIVE), AND SHALL BE MADE FROM COLD DRAWN WIRE PER ASTM A496 CONFORMING TO ASTM A108 WITH A MINIMUM YIELD STRENGTH OF 70 KSI. ANCHORS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE WELDING EQUIPMENT IN THE SHOP OR IN THE FIELD. WELDING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE NELSON STUD WELDING COMPANY OR THE KSM WELDING SYSTEMS COMPANY.
   - m. BEAMS SHALL BE CAMBERED UPWARD WHERE SHOWN ON THE CONTRACT DOCUMENTS. WHERE NO UPWARD CAMBER IS INDICATED, ANY MILL CAMBER SHALL BE DETAILED UPWARD IN THE BEAMS.
   - n. WHERE INDICATED ON THE DRAWINGS, STRUCTURAL STEEL MEMBERS, FABRICATIONS, AND WELDED ASSEMBLIES SHALL BE GALVANIZED AFTER FABRICATION BY HOT DIP PROCESS IN ACCORDANCE WITH ASTM A123. WEIGHT OF ZINC COATING SHALL CONFORM TO THE REQUIREMENTS SPECIFIED UNDER "WEIGHT OF COATING" IN ASTM A123 OR ASTM A386, AS APPLICABLE. THE AFFECTED PORTIONS OF FIELD WELDED GALVANIZED ASSEMBLIES SHALL BE FIELD PAINTED WITH ZINC RICH CORROSION RESISTANT PAINT.
   - o. STRUCTURAL STEEL MEMBERS TO RECEIVE FIREPROOFING SHALL NOT BE PRIMED NOR PAINTED. FIREPROOFING MATERIAL THICKNESS SHALL BE INCREASED AS REQUIRED FOR STEEL MEMBERS NOT CONFORMING TO THE MINIMUM SIZES INDICATED IN THE U.L. FIRE RESISTANCE DIRECTORY-VOLUME 1 AND FOR STEEL MEMBERS DETERMINED UNRESTRAINED.
   - p. ALL FILLET WELDS SHALL HAVE A MINIMUM SIZE PER THE FOLLOWING, UNO IN SPECIFIC DETAILS.

MATERIAL THICKNESS OF THINNER PART JOINED "T"	SIZE OF FILLET WELD
T = 3/16	3/16
T= 1/4	3/16
T = 5/16	1/4
T = 3/8	5/16
T = 7/16	3/8
T = 1/2	7/16
T = 3/4	1/2
T > 3/4"	5/8

CONCRETE UNIT MASONRY - 04 22 00

- A. MATERIAL:
  - A. SPECIFIED COMPRESSIVE STRENTH OF CONCRETE MASONRY, f'm:.....**1,700 PSI**
  - B. CONCRETE BLOCK:
  - C. ASTM C90 BLOCK TYPE: :..... **MEDIUMWEIGHT BLOCK (115 PCF)**
    - a. MIMIMUM 28 DAY UNIT COMPRESSIVE STRENGTH: ..... **1,900 PSI MINIMUM**
  - D. GROUT: MUST MEET ASTM C476 WITH A MINIMUM COMPRESSIVE STRENTH OF:... **THE GREATER OF f'm OR 2,000 PSI**
  - E. MORTAR:ASTM C270, TYPE S OR M PORTLAND CEMENT /LIME ONLY (USE TYPE M MORTAR WHEN MASONRY IS IN DIRECT CONTACT WITH SOIL AND TYPE S IN ALL OTHER CONDITIONS
- B. MIX DESIGNS
  - A. MORTAR MIX PROPORTIONS FOR TYPE OF MORTAR REQUIRED TO ACHIEVE SPECIFIED COMPRESSIVE STRENGTH OF MASONRY.
  - B. MIX DESIGNS AND MORTAR TESTS PERFORMED IN ACCORDANCE WITH ASTM C 270
  - C. GROUT MIX PROPORTIONS ACCORDING TO ASTM C476 FOR THE TYPES OF GROUT REQUIRED FOR THE WORK.
  - D. MIX DESIGNS AND GROUT TESTS PERFORMED IN ACCORDANCE WITH ASTM C 476.
- C. JOINT REINFORCEMENT
  - A. JOINT REINFORCEMENT: ASTM A 951: WELDED-WIRE UNITS PREFABRICATED WITH DEFORMED CONTINUOUS SIDE RODS AND PLAIN CROSS RODS IN STRAIGHT LENGTHS OF NOT LESS THAN 10 FEET, WITH PREFABRICATED CORNER AND TEE UNITS.
  - B. FOR SINGLE-WYTHE MASONRY PROVIDE EITHER LADDER OR TRUSS TYPE WITH SINGLE PAIR OF SIDE RODS AND CROSS WIRES IN LADDER-TYPE OR POINTS OF CONNECTION IN TRUSS-TYPE REINFORCEMENT SPACED NO MORE THAN 16 INCHES O.C. HORIZONTALLY.
  - C. FOR MULTI-WYTHE MASONRY PROVIDE LADDER TYPE WITH CROSS RODS SPACED NOT MORE THAN 16" O.C., HORIZONTALLY, AND NUMBER OF SIDE RODS AS FOLLOWS:
    - a. RETAIN ONE OR MORE SIDE ROD REQUIREMENTS FROM CHOICES BELOW. KEEP ADJUSTABLE TYPE FOR MULTI-WYTHE WALLS WHEREIN THE HORIZONTAL JOINTS DO NOT ALIGN VERTICALLY.
      - ONE SIDE ROD FOR EACH FACE SHELL OF CONCRETE MASONRY UNITS IN EITHER WYTHE MORE THAN 4 INCHES IN THICKNESS PLUS ONE SIDE ROD FOR EACH WYTHE OF CONCRETE MASONRY UNITS 4 INCHES OR LESS IN WIDTH.
      - ADJUSTABLE (TWO-PIECE) TYPE, LADDER DESIGN, WITH ONE SIDE ROD AT EACH FACE SHELL OF BACKING WYTHE AND WITH SEPARATE TIES THAT EXTEND INTO FACING WYTHE. TIES HAVE TWO HOOKS THAT ENGAGE EYES OR SLOTS IN REINFORCEMENT AND RESIST MOVEMENT PERPENDICULAR TO WALL. TIES EXTEND AT LEAST HALFWAY THROUGH FACING WYTHE BUT WITH AT LEAST 5/8-INCH COVER ON OUTSIDE FACE. THE MAXIMUM CLEARANCE BETWEEN CONNECTING PARTS OF THE TIES IS 1/16".
- D. SUBMITTALS:
  - A. PRODUCT TEST REPORTS: PROVIDE WRITTEN REPORTS BASED ON EVALUATION OF COMPREHENSIVE TESTS PERFORMED BY QUALIFIED TESTING AGENCY INDICATING THAT EACH PRODUCT COMPLIES WITH REQUIREMENTS.
    - a. CONCRETE MASONRY UNITS: MATERIAL TEST REPORTS.
    - b. CEMENTITIOUS MATERIALS: EACH PRODUCT REQUIRED FOR MORTAR AND GROUT INCLUDING NAME OF MFR. BRAND TYPE, AND WEIGHT SLIPS AT TIME OF DELIVERY.
    - c. JOINT REINFORCEMENT
- E. INSTALLER QUALIFICATIONS:
  - a. EXPERIENCE: INSTALLER'S PERSONNEL WITH NOT LESS THAN 10 YEARS OF EXPERIENCE IN THE SUCCESSFUL PERFORMANCE OF WORK SIMILAR TO SCOPE OF THIS PROJECT.
  - b. SUPERVISION: INSTALLER SHALL MAINTAIN A COMPETENT SUPERVISOR AT PROJECT WHILE WORK IS IN PROGRESS.
- F. COLD WEATHER REQUIREMENTS:
  - A. COMPLY WITH THE BUILDING CODE OR TMS 602.ACI 530.1 WHICHEVER IS MORE STRINGENT, AND THE FOLLOWING:
    - a. DO NOT APPLY WHEN AMBIENT TEMPERATURES ARE LESS THAN 32°F.
- G. WARM WEATHER REQUIREMENTS:
  - A. COMPLY WITH THE BUILDING CODE OR TMS 602.ACI 530.1 WHICHEVER IS MORE STRINGENT, AND THE FOLLOWING:
  - B. PROTECT WORK AGAINST UNEVEN AND EXCESSIVE EVAPORATION AND FROM STRONG FLOWS OF DRY AIR.
  - C. APPLY AND CURE WORK AS REQUIRED BY THE CLIMATIC AND JOB CONDITIONS TO PREVENT DRYOUT DURING CURE PERIOD.
  - D. PROVIDE SUITABLE COVERINGS, MOIST CURING, BARRIERS TO DEFLECT SUNLIGHT AND WIND, AS REQUIRED.
- H. INSTALLATION:
  - A. LAY OUT WALLS IN ADVANCE FOR ACCURATE SPACING OF SURFACE BOND PATTERNS, AND UNIFORM JOINT THICKNESSES. AVOID USING LESS THAN HALF-SIZE UNITS AT CORNERS AND WHERE POSSIBLE AT OTHER LOCATIONS.
  - B. MORTAR BEDDING AND JOINTING:
    - a. MORTAR JOINT THICKNESS SHALL BE MINIMUM 3/8" WIDE FOR HEAD AND BED JOINTS.
    - b. DO NOT DISTURB PREVIOUSLY LAID UNITS.
    - c. SPREAD MORTAR FOR BED JOINT ONLY SO FAR AHEAD OF LAYING UNITS THAT MORTAR WILL BE PLASTIC WHEN UNITS ARE LAID.
    - d. BUTTER END OF UNIT WITH AMPLE MORTAR SO THAT HEAD JOINT IS COMPLETELY FILLED WITH MORTAR WHEN PLACED.
    - e. DO NOT DEEPLY FURROW BED JOINTS OR SLUSH HEAD JOINTS.
  - C. GROUTING: DO NOT PLACE GROUT UNTIL ENTIRE HEIGHT OF MASONRY TO BE GROUTED HAS ATTAINED ENOUGH STRENGTH TO RESIST GROUT PRESSURE.
    - a. COMPLY WITH REQUIREMENTS IN TMS 602/ACI 530.1/ASCE 6 FOR CLEANOUTS AND FOR GROUT PLACEMENT, INCLUDING MINIMUM GROUT SPACE AND MAXIMUM POUR HEIGHT UNLESS OTHERWISE REQUIRED BY LOCAL APPLICABLE CODE.
    - b. PLACE GROUT ONLY AFTER INSPECTORS HAVE VERIFIED COMPLIANCE OF GROUT SPACES AND GRADES, SIZES, AND LOCATIONS OF REINFORCEMENT.
    - c. LIMIT HEIGHT OF VERTICAL GROUT POURS TO NOT MORE THAN 60 IN (1500 MM).
    - d. FILL WITH GROUT, VERTICAL CELLS, BOND BEAMS, LINTELS AND OTHER STRUCTURAL MEMBERS HAVING REINFORCEMENT. SECURE IN PLACE AND INSPECT REINFORCING BEFORE GROUTING. KEEP MORTAR DROPPINGS OUT OF GROUT SPACE AND PUDDLE OR VIBRATE GROUT IN PLACE. GROUT MUST ALSO BE RECONSOLIDATED.
    - e. PROVIDE SOLID BEARING UNDER STRUCTURAL MEMBERS AT LEAST 8 IN (200 MM) VERTICALLY AND AT LEAST 16 IN (400 MM) HORIZONTALLY. BEARING MAY BE SOLID UNITS, OR HOLLOW UNITS WITH GROUT. FILL CELLS IN UNITS ADJACENT TO OPENINGS.
    - f. GROUT FROM INSIDE FACE OF MASONRY AND PREVENT GROUT FROM STAINING MASONRY FACE. PROTECT PROJECTING SURFACES FROM DROPPINGS AND CLEAN IMMEDIATELY ANY GROUT WHICH COMES IN CONTACT WITH FACE OF MASONRY.

Revision Schedule		
Revision Number	Revision Description	Revision Date



4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS TEMPLE, TX

DUDLEY
GEOTECHNICAL | STRUCTURAL | ENVIRONMENTAL
Dudley Engineering LLC dba DUDLEY
6102 Imperial Loop Drive | College Station, Texas 77845
(o) 979.777.0720 | TBPE Firm No. F-18677

GENERAL NOTES

S0.4

Date:	04/14/2022
Project No:	21-139

STRUCTURAL STATEMENT OF SPECIAL INSPECTIONS & TESTING

1. SPECIAL INSPECTIONS AND STRUCTURAL TESTING SHALL BE PROVIDED BY AN INDEPENDENT AGENCY EMPLOYED BY THE OWNER FOR THE ITEMS IDENTIFIED IN THIS SECTION AND IN OTHER AREAS OF THE APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS. (SEE IBC CHAPTER 17).
2. THE NAMES AND CREDENTIALS OF THE SPECIAL INSPECTORS TO BE USED SHALL BE SUBMITTED TO THE BUILDING OFFICIAL FOR APPROVAL. DUDLEY DUNHAM ENGINEERING CAN BE SOLICITED TO PROVIDE SPECIAL INSPECTIONS. WE RECOMMEND THAT THE PROJECT GEOTECHNICAL ENGINEER BE SOLICITED TO PROVIDE SPECIAL INSPECTIONS FOR THE SOILS AND TESTING FOR THE SOIL AND CONCRETE.
3. DUTIES OF THE SPECIAL INSPECTOR:
   - A. THE SPECIAL INSPECTOR SHALL REVIEW ALL WORK LISTED BELOW FOR CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS AND THE IBC.
   - B. THE SPECIAL INSPECTOR SHALL FURNISH SPECIAL INSPECTION REPORTS TO THE EOR, CONTRACTOR, OWNER AND BUILDING OFFICIAL ON A WEEKLY BASIS, OR MORE FREQUENTLY AS REQUIRED BY THE BUILDING OFFICIAL. ALL ITEMS NOT IN COMPLIANCE SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, AND IF UNCORRECTED, TO THE EOR AND THE BUILDING OFFICIAL.
   - C. ONCE CORRECTIONS HAVE BEEN MADE BY THE CONTRACTOR, THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT TO THE BUILDING OFFICIAL STATING THAT THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE SPECIAL INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS AS WELL AS THE APPLICABLE WORKMANSHIP PROVISIONS OF THE IBC.
4. DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR:
   - A. THE CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE OWNER AND THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF WORK. IN ACCORDANCE WITH IBC 1704.4, THE STATEMENT OF RESPONSIBILITY SHALL CONTAIN ACKNOWLEDGEMENT OF THE SPECIAL INSPECTION REQUIREMENTS CONTAINED WITHIN THIS "STATEMENT OF SPECIAL INSPECTIONS".
   - B. THE CONTRACTOR SHALL NOTIFY THE RESPONSIBLE SPECIAL INSPECTOR THAT WORK IS READY FOR INSPECTION AT LEAST ONE WORKING DAY (24 HOURS MINIMUM) BEFORE SUCH INSPECTION IS REQUIRED.
   - C. ALL WORK REQUIRING SPECIAL INSPECTION SHALL REMAIN ACCESSIBLE AND EXPOSED UNTIL IT HAS BEEN OBSERVED BY THE SPECIAL INSPECTOR.
5. PLEASE SEE THE "SPECIAL INSPECTION SCHEDULE" FOR THE TYPES, EXTENTS AND FREQUENCY OF SPECIFIC ITEMS REQUIRING SPECIAL INSPECTIONS AND STRUCTURAL TESTS AS PART OF THIS PROJECT.
6. REFER TO ARCHITECTURAL AND/OR MEP DRAWINGS FOR ADDITIONAL SPECIAL INSPECTION REQUIRED. DUDLEY DUNHAM ENGINEERING HAS LISTED THE STRUCTURAL SPECIAL INSPECTIONS AND TESTING.

WIND-RESISTING COMPONENTS (1705.11.3)

PERIODIC SPECIAL INSPECTION IS REQUIRED FOR FASTENING OF THE FOLLOWING SYSTEMS AND COMPONENTS:
1. ROOF COVERING, ROOF DECK AND ROOF FRAMING CONNECTIONS.
2. EXTERIOR WALL COVERING AND WALL CONNECTIONS TO ROOF AND FLOOR DIAPHRAGMS AND FRAMING

REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION (TABLE 1705.3)

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS AND PLACEMENT.	-	X	YES
INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN USED OR STRENGTH DESIGN IS USED.	-	X	YES
INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.	-	X	YES
VERIFYING USE OF REQUIRED MIX DESIGN		X	YES
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X	-	YES
INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	YES
INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURES AND TECHNIQUES	-	X	YES
INSPECTION OF PRESTRESSED CONCRETE APPLICATION OF PRESTRESSING FORCES	X	-	NO
ERECTION OF PRECAST CONCRETE MEMBERS	-	X	NO
VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	-	X	YES
INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		X	YES

REQUIRED VERIFICATION AND INSPECTION OF SOILS (TABLE 1705.6)

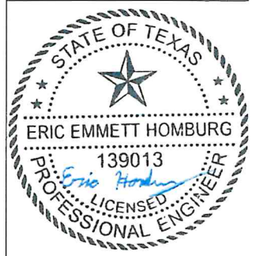
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	-	X	YES
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIALS	-	X	YES
PERFORM CLASSIFICATION AND TESTING OF COMPACTED MATERIALS	-	X	YES
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X	-	YES
PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THE SITE HAS BEEN PREPARED PROPERLY	-	X	YES

REQUIRED VERIFICATION AND INSPECTION OF MASONRY CONSTRUCTION (§1705.4) - LEVEL B QUALITY ASSURANCE

MINIMUM TESTING			
VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX AS DELIVERED TO PROJECT SITE IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.5 B.1b.3 FOR SELF-CONSOLIDATING GROUT			
VERIFICATION OF f'm IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.4 B PRIOR TO CONSTRUCTION, EXCEPT WHERE SPECIFICALLY EXEMPT.			
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS.		X	YES
2. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:		X	YES
A. PROPORTIONS OF SITE-PREPARED MORTAR.		X	YES
B. CONSTRUCTION OF MORTAR JOINTS		X	YES
3. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE		X	YES
A. GROUT SPACE		X	YES
B. GRADE TYPE AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS	-	X	YES
C. PLACEMENT OF REINFORCEMENT AND CONNECTORS.		X	YES
D.PROPORTIONS OF SITE-PREPARED GROUT.		X	YES
E. CONSTRUCTION OF MORTAR JOINTS		X	YES
4. VERIFY DURING CONSTRUCTION		X	YES
A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS		X	YES
B. TYPE, SIZE AND LOCATION OF ANCHOR INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION		X	YES
C. WELDING OF REINFORCEMENT		X	NO
D. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (< 40°F) OR HOT WEATHER (>90°)		X	YES

Revision Schedule

Revision Number	Revision Description	Revision Date



4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

DUDLEY
GEOTECHNICAL | STRUCTURAL | ENVIRONMENTAL
Dudley Engineering LLC dba DUDLEY
6102 Imperial Loop Drive | College Station, Texas 77845
(o) 979.777.0726 | TBPE Firm No. F-18677

STATEMENT OF SPECIAL INSPECTIONS

S0.5

Date: 04/14/2022

Project No: 21-139

COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION (1705.11.2)

PERIODIC SPECIAL INSPECTION IS REQUIRED FOR WELDING OPERATIONS OF ELEMENTS OF THE MAIN WINDFORCE-RESISTING SYSTEM. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR SCREW ATTACHMENT, BOLTING, ANCHORING AND OTHER FASTENING OF ELEMENTS OF THE MAIN WINDFORCE-RESISTING SYSTEM, INCLUDING SHEAR WALLS, BRACES, DIAPHRAGMS, COLLECTORS (DRAG STRUTS) AND HOLD-DOWNS.

EXCEPTION: SPECIAL INSPECTION IS NOT REQUIRED FOR COLD-FORMED STEEL LIGHT-FRAME SHEAR WALLS AND DIAPHRAGMS, INCLUDING SCREWING, BOLTING, ANCHORING AND OTHER FASTENING TO COMPONENTS OF THE WIND FORCE RESISTING SYSTEM WHERE EITHER OF THE FOLLOWING APPLIES:
1. THE SHEATHING IS GYPSUM BOARD OR FIBERBOARD.
2. THE SHEATHING IS WOOD STRUCTURAL PANEL OR STEEL SHEETS ON ONLY ONE SIDE OF THE SHEAR WALL, SHEAR PANEL OR DIAPHRAGM ASSEMBLY AND THE FASTENER SPACING OF THE SHEATHING IS MORE THAN 4 INCHES (102 MM) ON CENTER (O.C.).

REQUIRED VERIFICATION AND INSPECTION OF STRUCTURAL STEEL CONSTRUCTION (§1705.2.1)

STRUCTURAL STEEL - GENERAL

THE SPECIAL INSPECTOR SHALL INSPECT THE FABRICATED OR ERECTED STEEL FRAME, AS APPROPRIATE, TO VERIFY COMPLIANCE WITH THE DETAIL SHOWN ON THE CONSTRUCTION DOCUMENTS, SUCH AS BRACES, STIFFENERS, MEMBER LOCATIONS AND PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION.

STRUCTURAL STEEL - ANCHOR RODS / EMBED PLATES

THE SPECIAL INSPECTOR SHALL BE ON THE PREMISES FOR INSPECTION DURING THE PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENT SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. AS A MINIMUM, THE DIAMETER, GRADE, TYPE AND LENGTH OF THE ANCHOR RODS OR EMBEDDED ITEM, AND THE EXTENT OR DEPTH OF EMBEDMENT INTO THE CONCRETE, SHALL BE VERIFIED PRIOR TO PLACEMENT OF CONCRETE.

STRUCTURAL STEEL - WELDS

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
INSPECTION TASKS PRIOR TO WELDING (AISC 360 TABLE N5.4-1)			
WELDING PROCEDURE SPECIFICATION(WPS'S) AVAILABLE	X	-	YES
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	X	-	YES
MATERIAL IDENTIFICATION (TYPE / GRADE)	-	X	YES
WELDER IDENTIFICATION SYSTEM	-	X	YES
FIT-UP GROOVE WELDS	-	X	NO
CONFIGURATION AND FINISH OF ACCESS HOLES	-	X	NO
FIT-UP FILLET WELDS	-	X	YES
CHECK WELDING EQUIPMENT	-	X	YES
INSPECTION TASKS DURING WELDING (AISC 360 TABLE N5.4-2)			
USE OF QUALIFIED WELDERS	-	X	YES
CONTROL AND HANDLING OF WELDING CONSUMABLES	-	X	YES
NO WELDING OVER CRACKED TACK WELDS	-	X	YES
ENVIRONMENTAL CONDITIONS (WIND SPEED WITHIN LIMITS, PRECIPITATION AND TEMPERATURE	-	X	YES
WPS FOLLOWED • SETTINGS ON WELDING EQUIPMENT • TRAVEL SPEED • SELECTED WELDING MATERIALS • SHIELDING GAS TYPE / FLOW RATE • PREHEAT APPLIED • INTERPASS TEMPERATURE MAINTAINED (MIN/ MAX) • PROPER POSITION (F, V, H, OH)	-	X	YES
WELDING TECHNIQUES • INTERPASS AND FINAL CLEANING • EACH PASS WITHIN PROFILE LIMITATIONS • EACH PASS MEET QUALITY REQUIREMENTS	-	X	YES
WELDS CLEANED	-	X	YES
SIZE, LENGTH AND LOCATION OF WELDS	X	-	YES
WELDS MEET VISUAL ACCEPTANCE CRITERIA • CRACK PROHIBITION • WELD / BASE-METAL FUSION • CRATER CROSS SECTION • WELD PROFILES • WELD SIZE • UNDERCUT • POROSITY	X	-	YES
ARC STRIKES	X	-	YES
k-AREA	X	-	YES
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	X	-	YES
REPAIR ACTIVITIES	X	-	YES
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT MEMBER	X	-	YES
NON-DESTRUCTIVE TESTING OF WELDED JOINTS			
FILLET WELDS:			
MT TEST A MINIMUM OF 10% OF THE LENGTH OF EACH FILLET WELD EXCEEDING 5/16".	-	X	YES
PERIODIC MT TESTING OF REPRESENTATIVE FILLET WELDS 5/16" AND LESS BUT NEED NOT EXCEED 10% OF ALL SUCH WELDS, EXCEPT AS REQUIRED FOR HIGH REJECTION RATES AS INDICATED IN THE FOLLOWING PARAGRAPH.	-	X	YES
INCREASE MT TESTING RATE FOR WELDERS HAVING A HIGH REJECTION RATE AS REQUIRED TO ENSURE ACCEPTABLE WELDS.	X	-	YES
PARTIAL JOINT PENETRATION (PJP) WELDS INCLUDING FLARE BEVEL WELDS			
MT TEST A MINIMUM OF 25% OF THE LENGTH OF EACH PJP WELD EXCEEDING 5/16" EFFECTIVE THROAT.	-	X	YES
PERIODIC MT TESTING OF REPRESENTATIVE PJP WELDS 5/16" AND LESS BUT NEED NOT EXCEED 10% OF ALL SUCH WELDS, EXCEPT AS REQUIRED FOR HIGH REJECTION RATES AS INDICATED IN THE FOLLOWING PARAGRAPH..	-	X	YES
INCREASE MT TESTING RATE FOR WELDERS HAVING A HIGH REJECTION RATE AS REQUIRED TO ENSURE ACCEPTABLE WELDS	X	-	YES
COMPLETE JOINT PENETRATION (CJP) WELDS			
ALL CJP WELDS EXCEEDING 5/16" THICKNESS SHALL BE 100% UT TESTED PER AWS D1.1 CLAUSE 6 PART F. THE TESTING LABORATORY SHALL REVIEW THE CJP JOINTS TO DETERMINE WHERE GEOMETRY OR ACCESSIBILITY PRECLUDES THE USE OF STANDARD SCANNING PATTERNS PER AWS D1.1 CLAUSE 6 PART F. AT THESE LOCATIONS THE TESTING LABORATORY SHALL DEVELOP AND SUBMIT FOR APPROVAL A WRITTEN TESTING PROCEDURE IN ACCORDANCE WITH AWS D1.1 ANNEX S.	X	-	YES
PERIODIC MT TESTING OF REPRESENTATIVE CJP WELDS 5/16" AND LESS NOT TO EXCEED 10% OF ALL SUCH WELDS.	-	X	YES
INCREASE MT TESTING RATE FOR WELDERS HAVING A HIGH REJECTION RATE AS REQUIRED TO ENSURE ACCEPTABLE WELDS.	X	-	YES

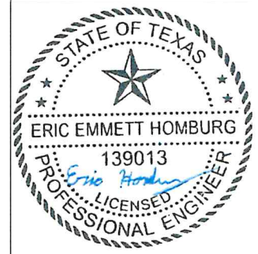
COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION (1705.11.2)

PERIODIC SPECIAL INSPECTION IS REQUIRED FOR WELDING OPERATIONS OF ELEMENTS OF THE MAIN WINDFORCE-RESISTING SYSTEM. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR SCREW ATTACHMENT, BOLTING, ANCHORING AND OTHER FASTENING OF ELEMENTS OF THE MAIN WINDFORCE-RESISTING SYSTEM, INCLUDING SHEAR WALLS, BRACES, DIAPHRAGMS, COLLECTORS (DRAG STRUTS) AND HOLD-DOWNS.

EXCEPTION: SPECIAL INSPECTION IS NOT REQUIRED FOR COLD-FORMED STEEL LIGHT-FRAME SHEAR WALLS AND DIAPHRAGMS, INCLUDING SCREWING, BOLTING, ANCHORING AND OTHER FASTENING TO COMPONENTS OF THE WIND FORCE RESISTING SYSTEM WHERE EITHER OF THE FOLLOWING APPLIES:
1. THE SHEATHING IS GYPSUM BOARD OR FIBERBOARD.
2. THE SHEATHING IS WOOD STRUCTURAL PANEL OR STEEL SHEETS ON ONLY ONE SIDE OF THE SHEAR WALL, SHEAR PANEL OR DIAPHRAGM ASSEMBLY AND THE FASTENER SPACING OF THE SHEATHING IS MORE THAN 4 INCHES (102 MM) ON CENTER (O.C.).

Revision Schedule

Revision Number	Revision Description	Revision Date



4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

DUDLEY
GEOTECHNICAL | STRUCTURAL | ENVIRONMENTAL
Dudley Engineering LLC dba DUDLEY
6102 Imperial Loop Drive | College Station, Texas 77845
(o) 979.777.0720 | TBPE Firm No. F-18677

STATEMENT OF SPECIAL INSPECTIONS

S0.6

Date: 04/14/2022

Project No: 21-139

STRUCTURAL STEEL HIGH-STRENGTH BOLTS (SNUG-TIGHT) - INSPECTION TASKS PRIOR TO BOLTING

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
DOCUMENTATION AND ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	-	X	YES

STRUCTURAL STEEL HIGH-STRENGTH BOLTS (PRETENSIONED) - INSPECTION TASKS PRIOR TO BOLTING

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
MFR. CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	-	X	YES
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	-	X	YES
PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	-	X	YES
PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	-	X	YES
CONNECTING ELEMENTS, INCLUDE THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION , IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	-	X	YES
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENERS ASSEMBLIES AND METHODS USED	X	-	YES
PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	-	X	YES

STRUCTURAL STEEL HIGH-STRENGTH BOLTS (PRETENSIONED) - INSPECTION TASKS DURING BOLTING

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	-	X	YES
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO PRETENSIONING OPERATION	-	X	YES
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	-	X	YES
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARDS THE FREE EDGES	-	X	YES

STRUCTURAL STEEL COMPOSITE CONSTRUCTION - INSPECTIONS PRIOR TO CONCRETE PLACEMENT

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
PLACEMENT AND INSTALLATION OF STEEL DECK	-	X	YES
PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS.	-	X	YES
DOCUMENT ACCEPTANCE OR REJECTION OF STEEL ELEMENTS	-	X	YES

STRUCTURAL STEEL HIGH-STRENGTH BOLTS (SNUG-TIGHT) - INSPECTION TASKS DURING BOLTING

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
DOCUMENTATION OF ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS.	-	X	YES

STRUCTURAL STEEL HIGH-STRENGTH BOLTS (TURN-OF-NUT)

TURN-OF-NUT PRETENSIONING: THE INSPECTOR SHALL OBSERVE THE PRE-INSTALLATION VERIFICATION TESTING REQUIRED IN SECTION 8.2. SUBSEQUENTLY, IT SHALL BE ENSURED BY ROUTINE OBSERVATION THAT THE BOLTING CREW PROPERLY ROTATES THE TURNED ELEMENT RELATIVE TO THE UNTURNED ELEMENT BY THE AMOUNT SPECIFIED IN TABLE 8.2. ALTERNATIVELY, WHEN FASTENER ASSEMBLIES ARE MATCH-MARKED AFTER THE INITIAL FIT-UP OF THE JOINT BUT PRIOR TO PRETENSIONING, VISUAL INSPECTION AFTER PRETENSIONING IS PERMITTED IN LIEU OF ROUTINE OBSERVATION. NO FURTHER EVIDENCE OF CONFORMITY IS REQUIRED. A PRETENSION THAT IS GREATER THAN THE VALUE SPECIFIED IN TABLE 8.1 SHALL NOT BE CAUSE FOR REJECTION. A ROTATION THAT EXCEEDS THE REQUIRED VALUES, INCLUDING TOLERANCE, SPECIFIED IN TABLE 8.2 SHALL NOT BE CAUSE FOR REJECTION.

TABLE 8.2: NUT ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT PRETENSIONING

BOLT LENGTH	DISPOSITION OF OUTER FACES OF BOLTED PARTS		
	BOTH FACE NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS
LENGTH ≤ $4d_b$	1/3 TURN	1/2 TURN	2/3 TURN
$4d_b$ < LENGTH ≤ $8d_b$	1/2 TURN	2/3 TURN	5/6 TURN
$8d_b$ < LENGTH ≤ $12d_b$	2/3 TURN	5/6 TURN	1 TURN

a. NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR ALL REQUIRED ROTATIONS, THE TOLERANCE IS PLUS 60° AND MINUS 30°
b. APPLICABLE TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL (TABLE 1705.2.2)

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
1. MATERIAL VERIFICATION OF COLD-FORMED STEEL DECK:			
A. IDENTIFICATION MARKING TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	-	X	NO
B. MANUFACTURER'S CERTIFIED TEST REPORTS	-	X	NO
2. INSPECTION OF WELDING			
A. COLD-FORMED STEEL DECK - FLOOR AND ROOF DECK WELDS	-	X	NO
A. REINFORCING STEEL			
1. VERIFICATION OF EDIBILITY OF REINFORCING STEEL OTHER THAN ASTM A 706	-	X	NO
2. SHEAR REINFORCEMENT	X	-	NO
3. OTHER REINFORCEMENT	-	X	NO

Revision Schedule

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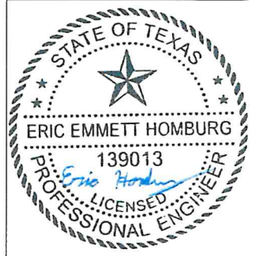

4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

DUDLEY
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Dudley Engineering LLC dba **DUDLEY**
6102 Imperial Loop Drive | College Station, Texas 77845
(o) 979.777.0720 | TBPE Firm No. F-18677

STATEMENT OF SPECIAL INSPECTIONS

S0.7

Date: 04/14/2022

Project No: 21-139

NOTE:
REF SHEET S1.1 FOR LEGEND

EXISTING STEEL COLUMN

TYP. 4 S6.2

7'-2"

3'-0" 4'-4"

CANTILEVER NON-LOADBEARING INTERIOR CMU WALL
(1) #4 BAR @ 36" O.C.
DRILL & EPOXY DOWELS
T.O.W. 718.80

EXISTING CMU WALL TO REMAIN

EXISTING OPENING EXTENTS, OPENING TO BE FILLED IN W/ NEW CMU

20'-0"

REF. 3 /S4.4 FOR BASE PLATE DETAIL

NEW OPENING EXTENTS

EXISTING FOUNDATION TO REMAIN

S3.1 2

CONTRACTOR TO VERIFY THAT ALL NEW COLUMN LOCATIONS ALIGN WITH FRAME LINES IN EXISTING BUILDING

SAW-CUT JOINT THROUGH EXISTING SLAB

VERTIAL CABLE BRACE, REF 1 /S5.2

REMOVE EXISTING EXTERIOR ROCK FACADE AND INSTALL METAL PANEL SIM. TO THAT EXISTING IN ITS PLACE
NOTE: ALL PANELS AND DUCT WORK TO BE REMOVED - REPAINT WEST METAL WALL TO MATCH EXISTING AND NEW METAL PANELS

REMOVE EXISTING EXTERIOR ROCK FACADE AND INSTALL 8" CMU IN ITS PLACE
ENTIRE SOUTH SECTION OF EXISTING WALL SHALL BE COVERED W/ NEW CMU

1 S3.0 1

2 S2.1 | 1 S2.1 | 4 S4.0 TYP.

2'-8" CL PIER

3"Ø PIPE, REF CIVIL

NEW CMU WALL

CANTILEVER NON-LOADBEARING INTERIOR CMU WALL
(1) #4 BAR @ 36" O.C.
T.O.W. 720.50

4'-5" TYP

17'-6"

5 S4.2 TYP. CONCRETE MAT SLAB, REF SCHEDULE

2 S4.1 TYP. PUMP PAD, REF CIVIL FOR SIZE AND LOCATION, TYP.

2 S4.4 TYP. 6'-0"

BAR GRATING
REF. 6 /S5.0

7 S4.2 TYP.

6 S4.0 TYP.

DISCHARGE HEADER PIT

32'-4"

1 S4.2 TYP.

CONCRETE MAT SLAB, REF SCHEDULE

4 S4.4 TYP.

1 S2.0

3 S4.1

5 S4.3

5'-1" 5'-0" 10'-11" 1'-1" 11'-7" 12'-0" 5'-0" 4'-8"

54'-1 1/2"

7 1/4" 8"

C6X8.2
T.O.S. 710.35

6'-9 1/2"

2'x2'x1'-6" DEEP S 5'-3 1/2" IP

C6X8.2, TYP.
T.O.S. = 710.35

FUTURE PUMP PAD

SUCTION HEADER PIT

2'-0" TYP.

(8) @ 5'-2"

5'-1"

BAR GRATING
REF. 6 /S5.0

6 S5.2 TYP.

HSS4x4x1/4", TYP.

3 S4.7 TYP.

4 S5.3 TYP.

HEADER, REF CIVIL

OPENING FOR 12' ROLL-UP DOOR

4 S4.0 TYP.

SLOPE

22'-0"

3 S4.9

54'-1 3/8"

1 S4.9

2 S3.0

REF. 3 /S4.4 FOR BASE PLATE DETAIL

BAR GRATING
REF. 6 /S5.0

REF. 6 /S5.0

4 S5.3 TYP.

4 S4.7 TYP.

1'-0"

NEW DOOR OPENING

45'-4"

2'-0" TYP.

2'-0" TYP.

3 S4.8 TYP.

7'-0"

SLOPE

1 S4.0 TYP.

5'-0"

CONCRETE RAMP, BY OTHERS

TRENCH DRAIN, REF CIVIL

1'-2 1/2"

2'-8"

16'-3 1/2"

1 S4.5

2 S4.5

21'-2" 5'-1" 56'-8"

16'-9 1/2"

1'-2 1/2"

2'-8"

4 S4.7 TYP.

3 S4.8 TYP.

HEADER, REF CIVIL

17'-8"

5'-4"

7 1/4" 8"

56'-0"

1 S3.1

TRUE

1 PUMP ROOM FOUNDATION PLAN
1/8" = 1'-0"

Revision Schedule		
Revision Number	Revision Description	Revision Date

THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE FOLLOWING PROJECT:

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT THE APPROVAL AND PARTICIPATION OF THE ENGINEER. REPRODUCTION IS PROHIBITED.

STATE OF TEXAS
ERIC EMMETT HOMBURG
139013
LICENSED PROFESSIONAL ENGINEER

4/14/2022

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TEMPLE, TX

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FOUNDATION PLAN

S1.0

Date: 04/14/2022

Project No: 21-139

SUBGRADE AND BUILDING PAD NOTES:

1. SITE PREPARATION:
   - A. PLACE AT LEAST 2 FEET OF SELECT FILL BELOW THE UPPER SLABS. SOFT SOILS SHOULD BE REMOVED UNTIL FIRM SOIL IS REACHED. THE SOFT SOILS CAN BE AERATED AND PLACED BACK IN SIX-INCH LOOSE LIFTS AND COMPACTED TO 95% AS SPECIFIED BY ASTM D-698. TREE STUMPS, TREE ROOTS, OLD SLABS, OLD FOUNDATIONS AND EXISTING PAVEMENTS SHOULD BE REMOVED FROM THE STRUCTURE AREA. IF THE TREE STUMPS AND ROOTS ARE LEFT IN PLACE, SETTLEMENT AND TERMITE INFESTATION MAY OCCUR. ONCE A ROOT SYSTEM IS REMOVED, A VOID IS CREATED IN THE SUBSOIL. IT IS RECOMMENDED TO FILL THESE VOIDS WITH SELECT FILL OR CEMENT-STABILIZED SAND AND COMPACT TO 95% AS SPECIFIED BY ASTM D-698. SELECT FILL SHOULD EXTEND A MINIMUM DISTANCE OF 2 FEET BEYOND THE BUILDING PERIMETER.
   - B. ANY LOW-LYING AREAS INCLUDING RAVINES, DITCHES, SWAMPS, ETC. SHOULD BE FILLED WITH SELECT FILL AND PLACED IN SIX-INCH LIFTS. EACH LIFT SHOULD BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AT 0 TO +3%OF THE OPTIMUM MOISTURE CONTENT AS SPECIFIED BY ASTM D-698.
   - C. IMPORTED SELECT FILL SHOULD MEET THE REQUIREMENTS OF 2014 TxDOT ITEM 247, TYPE A, GRADE 3 OR BETTER PER THE GEOTECH. REPORT.
   - D. THE EXPOSED SUBGRADE SHOULD BE SCARIFIED TO A MINIMUM DEPTH OF SIX (6) INCHES IN THE DRIVEWAY AND SLAB AREAS. THE SUBGRADE SHOULD THEN BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AT +2 TO +5% OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE STANDARD MOISTURE DENSITY RELATIONSHIP (ASTM D-698). IN THE EVENT THAT THE UPPER SIX (6) INCHES CANNOT BE COMPACTED DUE TO EXCESSIVE MOISTURE, WE RECOMMEND THAT THESE SOILS BE EXCAVATED AND REMOVED OR CHEMICALLY STABILIZED TO PROVIDE A FIRM BASE FOR FILL PLACEMENT. PROOF ROLLING SHOULD BE PERFORMED USING A HEAVY TIRED LOADED TRUCK OR PNEUMATIC RUBBER-TIRED WEIGHING 25 TONS.
   - E. A QUALIFIED SOIL TECHNICIAN SHOULD MONITOR ALL EARTHWORK OPERATIONS. FIELD DENSITY TESTS SHOULD BE CONDUCTED ON EACH LIFT USING A NUCLEAR DENSITY GAUGE. THE GAUGE SHOULD BE CALIBRATED EVERY DAY. PRIOR TO FIELD DENSITY TESTS, A 50-POUND SAMPLE FROM THE SUBGRADE SOILS SHOULD BE OBTAINED. A SIMILAR SAMPLE SHOULD BE OBTAINED FROM THE FILL SOILS. A STANDARD MOISTURE DENSITY RELATIONSHIP (ASTM D-698) SHOULD BE PERFORMED ON EACH SAMPLE IN ORDER TO OBTAIN AN OPTIMUM MOISTURE CONTENT AND A MAXIMUM DRY DENSITY. THE FIELD DENSITY TESTS SHOULD BE COMPARED TO THESE RESULTS EVERY TIME THE SOILS ARE TESTED IN THE FIELD.
2. DRAINAGE
   - A. ROOF DRAINAGE SHOULD BE COLLECTED BY A SYSTEM OF GUTTERS AND DOWN SPOUTS AND TRANSMITTED TO A PAVED SURFACE WHERE WATER CAN DRAIN RAPIDLY AWAY FROM THE STRUCTURE. SIDEWALKS, PARKING AREAS, BUILDING ACCESS DRIVES, AND THE GENERAL GROUND SURFACE SHOULD BE SLOPED SO THAT WATER WILL DRAIN AWAY FROM THE STRUCTURE. WATER SHOULD NOT BE ALLOWED TO POND NEAR THE BUILDING FOUNDATIONS.
   - B. FINAL GRADES SHALL SLOPE A MINIMUM OF 5% FOR THE FIRST 10 FEET AWAY FROM THE FOUNDATION IN ALL DIRECTIONS. THIS SLOPE SHALL OCCUR IN THE SELECT FILL OR IN-SITU SOIL. MERELY SLOPING TOPSOIL IS NOT SUFFCIENT.
3. SOIL MOISTURE
   - A. EXPANSIVE SOILS HEAVE AND SUBSIDE DUE TO CHANGES IN MOISTURE CONTENT. CHANGES IN MOISTURE CONTENT CAN CAUSE VERY LARGE CHANGES IN SOIL VOLUME WHEN GOING FROM A DRY TO A SATURATED CONDITION, AND VICE VERSA. THIS MOVEMENT DOES NOT MEAN THE FOUNDATION IS IMPROPERLY DESIGNED OR THAT IT HAS FAILED. THE FOUNDATION DESIGN ENGINEER CANNOT CONTROL THE MOISTURE CONTENT OF THE SOIL, BUT OFTEN THE OWNER/TENANT CAN. UNIFORMITY IS THE KEY: UNIFORM MOISTURE CONTENT IN THE SOIL, UNIFORMLY MAINTAINED IN ALL AREAS AROUND THE FOUNDATION. IF CHANGES IN MOISTURE CONTENT ARE UNIFORM, THEN MOVEMENT OF THE FOUNDATION WILL BE UNIFORM AND LESS DISTRESS WILL BE CREATED IN THE STRUCTURE. IF CHANGES IN MOISTURE CONTENT ARE NON-UNIFORM, THEN THERE MAY BE DIFFERENTIAL MOVEMENT IN THE FOUNDATION. DIFFERENTIAL MOVEMENT CAN CAUSE GREATER (AND MORE OBVIOUS) DISTRESS IN THE STRUCTURE. LEAKING POOLS, LEAKING PLUMBING LINES, LEAKING DRAINS, DRIPPING FAUCETS, DRIPPING AIR CONDITIONING CONDENSATE LINES, AND MISDIRECTED WATER FROM CLOGGED AND BROKEN GUTTERS AND DOWNSPOUTS CAN CAUSE LOCAL HIGH MOISTURE CONTENTS THAT CAN RESULT IN DIFFERENTIAL MOVEMENT IN AREAS OF EXPANSIVE SOILS. THESE CONDITIONS SHOULD BE REMEDIED AS SOON AS POSSIBLE. TREES IN OR NEAR THE FOOTPRINT OF THE FOUNDATION, EITHER REMOVED OR PLANTED DURING CONSTRUCTION, CAUSE THE MAJORITY OF FOUNDATION PROBLEMS REQUIRING REPAIR IN THIS AREA. TREES REMOVED DURING CONSTRUCTION TEND TO CAUSE HEAVE OF EXPANSIVE SOILS DURING THE FIRST FEW YEARS, WITH INITIAL DISTRESS OFTEN EVIDENT AT THE TIME OF MOVE-IN. TREES PLANTED DURING OR AFTER CONSTRUCTION TEND TO CAUSE SUBSIDENCE OF EXPANSIVE SOILS. HOWEVER, SIGNIFICANT SUBSIDENCE DISTRESS WILL USUALLY NOT OCCUR FOR TEN TO TWENTY YEARS AS THE TREES MATURE.
4. CLIMATE
   - A. DURING PERIODS OF DRY WEATHER, THE SOIL AROUND THE FOUNDATION SHOULD BE IRRIGATED IF THE BUILDING IS LOCATED IN AN AREA WHERE EXPANSIVE SOILS ARE KNOWN TO OCCUR. THE MOST COMMONLY USED IRRIGATION SYSTEM IS ABOVEGROUND TIMED SPRINKLERS WITH A MANUAL OVERRIDE SO THEY CAN BE TURNED OFF IN RAINY WEATHER. AN AUTOMATIC BELOWGROUND IRRIGATION SYSTEM THAT SENSES THE MOISTURE CONTENT OF THE SOIL MAY ALSO BE USED. TEND TO KEEP THE IRRIGATION SYSTEM SET ON "MANUAL", AND ONLY USE IT IN DRIER PERIODS WHEN WILTING OF THE LAWN GRASSES AND OTHER VEGETATION OCCURS. THE IRRIGATION SHOULD BE DONE AT LEAST ONE TO TWO FEET AWAY FROM THE FOUNDATION, AND THEN LIGHTLY SO THAT TREE ROOTS ARE NOT ATTRACTED THERE. DO NOT ALLOW SPRINKLERS TO SPRAY WATER AGAINST THE STRUCTURE. IN EXTENDED DRY PERIODS, SHOULD THE SOIL CRACK AND PULL AWAY FROM THE FOUNDATION, DO NOT WATER DIRECTLY INTO THE GAP.
5. UTILITIES
   - A. CONNECTIONS FOR UTILITIES (PLUMBING, ELECTRICAL, GAS, ETC.) THAT ARE UNDERNEATH, GO THROUGH OR ARE ATTACHED TO THE FOUNDATION SHALL HAVE BE FLIEXIBLE TO ACCOMODATE FOUNDATION MOVEMENT OF AT LEAST 2". ALL DRAINAGE PIPING, AND GENERAL PLUMBING SYSTEMS ASSOCIATED WITH THE FOUNDATION OR IN PROXIMITY TO THE FOUNDATION SHALL BE LEAK TESTED FOLLOWING INSTALLATION AND ON AN ANNUAL BASIS.

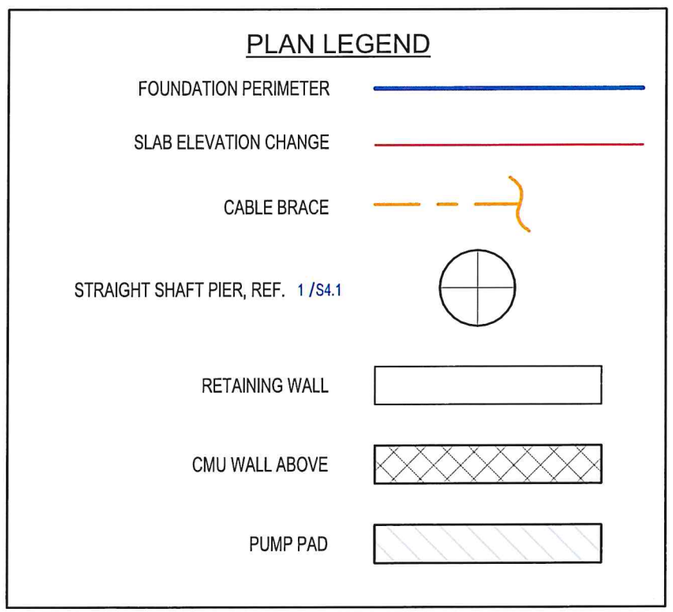
FOUNDATION NOTES

FOUNDATION TYPE:	CONCRETE MAT SLAB
SLAB THICKNESS:	6"
SLAB REINFORCEMENT:	#4 @ 12" OC, REF. 5 /S4.0
DESIGN METHOD:	ACI 318
VAPOR RETARDER:	MINIMUM 10 MIL (UNLESS THICKER REQ'D BY ARCHITECT)

BEAM TYPE[1]	DESCRIPTION	WIDTH	DEPTH[3]	TOP BARS	BOTTOM BARS	STIRRUPS[2]
B1	CONVENTIONAL BEAM	12"	30"	(2) - #6	(3) - #6	#3 @ 24" OC
T1	TURNDOWN	8"	12"	REF. 5 /S4.2		
C1	CORNER PIER CAP	30"	24"	(4) - #4	(4) - #4	#4 @ 12" OC
C2	INTERIOR PIER CAP	60"	24"	(5) - #4	(5) - #4	#4 @ 12" OC
B2	PIPE PENETRATION BEAM 1	12"	REF. 3 /S4.8			
B3	PIPE PENETRATION BEAM 2	12"	REF. 3 /S4.9			

NOTES:
1. BEAMS ARE TYPE B1 UNO.
2. LOCATE THE FIRST STIRRUP A MAXIMUM OF 3" FROM FACE OF SUPPORT.
3. BEAM DEPTH IS A STRUCTURAL MINIMUM. REFERENCE GEOTECHNICAL REPORT FOR MINIMUM GRADE BEAM EMBEDMENT BELOW ADJACENT FINAL GRADE.
4. ENTIRE SLAB SHALL BE POURED MONOLITHICALLY WITHOUT ANY CONSTRUCTION JOINTS UNLESS NOTED OTHERWISE

PLAN LEGEND



PLAN NOTES

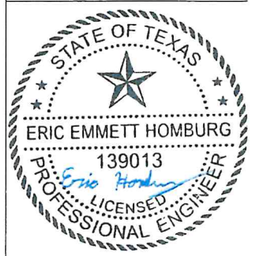
1. VERIFY ALL EDGE OF FOUNDATION DIMENSIONS WITH FINAL CIVIL FLOOR PLANS.
2. FORM DIMENSIONS: SLAB DROPS, SLOPES, ETC. SHOWN AS AN AID TO CONTRACTOR ONLY. VERIFY EXACT DIMENSIONS AND LOCATIONS WITH ARCH./OWNER.
3. ALL FACES EXTERIOR AND INTERIOR SHALL BE PAINTED AS FOLLOWS: ONE COAT DEVOE BLOXFIL 4000 INT./EXT. HEAVY DUTY ACRYLIC BLOCK FILLER OR APPROVED EQUIVALENT AT A RATE OF 50-75 SQ FT PER GALLON AT LEAST 30 DAYS AFTER MORTAR JOINTS HAVE CURED; AFTER BLOCK FILLER HAS DRIED, APPLY TWO COATS OF PAINT AT MANUFACTURER'S RECOMMENDATIONS.

DESIGN PARAMETERS

ALLOW. BEARING (PSF)	1,500
MIN BEAM EMBEDMENT	24"

Revision Schedule

Revision Number	Revision Description	Revision Date



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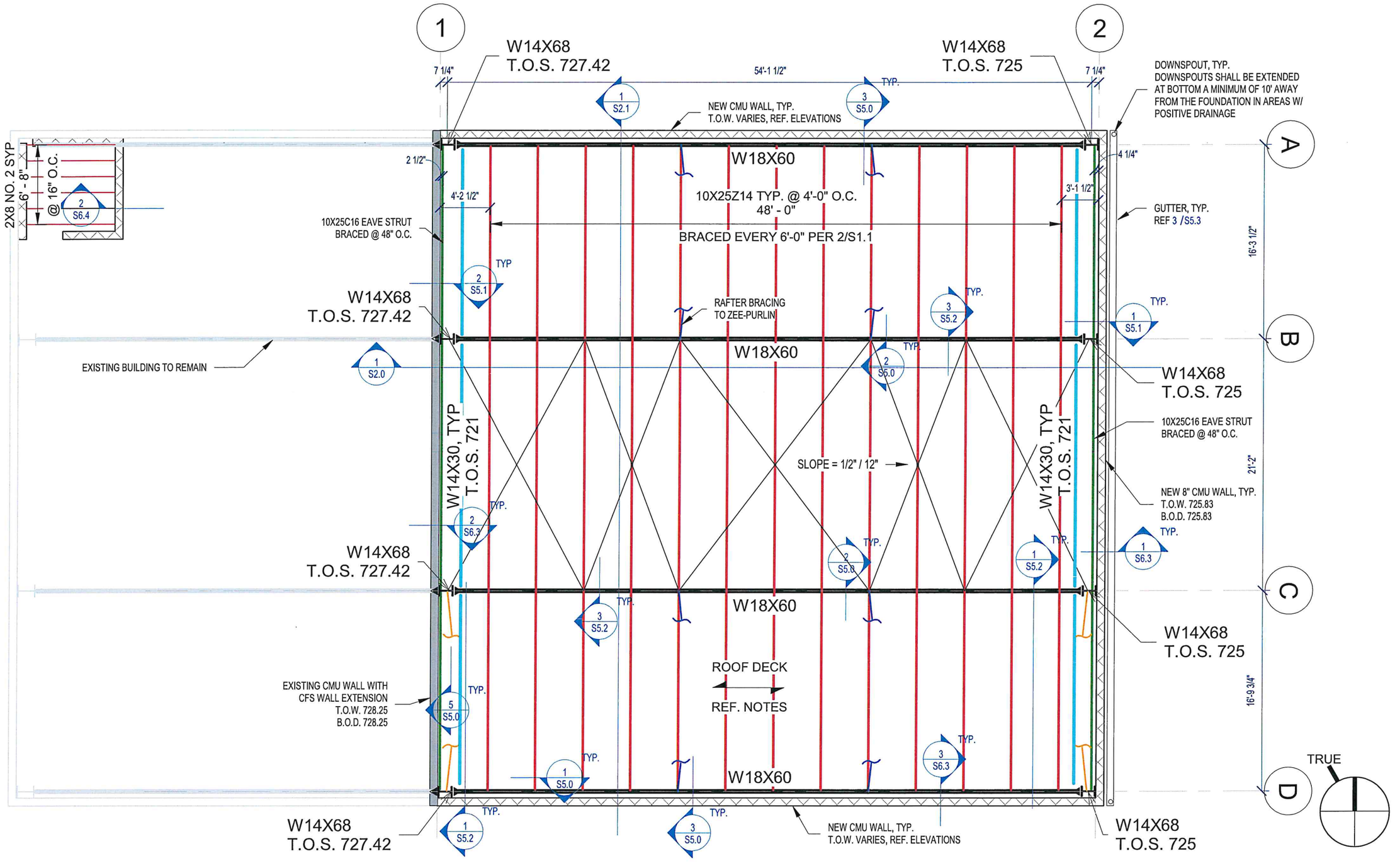
FOUNDATION NOTES

S1.1

Date: 04/14/2022

Project No: 21-139



1 PUMP ROOM FRAMING PLAN
1/8" = 1'-0"

Revision Schedule		
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AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

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STATE OF TEXAS
ERIC EMMETT HOMBURG
139013
LICENSED
PROFESSIONAL ENGINEER

4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

DUDLEY
GEOTECHNICAL | STRUCTURAL | ENVIRONMENTAL
Dudley Engineering LLC dba DUDLEY
6102 Imperial Loop Drive | College Station, Texas 77845
(o) 979.777.0720 | TBPE Firm No. F-18677

PUMP ROOM FRAMING PLAN

S1.2

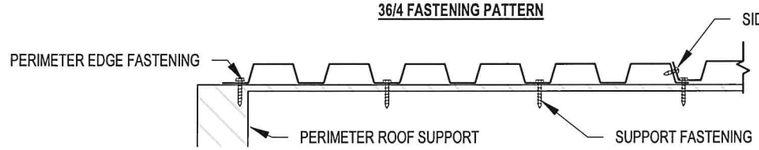
Date:	04/14/2022
Project No:	21-139

ROOF DECK NOTES

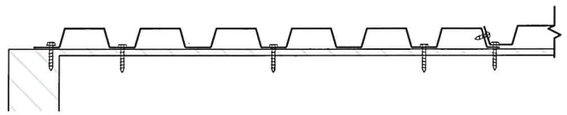
1. DECK TYPE:..... **GALVALUME PLUS PBR ROOF PANEL**
2. GAGE:..... **22**
3. MINIMUM FASTENER SPACING:
   - A. AT INTERMEDIATE SUPPORTS - SEE SCHEDULE
   - B. FASTEN SIDE LAPS AT 16" O.C.
   - C. FASTEN PERIMETER EDGES OF DECK AT 6" OC WHERE DECK IS PARALLEL TO SUPPORT MEMBER AND IN EACH RIB (36/7) WHEN PERPENDICULAR.
4. FASTENERS
   - A. AT SUPPORTS:
     - a. 12-14 x 1 1/4 LONG-LIFE SELF DRILLER W/ WASHER (FASTENER #3)
   - B. AT SIDELAP
     - a. 12-14 x 1 1/4 LONG-LIFE SELF DRILLER W/ WASHER (FASTENER #3)
5. MINIMUM EDGE DISTANCE
   - A. SCREWS IS 1/2".
6. END LAPS TO OCCUR AT SUPPORTS ONLY
7. MINIMUM LAP IS 3"
8. THE ROOF DECK SHALL BE PLACED AS INDICATED ON PLAN WITH THREE SPAN MINIMUM, U.N.O.

ROOF DECK SUPPORT FASTENING AT INTERMEDIATE SUPPORT SCHEDULE	
LOCATION	PATTERN
INTERIOR	**36/5**
EDGE	**36/5**
CORNER	**36/7**

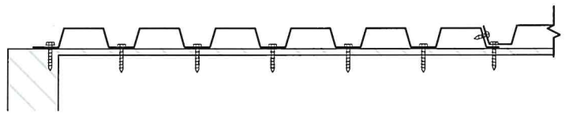
36/4 FASTENING PATTERN



36/5 FASTENING PATTERN



36/7 FASTENING PATTERN



ROOF PLAN LEGEND

STEEL BEAM

BRIDGE CRANE RUNWAY BEAM

COLD-FORMED ZEE-PURLIN

COLD-FORMED EAVE MEMBER

VERTICAL CABLE BRACE

RAFTER BRACE

HORIZONTAL CABLE BRACE

CMU WALL BELOW

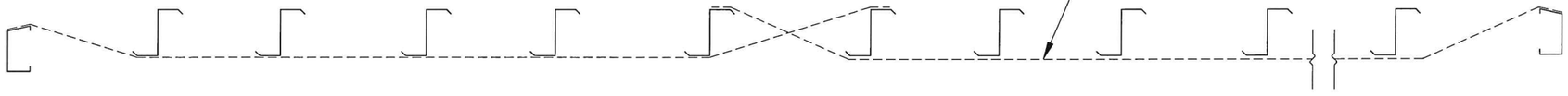
MOMENT CONNECTION

ROOF DECK

DECK

SLAB

NOTES:
1. NO MORE THAN (4) PURLIN SPACES BEFORE CROSSING
2. PURLINS SHALL BE BRACED AT 6'-0" (MAX.) INTERVALS WITH HORIZONTAL STRAP BRACING AS SHOWN



Revision Schedule		
Revision Number	Revision Description	Revision Date

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AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

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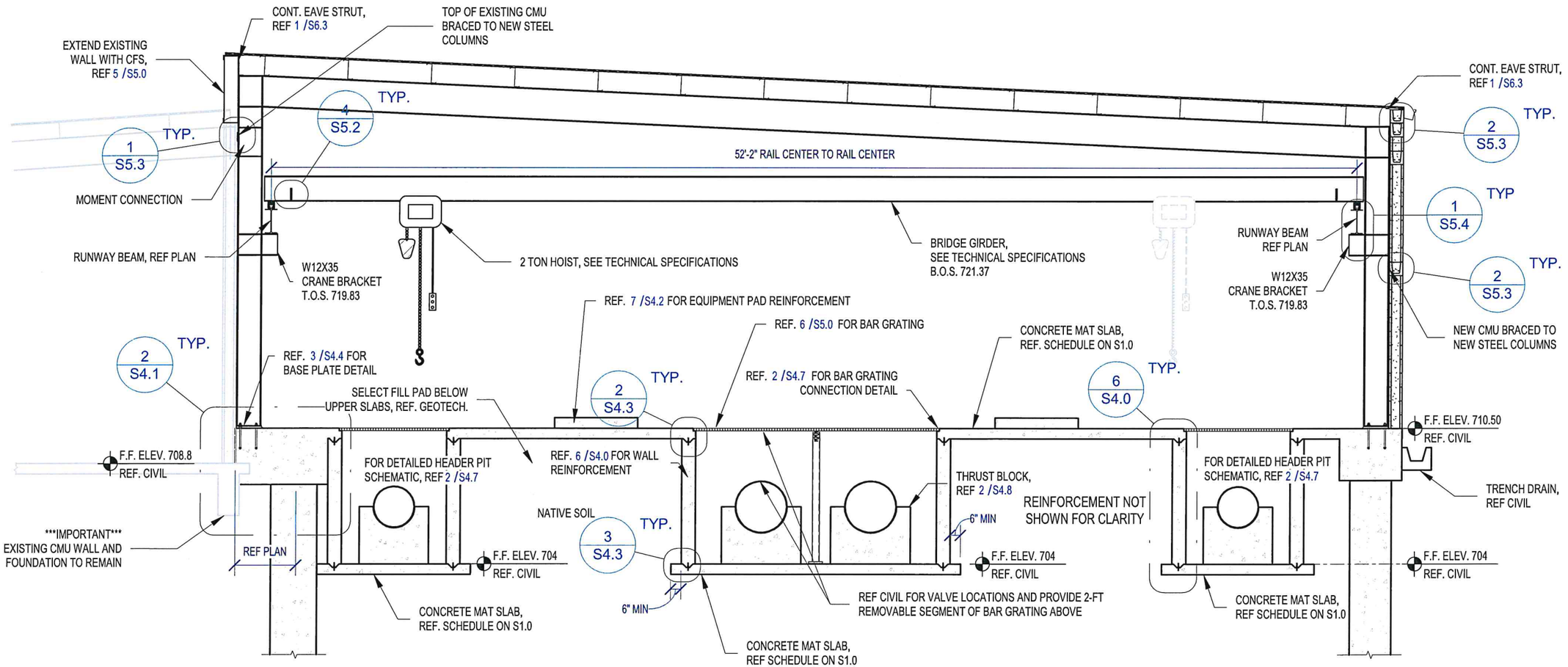
(o) 979.777.0720 | TBPE Firm No. F-18677

FRAMING NOTES

S1.3

Date: 04/14/2022

Project No: 21-139



1 BUILDING SECTION 1
3/16" = 1'-0"

Revision Schedule		
Revision Number	Revision Description	Revision Date

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TEMPLE, TX

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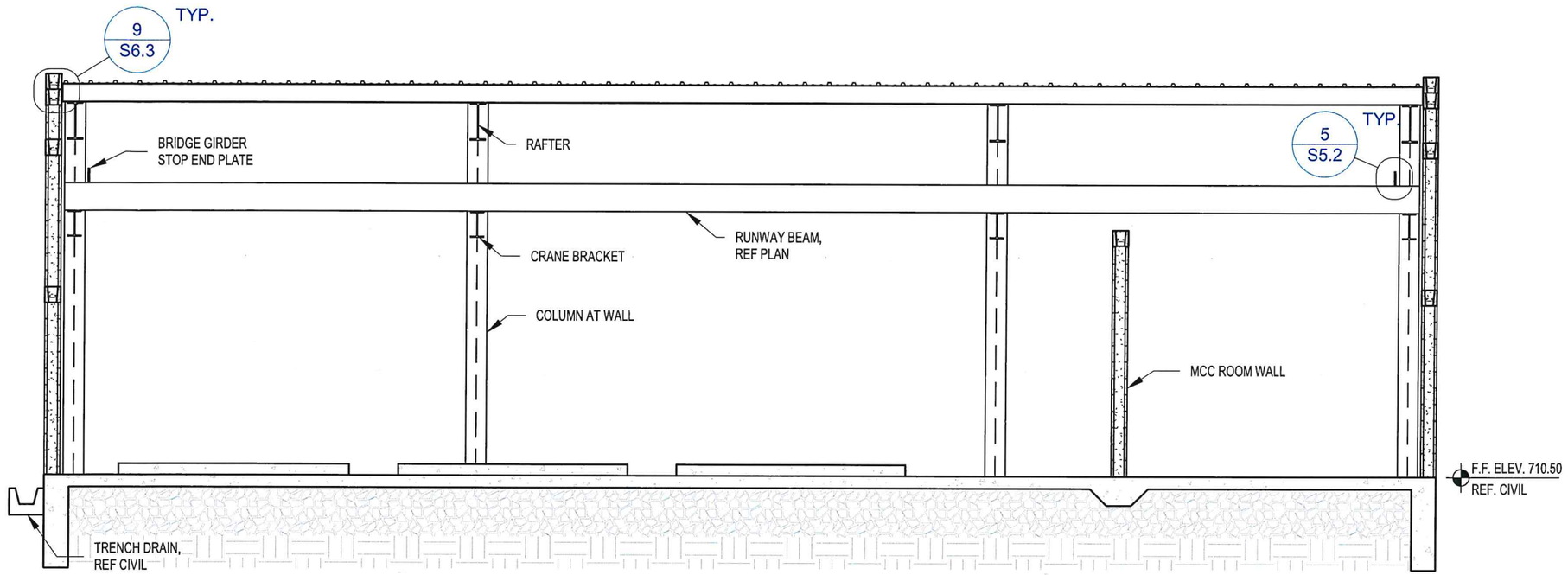
PUMP ROOM BUILDING ELEVATIONS

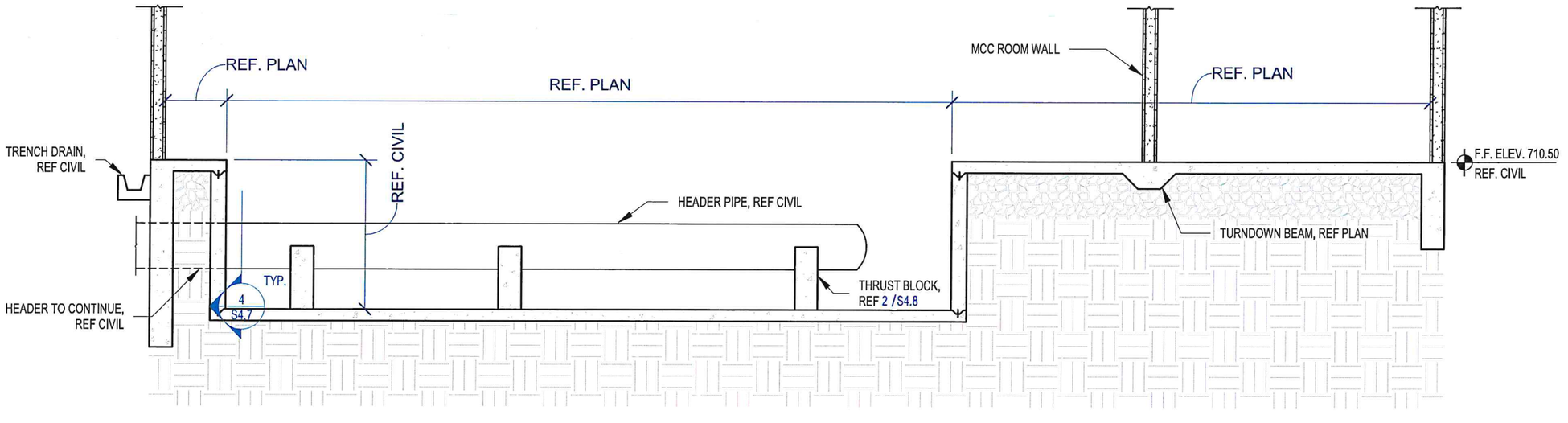
S2.0

Date: 04/14/2022

Project No: 21-139



1 BUILDING SECTION 2
3/16" = 1'-0"



2 TYPICAL HEADER PIT
3/16" = 1'-0"

Revision Schedule

Revision Number	Revision Description	Revision Date

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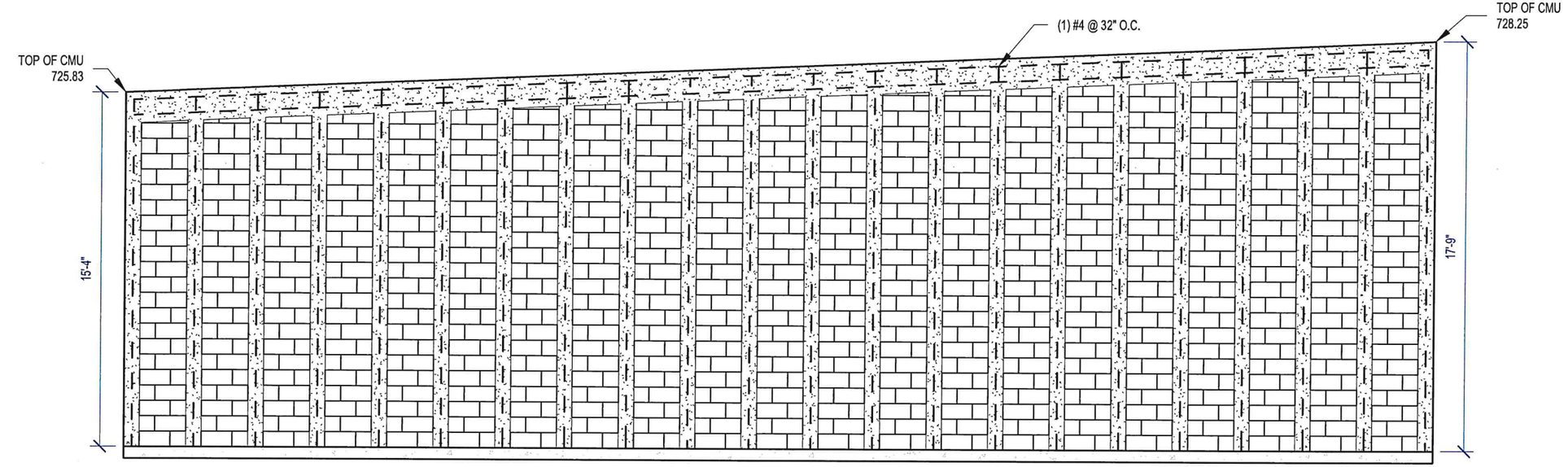
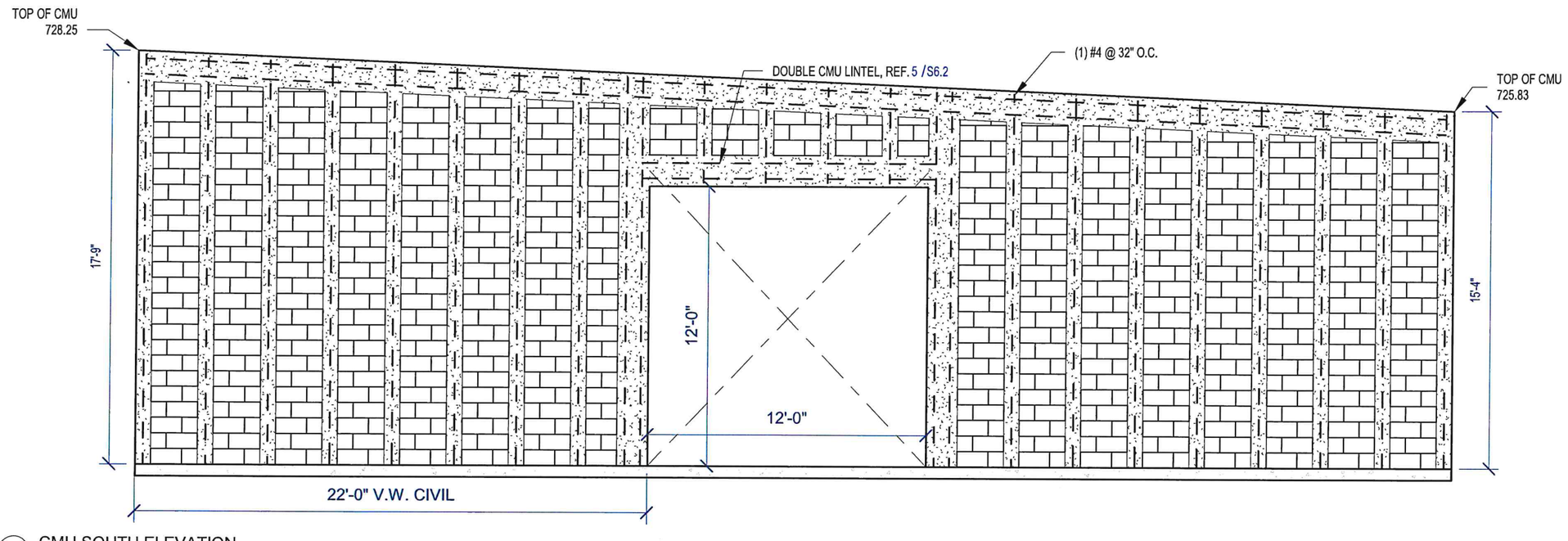
PUMP ROOM BUILDING ELEVATIONS

S2.1

Date:	04/14/2022
Project No:	21-139



1 CMU NORTH ELEVATION
3/16" = 1'-0"



2 CMU SOUTH ELEVATION
3/16" = 1'-0"

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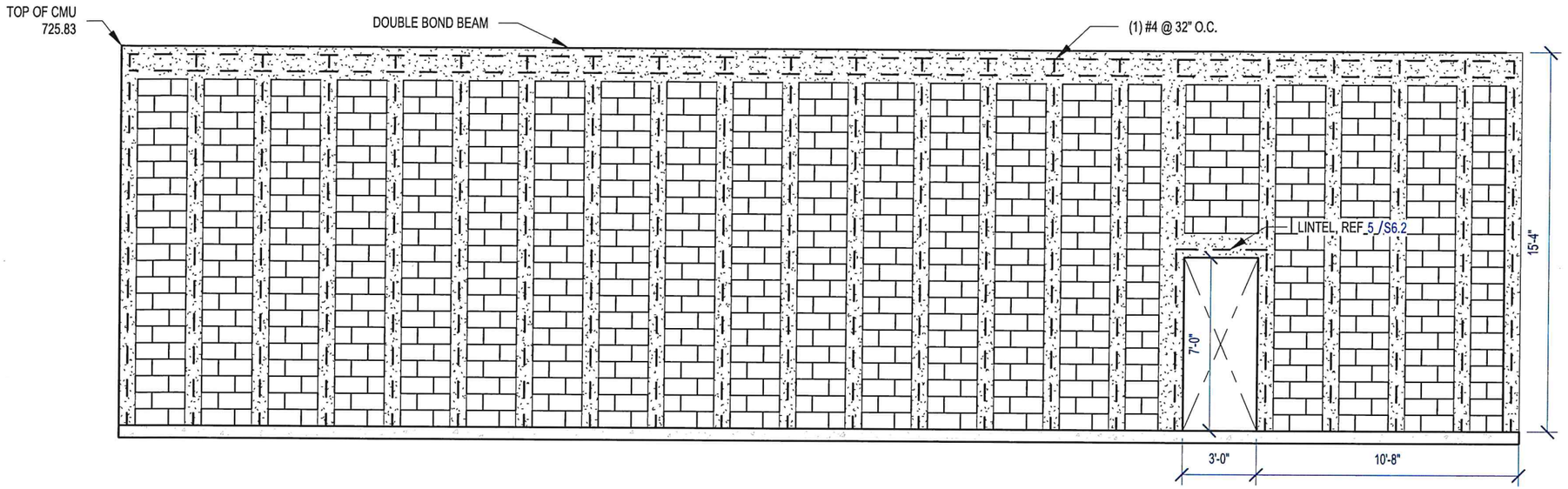
CMU ELEVATIONS

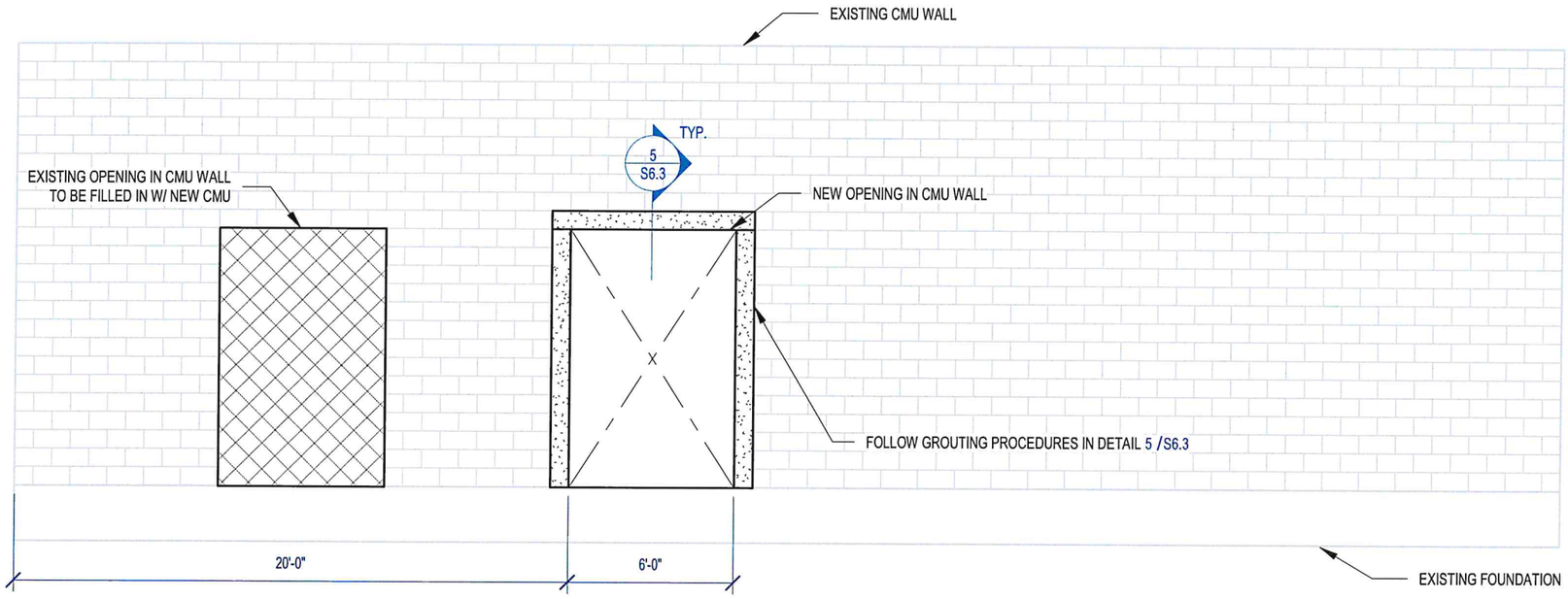
S3.0

Date: 04/14/2022

Project No: 21-139



1 CMU EAST ELEVATION
3/16" = 1'-0"



2 CMU WEST ELEVATION (EXISTING)
3/16" = 1'-0"

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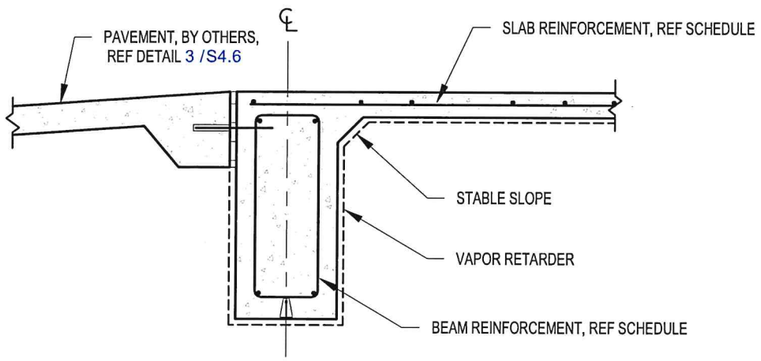
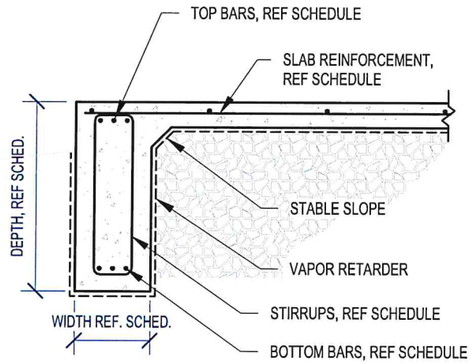
CMU ELEVATIONS

S3.1

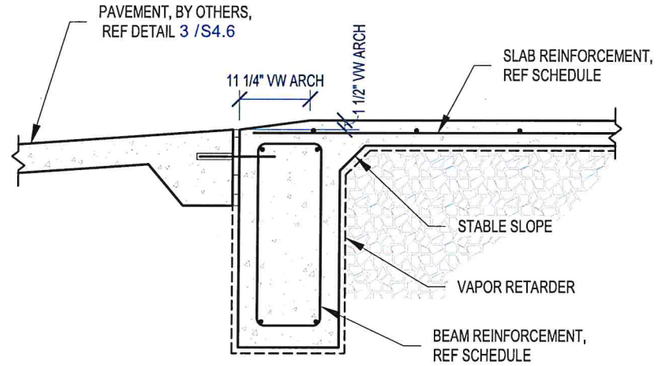
Date:	04/14/2022
Project No:	21-139



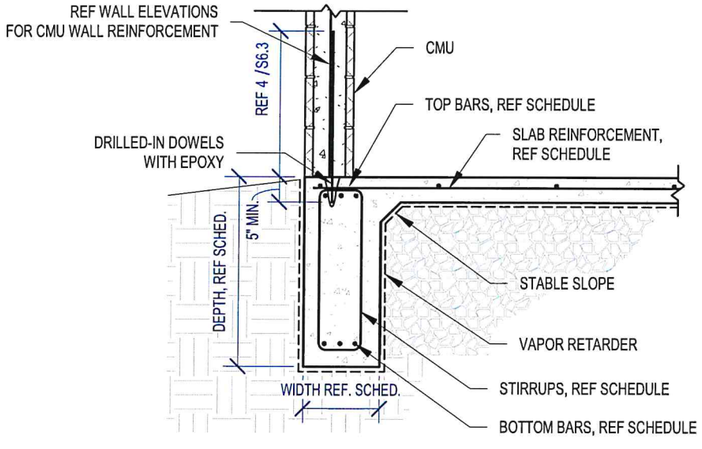
1 TYPICAL EXTERIOR GRADE BEAM @ PAVEMENT
1/2" = 1'-0"



2 TYPICAL EXTERIOR GRADE BEAM
1/2" = 1'-0"

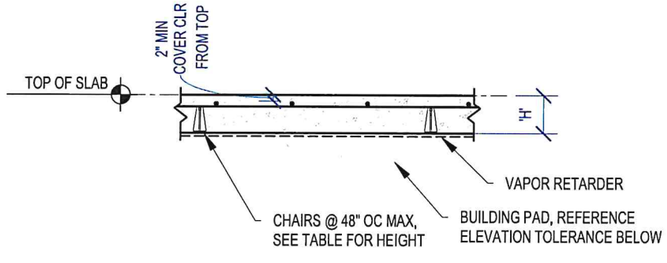


3 TYPICAL EXTERIOR GRADE BEAM AT PAVEMENT AT OVERHEAD DOOR
1/2" = 1'-0"



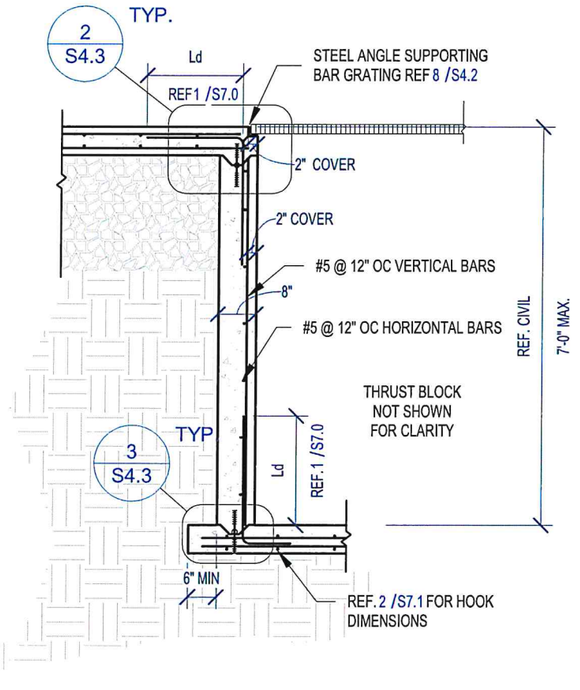
NOTES:
1. FOUNDATION STIFFNESS HAS BEEN PROPORTIONED ASSUMING THAT MASONRY WILL HAVE CONTROL JOINTS AT EACH SIDE
OPENINGS AND AT 15'-0" MAX OR PER ARCHITECTURAL SPECIFICATIONS WHICHEVER IS MORE STRINGENT.

4 CMU WALL AND GRADE BEAM
1/2" = 1'-0"



TOLERANCES FOR SLAB-ON-GRADE CONSTRUCTION (BASED ON ACI 117-10):
1. DEVIATION FROM ELEVATION:
   A. TOP SURFACE OF SLAB: ± 3/4"
   B. FINE GRADE OF SOIL IMMEDIATELY BELOW SLABS-ON-GROUND: ± 3/4"
2. THICKNESS OF SLABS-ON-GROUND:
   A. AVERAGE OF ALL SAMPLE: -3/8"
   B. INDIVIDUAL SAMPLE: -3/4"

5 TYPICAL SLAB-ON-GRADE SECTION
1/2" = 1'-0"



6 TYPICAL HEADER PIT WALL
3/8" = 1'-0"

Revision Schedule		
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STATE OF TEXAS
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4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

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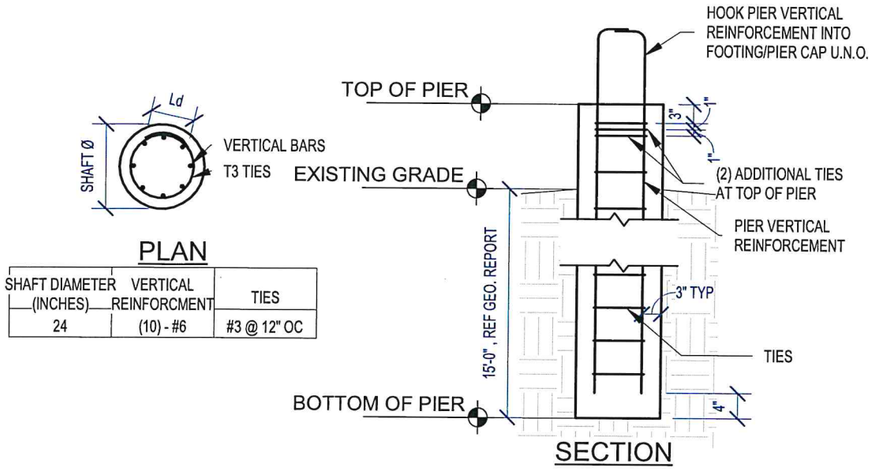
(o) 979.777.0725 | TBPE Firm No. F-18677

FOUNDATION DETAILS

S4.0

Date: 04/14/2022

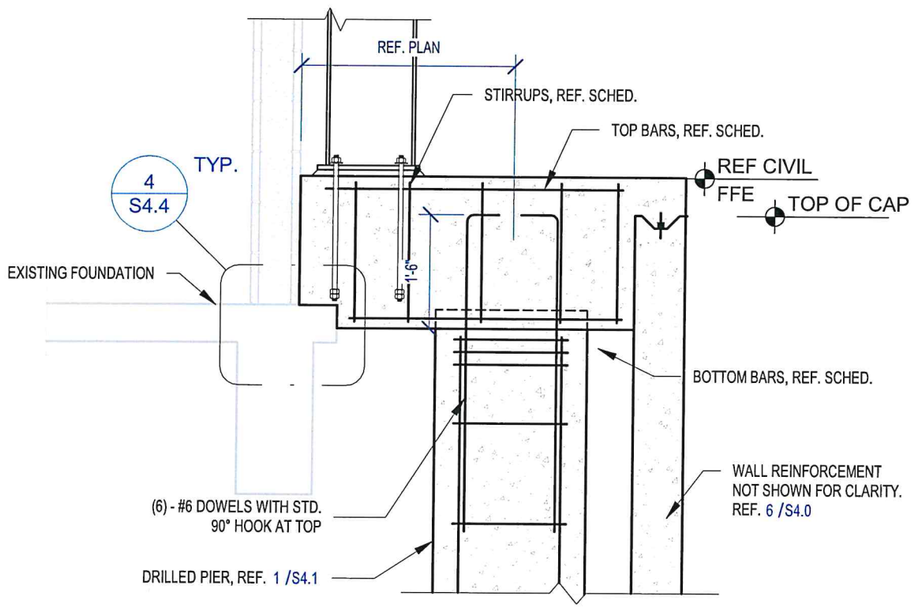
Project No: 21-139



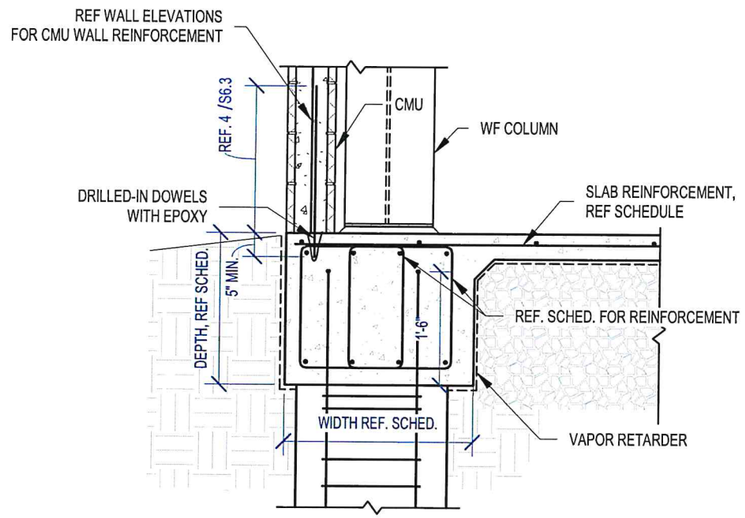
NOTES:

1. EACH DRILLED PIER EXCAVATION MUST BE EXAMINED BY A REPRESENTATIVE OF THE PROJECT GEOTECHNICAL ENGINEER WHO IS FAMILIAR WITH THE GEOTECHNICAL ASPECTS OF THE SOIL STRATIGRAPHY, THE STRUCTURAL CONFIGURATION, FOUNDATION DESIGN DETAILS AND ASSUMPTIONS PRIOR TO PLACING CONCRETE. RE. THE GENERAL NOTES FOR MORE INFORMATION ON REQUIRED OBSERVATIONS.
2. CONSTRUCTION OF DRILLED PIERS SHALL FOLLOW ACI 336.1-01 (SPECIFICATION FOR THE CONSTRUCTION OF DRILLED PIERS).
3. REFERNECE THE GEOTECHNICAL INFORMATION FOR COMPLETE SUBSURFACE CONDITIONS.
4. THE DRILLED FOOTING EXCAVATIONS SHOULD BE FREE OF LOOSE MATERIALS AND WATER PRIOR TO CONCRETE PLACEMENTS, AND CONCRETE SHOULD BE POURED IMMEDIATELY AFTER DRILLING THE HOLES.
5. TEMPORARY CASINGS:
   A. WHERE NECESSARY, INSTALL WATERTIGHT STEEL CASINGS OF SUFFICIENT LENGTH AND THICKNESS TO PREVENT ENTRY OF SOIL OR WATER SEEPAGE INTO SHAFT; TO WITHSTAND COMPRESSIVE, DISPLACEMENT, AND WITHDRAWAL STRESSES; AND TO MAINTAIN STABILITY OF SHAFT WALLS. THE USE OF MUD SLURRY TO LUBRICATE CASINGS OR SEAL OFF WATER WILL BE ALLOWABLE ONLY WITH THE PRIOR APPROVAL OF THE PROJECT GEOTECHNICAL AND STRUCTURAL ENGINEERS. CASINGS MAY BE LEFT IN PLACE ONLY WITH PRIOR APPROVAL OF THE PROJECT GEOTECHNICAL AND STRUCTURAL ENGINEERS.
   B. CASING REMOVAL: PULL TEMPORARY CASING WITH A SLOW AND SMOOTH VERTICAL MOTION MAINTAINING CASING IN A PLUMB POSITION. CASING SHALL NOT BE PULLED UNTIL CONCRETE HAS BEEN PLACED TO A MINIMUM OF 5 FEET ABOVE EXTERNAL WATER OR SLURRY LEVEL OR LEVEL OF UNSTABLE SOIL. DURING PULLING MAINTAIN CONCRETE LEVEL A MINIMUM OF 5 FEET ABOVE BOTTOM OF CASING. VIBRATE TOP 5 FEET OF PIER AFTER TEMPORARY CASING IS REMOVED
6. PER THE GEOTECHNICAL REPORT, THE BEARING STRATUM IS A BROWN TO TAN LEAN CLAY IN ADDITION TO TAN, FRACTURED WEATHERED LIMESTONE WITH MARLY CLAY LAYERS.
7. PER THE GEOTECHNICAL REPORT, GROUNDWATER WAS ENCOUNTERED IN 0 OF 1 BORINGS DRILLED FOR THIS PROJECT. MEASURES SHOULD BE TAKEN TO PREVENT WATER FROM ENTERING AND ACCUMULATING IN THE DRILLED PIER EXCAVATIONS.

1 TYPICAL STRAIGHT SHAFT DRILLED PIER DETAIL
1/2" = 1'-0"



2 DRILLED PIER ADJACENT TO EXISTING FOUNDATION
1/2" = 1'-0"



NOTES:
1. FOUNDATION STIFFNESS HAS BEEN PROPORTIONED ASSUMING THAT MASONRY WILL HAVE CONTROL JOINTS AT EACH SIDE OPENINGS AND AT 15'-0" MAX OR PER ARCHITECTURAL SPECIFICATIONS WHICHEVER IS MORE STRINGENT.

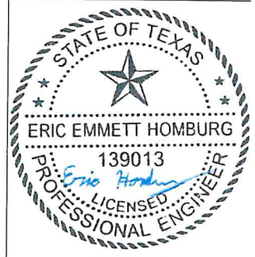
3 PIER CAP AT END COLUMN
1/2" = 1'-0"

Revision Schedule

Revision Number	Revision Description	Revision Date

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX



4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS
TEMPLE, TX

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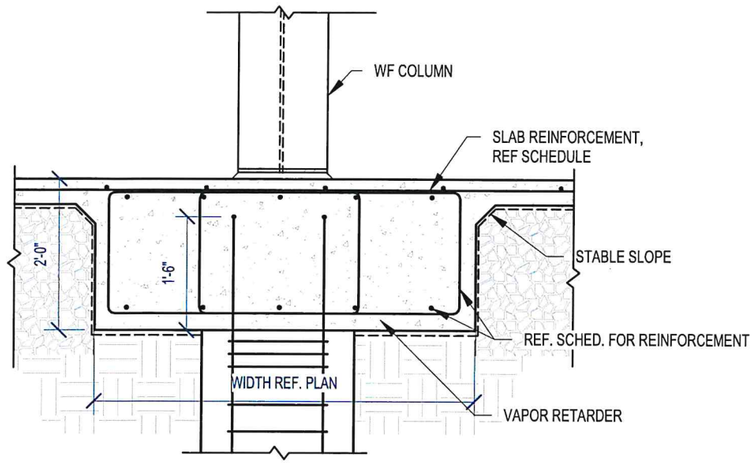
FOUNDATION DETAILS

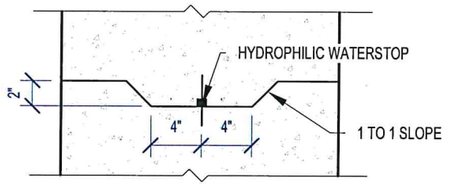
S4.1

Date: 04/14/2022

Project No: 21-139

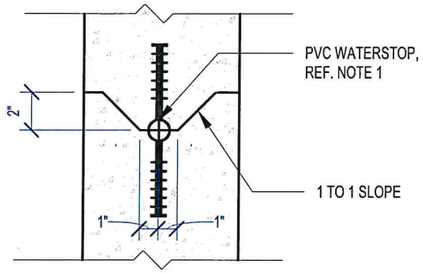


1 PIER CAP AT INTERIOR COLUMN
1/2" = 1'-0"



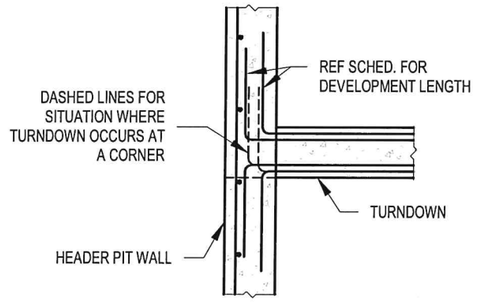
NOTES:.
1. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.

2 SHEAR KEY DETAIL FOR WALLS OF THICKNESS GREATER THAN 1 FOOT
1" = 1'-0"

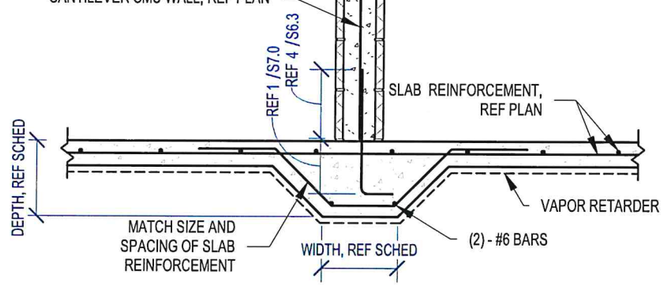


NOTES:.
1. PROVIDE 6" PVC FLAT-RIBBED WATERSTOP, SIKA GREENSTREAK #679 OR APPROVED EQUAL.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.

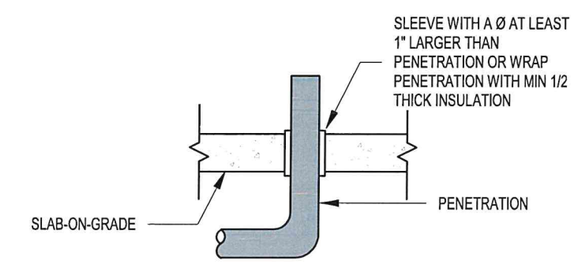
3 SHEAR KEY DETAIL
1 1/2" = 1'-0"



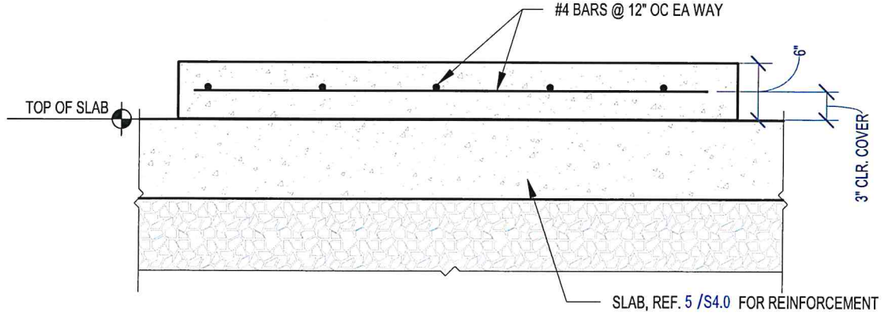
4 REINFORCEMENT ARRANGEMENT AT TURNDOWN AND HEADER PIT WALL CONNECTION
1/2" = 1'-0"



5 TYPICAL TURN DOWN BEAM
1/2" = 1'-0"

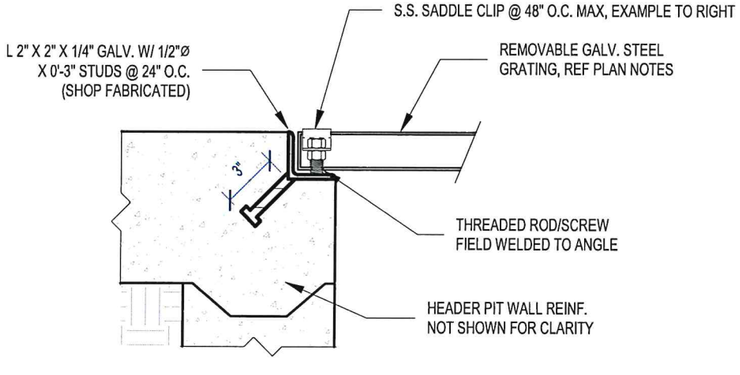


6 VERTICAL PENETRATION THOUGH SLAB-ON-GRADE
3/4" = 1'-0"



NOTE: REF. CIVIL FOR EQUIPMENT PAD LOCATIONS

7 TYPICAL EQUIPMENT PAD
3/4" = 1'-0"



8 ANGLE FOR BAR GRATING SUPPORT
1 1/2" = 1'-0"

EXAMPLE SADDLE CLIP

Revision Schedule		
Revision Number	Revision Description	Revision Date

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Dudley Engineering LLC dba DUDLEY
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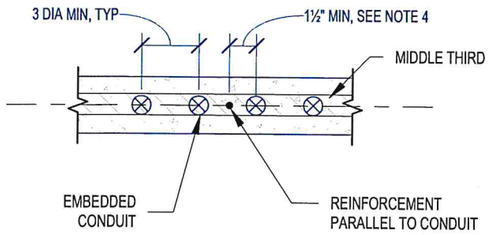
(o) 979.777.0720 | TBPE Firm No. F-18677

FOUNDATION DETAILS

S4.2

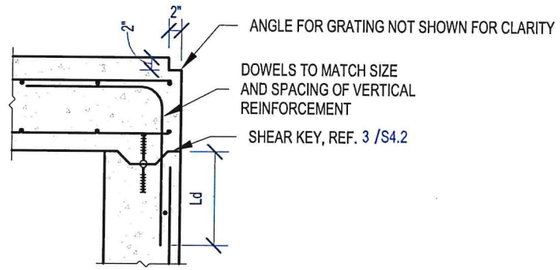
Date: 04/14/2022

Project No: 21-139

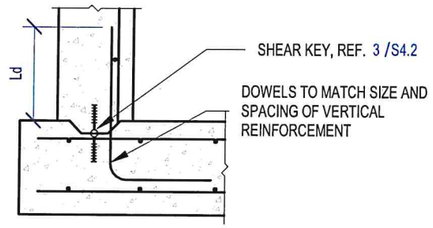


NOTES:
1. EMBEDDED CONDUIT MUST BE PVC OR OTHER PRE-APPROVED PRODUCT THAT WILL NOT CHEMICALLY REACT WITH THE CONCRETE.
2. EMBEDDED CONDUIT MUST BE CHAIRED AND RESTRAINED @ 48" OC MAX IN ORDER TO PREVENT FLOATING OF THE CONDUIT DURING POURING.
3. PLACE ALL CONDUIT WITHIN THE MIDDLE THIRD OF THE OVERALL SLAB DEPTH.
4. DO NOT PLACE CONDUIT ADJACENT TO NOR TIE CONDUIT TO PARALLEL REINFORCEMENT.

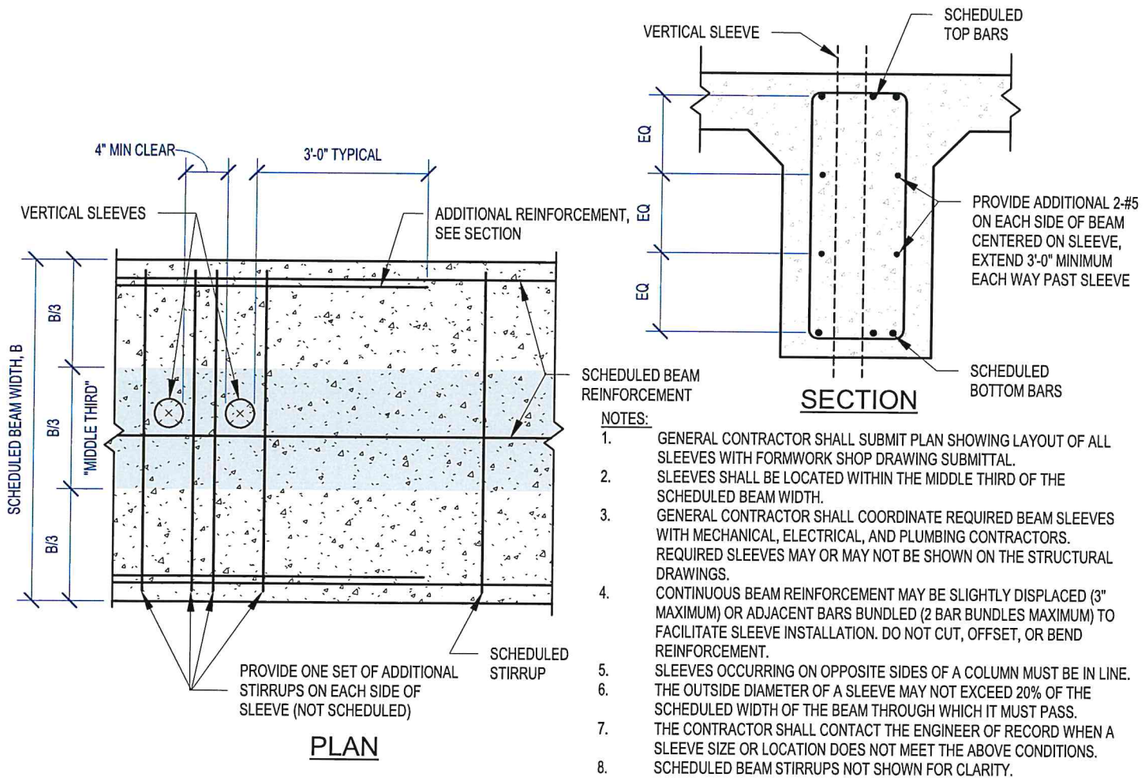
1 TYPICAL CONDUITS EMBEDDED IN SLAB-ON-GRADE
3/4" = 1'-0"



2 CONSTRUCTION JOINT AT TOP OF WALL
1/2" = 1'-0"

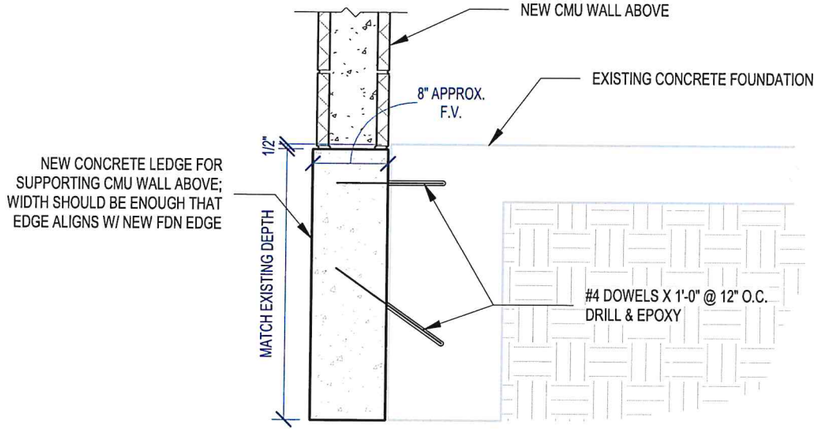


3 CONSTRUCTION JOINT AT BOTTOM OF WALL
1/2" = 1'-0"



NOTES:
1. GENERAL CONTRACTOR SHALL SUBMIT PLAN SHOWING LAYOUT OF ALL SLEEVES WITH FORMWORK SHOP DRAWING SUBMITTAL.
2. SLEEVES SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF THE SCHEDULED BEAM WIDTH.
3. GENERAL CONTRACTOR SHALL COORDINATE REQUIRED BEAM SLEEVES WITH MECHANICAL, ELECTRICAL, AND PLUMBING CONTRACTORS. REQUIRED SLEEVES MAY OR MAY NOT BE SHOWN ON THE STRUCTURAL DRAWINGS.
4. CONTINUOUS BEAM REINFORCEMENT MAY BE SLIGHTLY DISPLACED (3" MAXIMUM) OR ADJACENT BARS BUNDLED (2 BAR BUNDLES MAXIMUM) TO FACILITATE SLEEVE INSTALLATION. DO NOT CUT, OFFSET, OR BEND REINFORCEMENT.
5. SLEEVES OCCURRING ON OPPOSITE SIDES OF A COLUMN MUST BE IN LINE.
6. THE OUTSIDE DIAMETER OF A SLEEVE MAY NOT EXCEED 20% OF THE SCHEDULED WIDTH OF THE BEAM THROUGH WHICH IT MUST PASS.
7. THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD WHEN A SLEEVE SIZE OR LOCATION DOES NOT MEET THE ABOVE CONDITIONS.
8. SCHEDULED BEAM STIRRUPS NOT SHOWN FOR CLARITY.

4 TYPICAL VERTICAL PENETRATION IN GRADE BEAM
3/4" = 1'-0"



5 EXISTING FOUNDATION LEDGE ADDITION
3/4" = 1'-0"

Revision Schedule

Revision Number	Revision Description	Revision Date

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AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

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STATE OF TEXAS
ERIC EMMETT HOMBURG
139013
LICENSED PROFESSIONAL ENGINEER
4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS
TEMPLE, TX

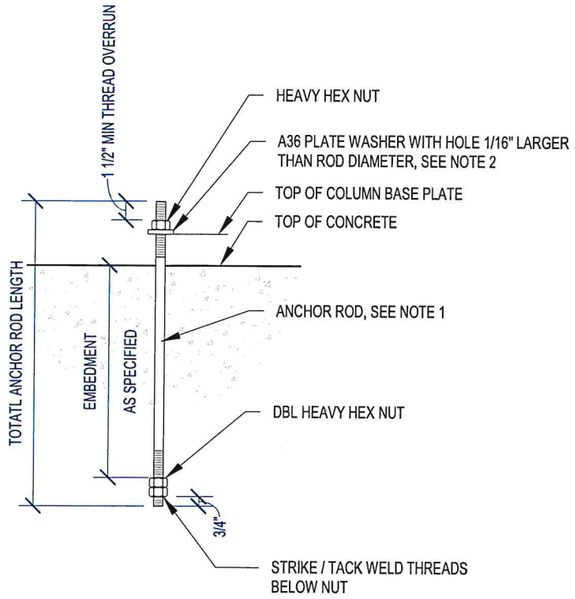
DUDLEY
GEOTECHNICAL | STRUCTURAL | ENVIRONMENTAL
Dudley Engineering LLC dba DUDLEY
6102 Imperial Loop Drive | College Station, Texas 77845
(o) 979.777.0720 | TBPE Firm No. F-18677

FOUNDATION DETAILS

S4.3

Date: 04/14/2022

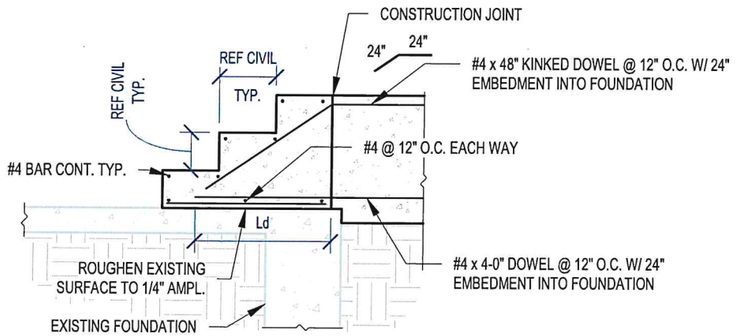
Project No: 21-139



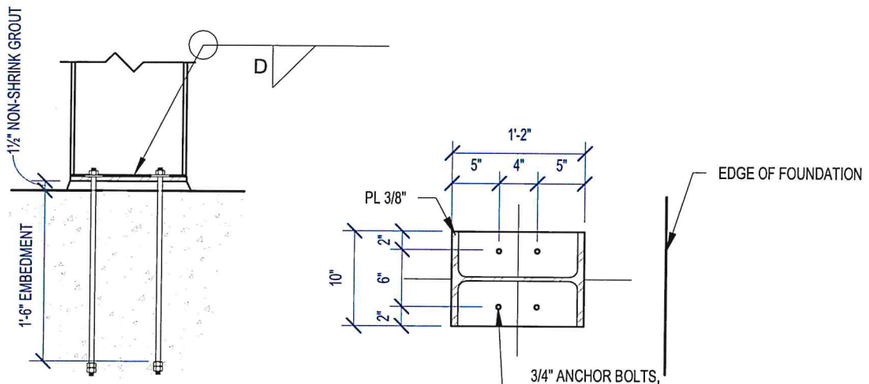
ANCHOR ROD DIAMETER	BASE PLATE HOLE DIAMETER	SQUARE PLATE WASHER SIZE	PLATE WASHER THICKNESS
1/2"	3/4"	1.5"	1/4"
5/8"	1"	2"	1/4"
3/4"	1 5/16"	2½"	5/16"
7/8"	1 9/16"	2½"	5/16"
1"	1 13/16"	3"	3/8"

NOTES:
1. ALL ANCHOR RODS SHALL BE F1554 GRADE 36.
2. PLATE WASHERS MUST BE WELDED TO THE BASE PLATE WITH MINIMUM 3/16" FILLET WELD ALL-AROUND

1 TYPICAL ANCHOR ROD ASSEMBLY
1" = 1'-0"



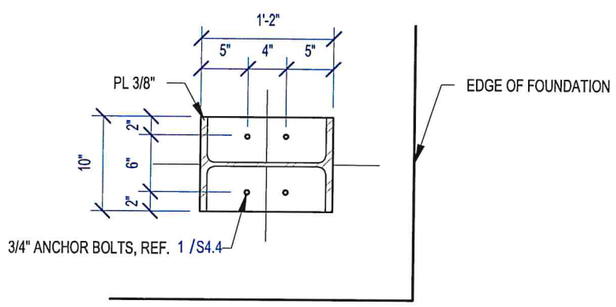
2 CONCRETE STAIRCASE
1/2" = 1'-0"



NOTES:
1. D = 1/16" LESS THAN THICKNESS OF COLUMN

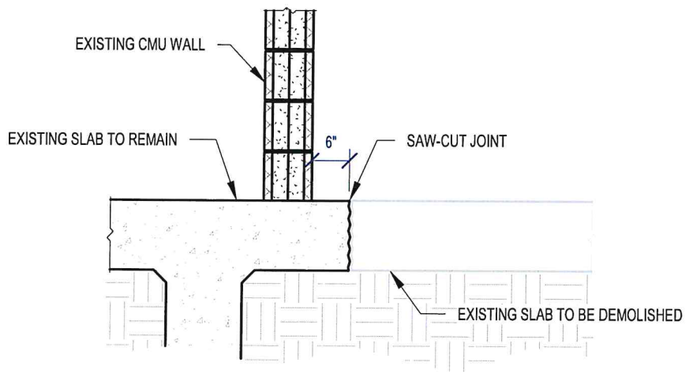
SECTION

EDGE COLUMN



CORNER COLUMN

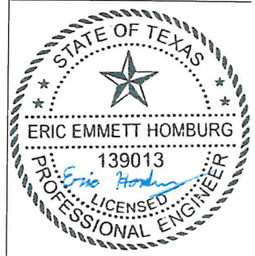
3 TYPICAL BASE PLATE DETAIL
3/4" = 1'-0"



4 EXISTING SLAB DEMOLITION
1/2" = 1'-0"

Revision Schedule

Revision Number	Revision Description	Revision Date



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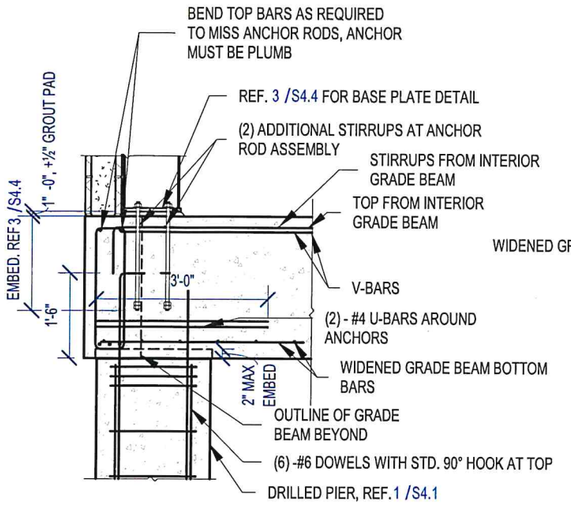
FOUNDATION DETAILS

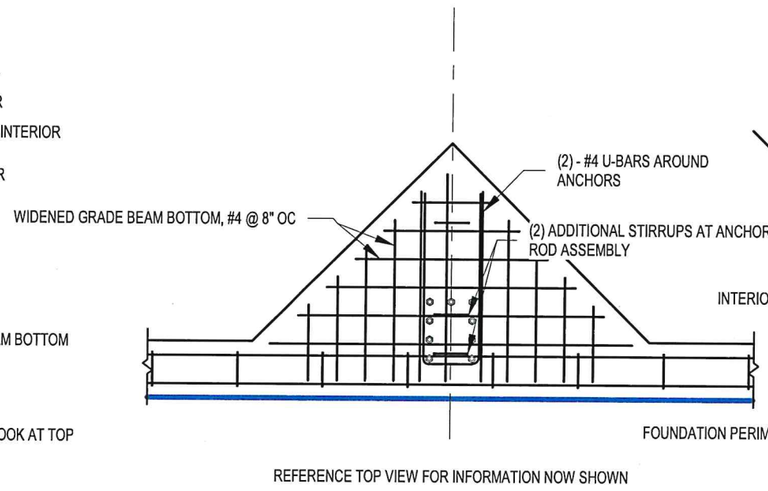
S4.4

Date: 04/14/2022

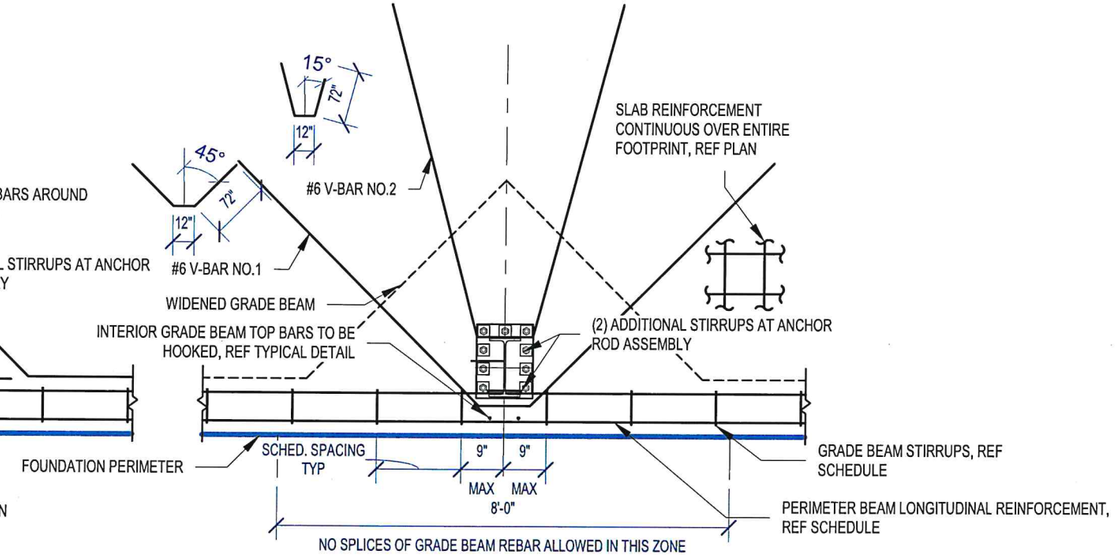
Project No: 21-139



SECTION

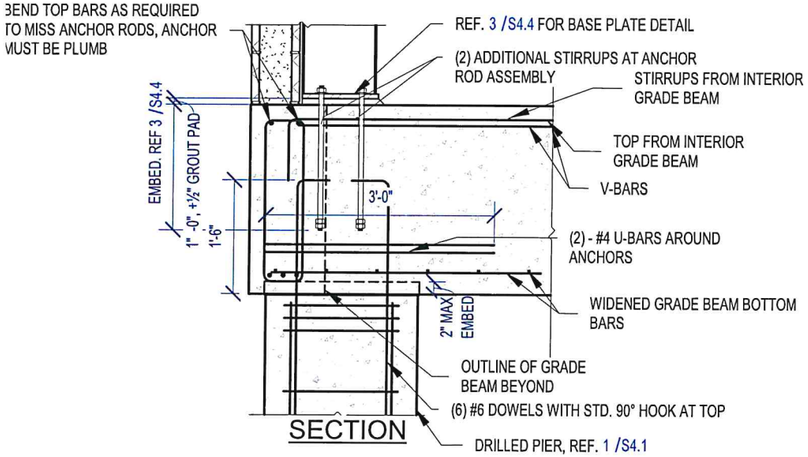


BOTTOM VIEW

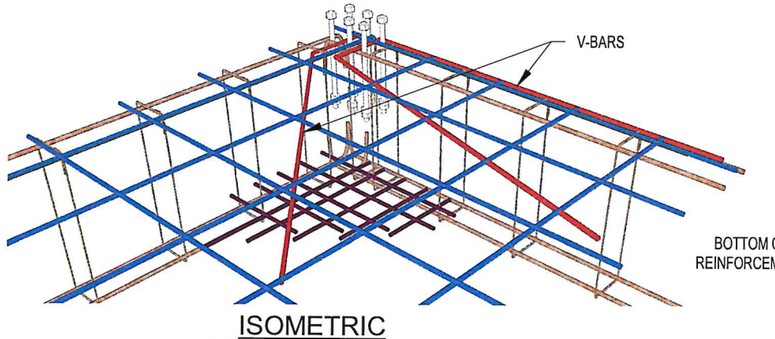


TOP VIEW

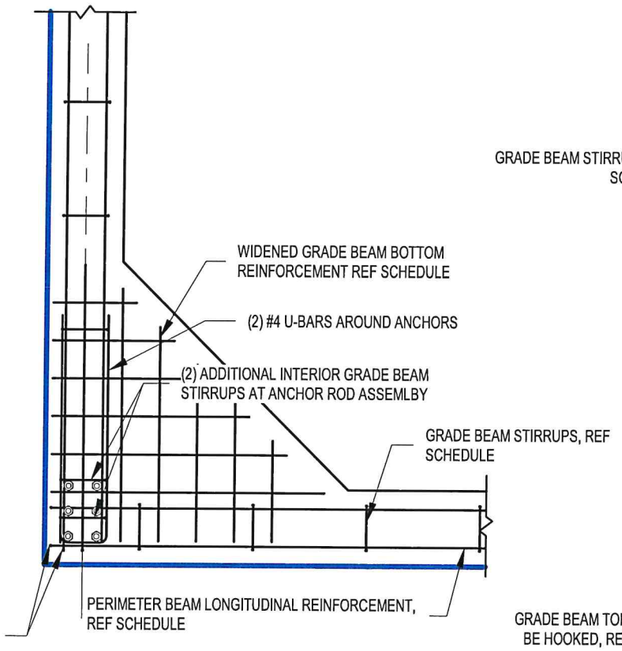
1 MIDDLE COLUMN ANCHORAGE
3/8" = 1'-0"



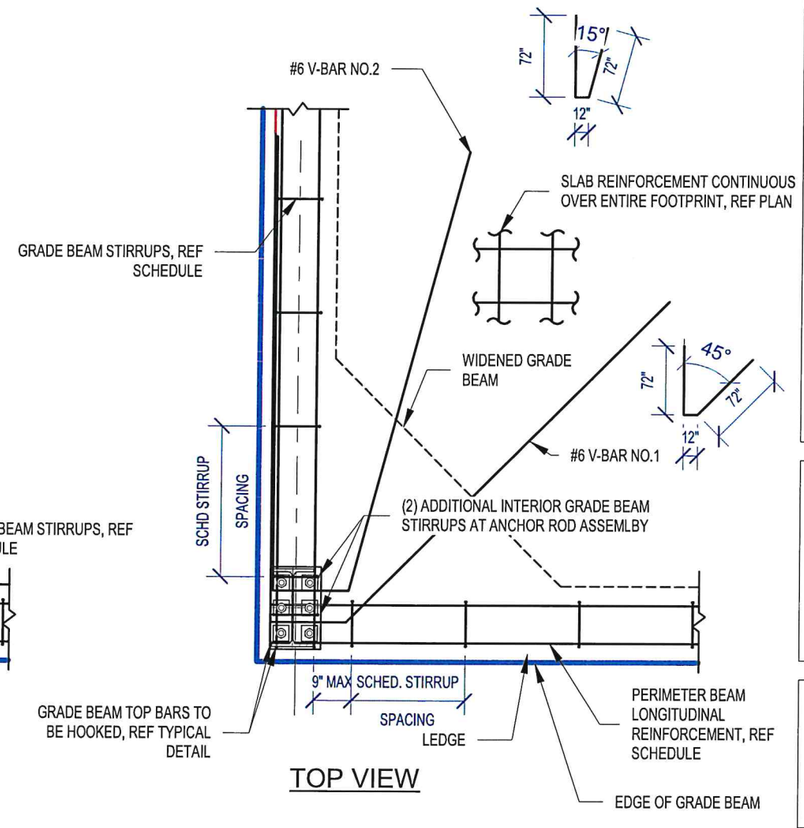
SECTION



ISOMETRIC
FOR VISUAL PURPOSES ONLY



BOTTOM VIEW
REFERENCE TOP VIEW FOR INFORMATION NOW SHOWN



TOP VIEW

2 END COLUMN ANCHORAGE
1/2" = 1'-0"

Revision Schedule		
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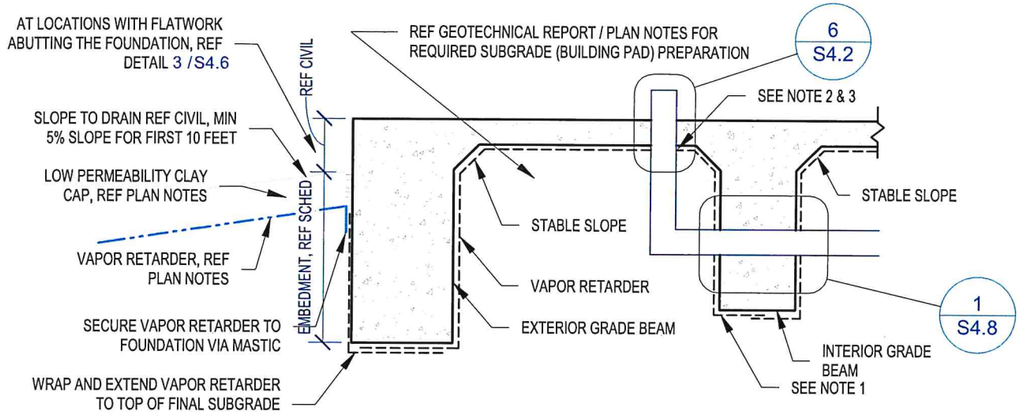
FOUNDATION DETAILS

S4.5

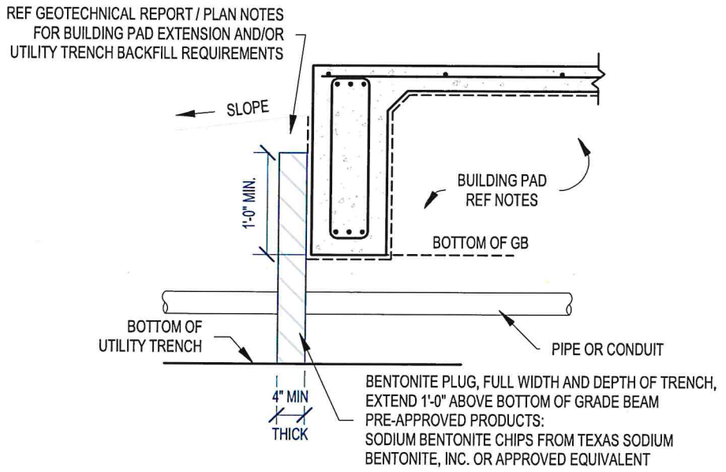
Date: 04/14/2022

Project No: 21-139

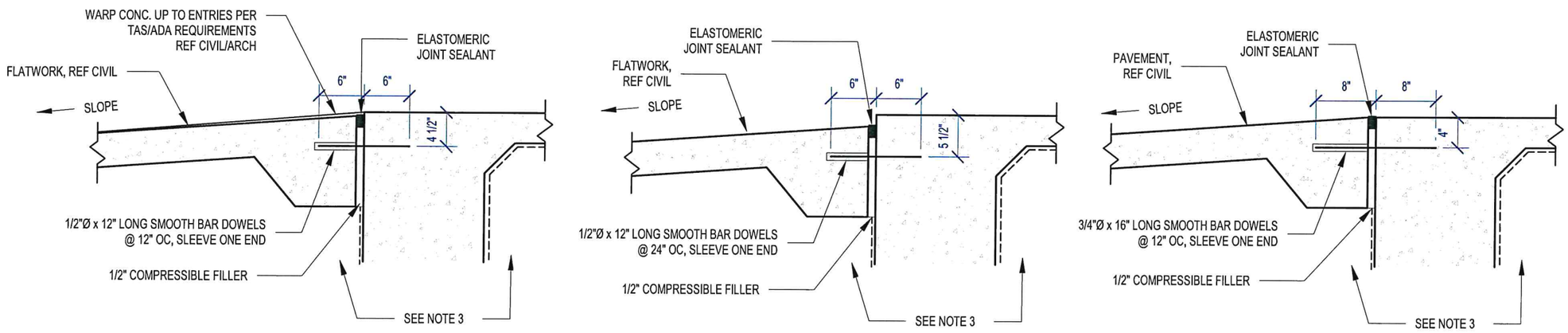


NOTES:
1. CUT AND/OR LAP THE VAPOR RETARDER AT THE BOTTOM OF INTERIOR GRADE BEAMS. THE VAPOR RETARDER SHALL BE SECURED TO THE SIDES OF THE GRADE BEAM. IF LAPS ARE REQUIRED ON TOP OF THE SLAB, THEY MUST BE TAPED PER MFR RECOMMENDATIONS.
2. ALL PIPE, DUCTING, REBAR, WIRE PENETRATIONS AND BLOCK OUTS SHOULD BE SEALED USING MFR RECOMMENDED WRAP, TAPE AND/OR MASTIC
3. IN THE EVENT THAT THE VAPOR RETARDER IS DAMAGED DURING OR AFTER INSTALLATION, REPAIRS MUST BE MADE. FOR HOLES, CUT A PIECE OF VAPOR RETARDER TO A SIZE AND SHAPE THAT COVERS ANY DAMAGE BY A MINIMUM OVERLAP OF 6" IN ALL DIRECTIONS. CLEAN ALL ADHESION AREAS OF DUST, DIRT, MOISTURE, AND FROST. TAPE DOWN ALL EDGES USING MFR RECOMMENDED TAPE.

1 TYPICAL SUBGRADE AND VAPOR RETARDER PREPARATION
1/2" = 1'-0"



2 TYPICAL UTILITY TRENCH UNDER BUILDING PAD BENTONITE PLUG AT EXTERIOR BEAM
1/2" = 1'-0"



FLATWORK AT ENTRY DOOR

FLATWORK **NOT** AT ENTRY DOOR

AT PAVEMENT (DRIVE-IN)

NOTES:
1. CONTRACTOR TO SUBMIT TO OWNER, ARCHITECT AND ENGINEER THE PRODUCT DATA FOR THE ELASTOMERIC JOINT SEALANT WHICH MUST INCLUDE A RECOMMENDED MAINTENANCE PROGRAM FOR THE SEALANT.
2. REFERENCE ARCHITECTURE FOR ADA REQUIREMENTS.
3. BUILDING PAD SUBGRADE IMPROVEMENT TO CONTINUE FOR A MINIMUM OF 5' OUTSIDE THE FOUNDATION UNDER FLATWORK / PAVEMENT

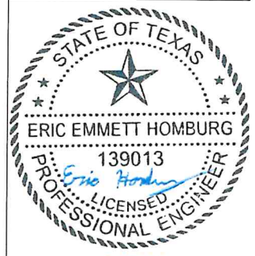
3 TYPICAL FLATWORK/PAVEMENT DOWELS AT BUILDING
3/4" = 1'-0"

Revision Schedule

Revision Number	Revision Description	Revision Date

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX



4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS

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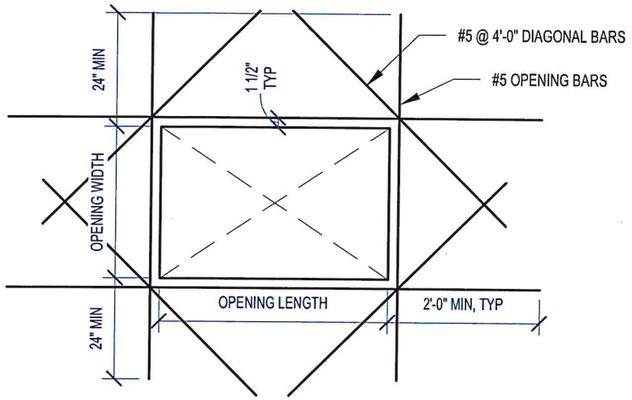
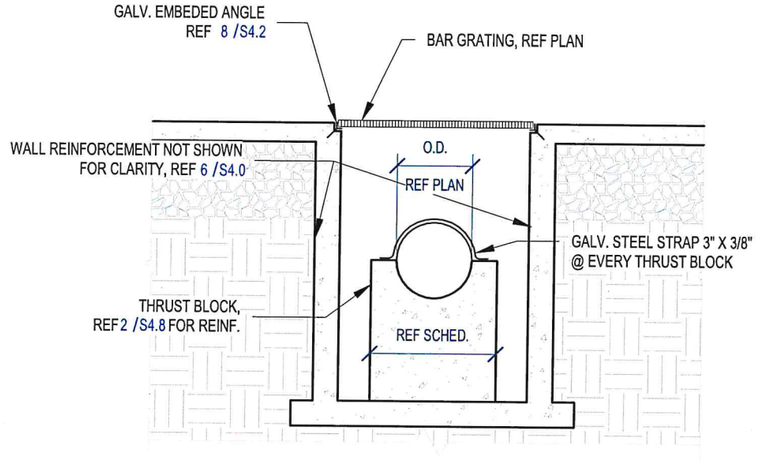
FOUNDATION DETAILS

S4.6

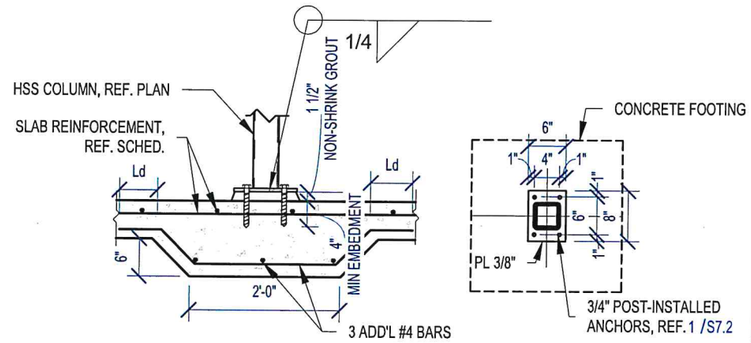
Date:	04/14/2022
Project No:	21-139



1 TYPICAL REINFORCEMENT AT SLAB BLOCKOUT
1/2" = 1'-0"

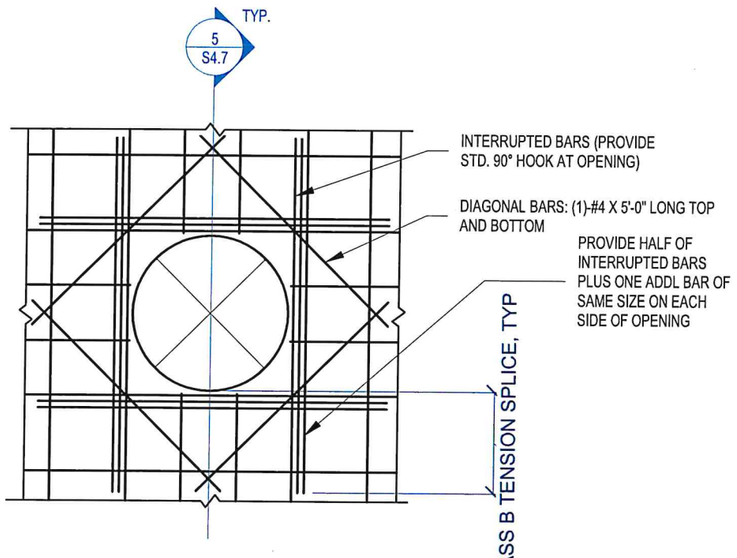


2 HEADER PIT CROSS SECTION
1/4" = 1'-0"



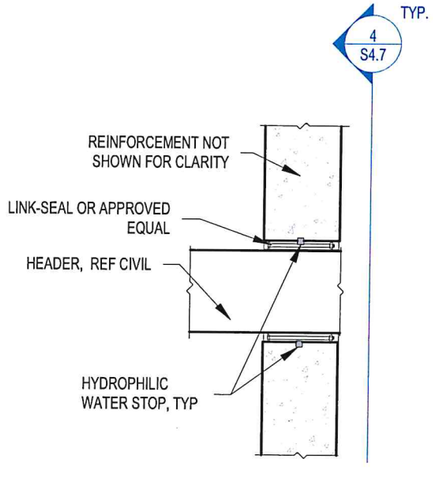
SECTION PLAN

3 TYPICAL BASE PLATE DETAIL FOR BAR GRATING POST
1/2" = 1'-0"

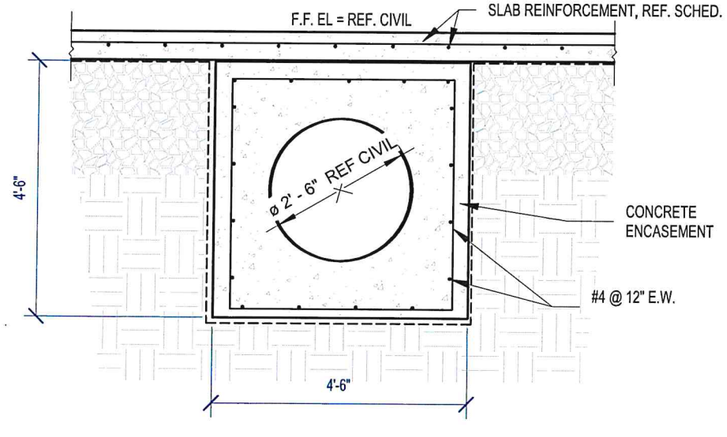


NOTES:
1. WALL OPENINGS ARE ONLY ALLOWED AT HEADER PIPE PENETRATIONS AS INDICATED ON THE STRUCTURAL PLANS.
2. CLEARWELLS AND POTABLE WATER STORAGE TANKS SHALL BE THOROUGHLY TIGHT AGAINST LEAKAGE, SHALL BE LOCATED ABOVE THE GROUND WATR TABLE AND SHALL HAVE NO WALLS IN COMMON WITH ANY OTHER PLANT UNITS CONTAINING WATER IN THE PROCESS OF TREATMENT. ALL ASSOCIATED APPURTENANCES INCLUDING VALVES, PIPES, AND FITTINGS SHALL BE TIGHT AGAINST LEAKAGE.

4 TYPICAL SLAB OPENING REINFORCEMENT
1/2" = 1'-0"



5 WALL STEM SECTION AT PIPE
1/2" = 1'-0"



6 CONCRETE ENCASEMENT DETAIL
3/8" = 1'-0"

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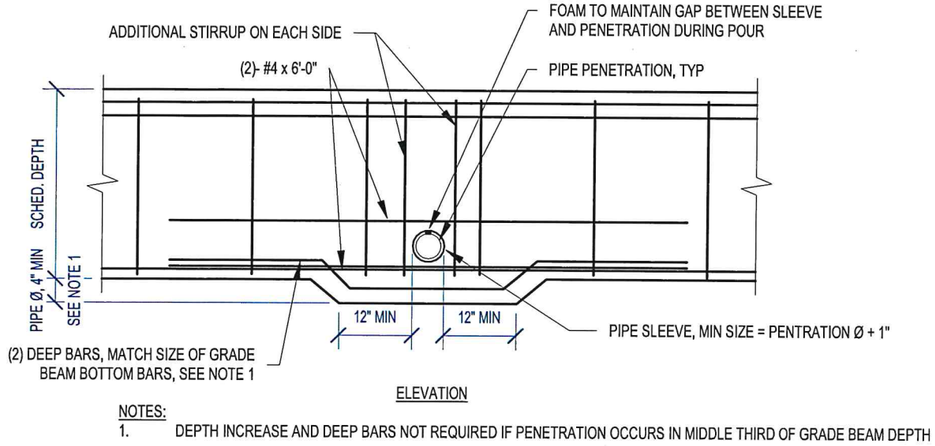
FOUNDATION DETAILS

S4.7

Date: 04/14/2022

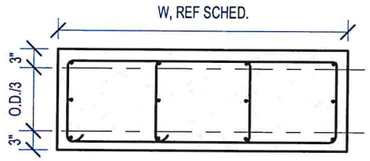
Project No: 21-139



ELEVATION

NOTES:
1. DEPTH INCREASE AND DEEP BARS NOT REQUIRED IF PENETRATION OCCURS IN MIDDLE THIRD OF GRADE BEAM DEPTH

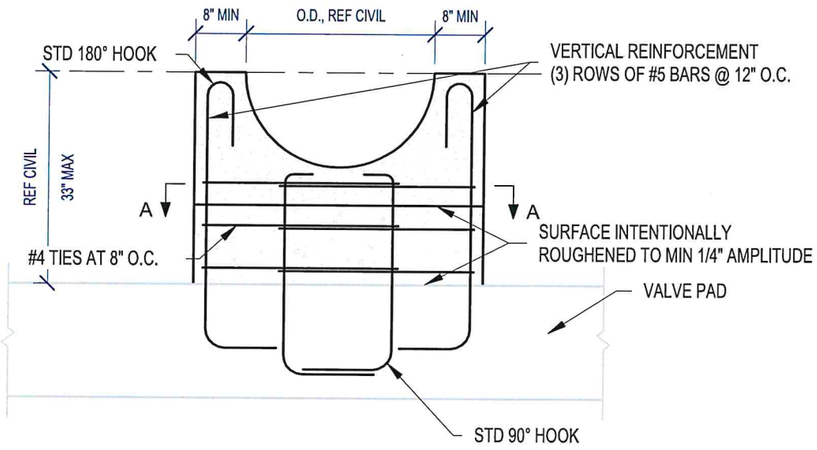
1 TYPICAL HORIZONTAL PENETRATION IN BEAM
1/2" = 1'-0"



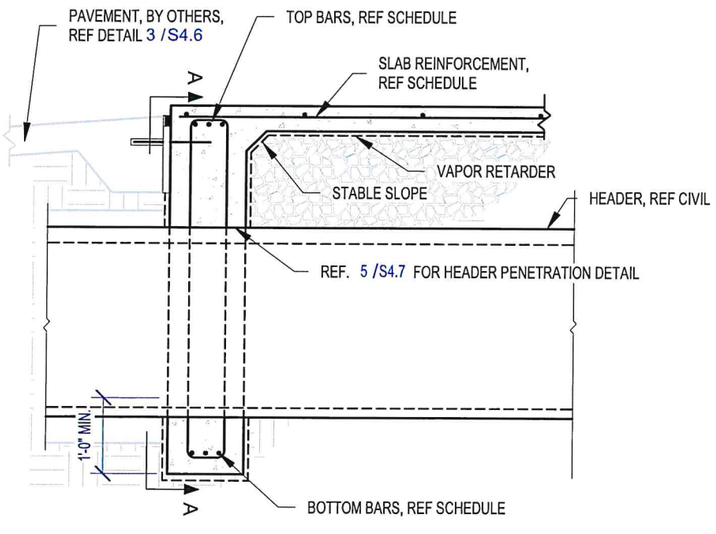
SECTION A-A

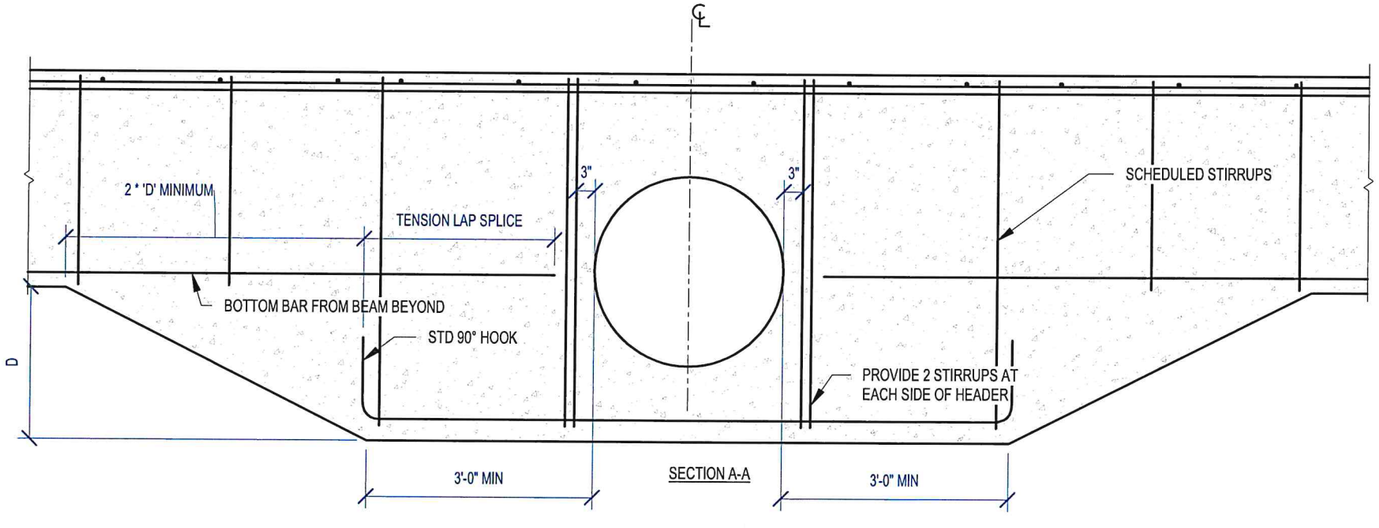
THRUST BLOCK SCHEDULE

PIPE O.D.	THRUST BLOCK WIDTH, W
24"	40"
30"	46"



2 TYPICAL THRUST BLOCK
1/2" = 1'-0"





3 EXTERIOR GRADE BEAM AT HEADER INTERSECTION
1/2" = 1'-0"

Revision Schedule

Revision Number	Revision Description	Revision Date

STATE OF TEXAS
ERIC EMMETT HOMBURG
139013
LICENSED PROFESSIONAL ENGINEER

4/14/2022

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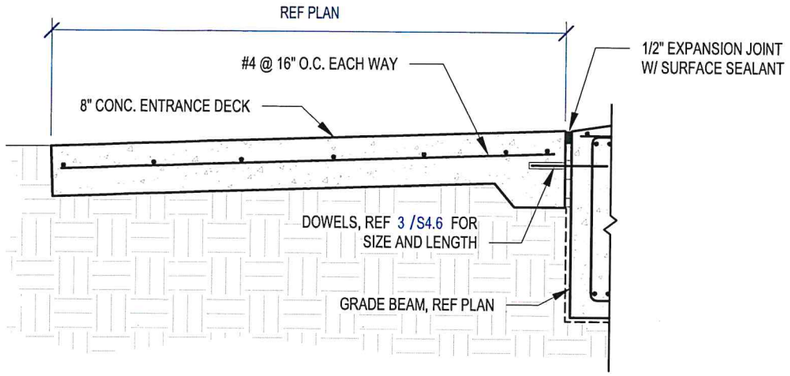
FOUNDATION DETAILS

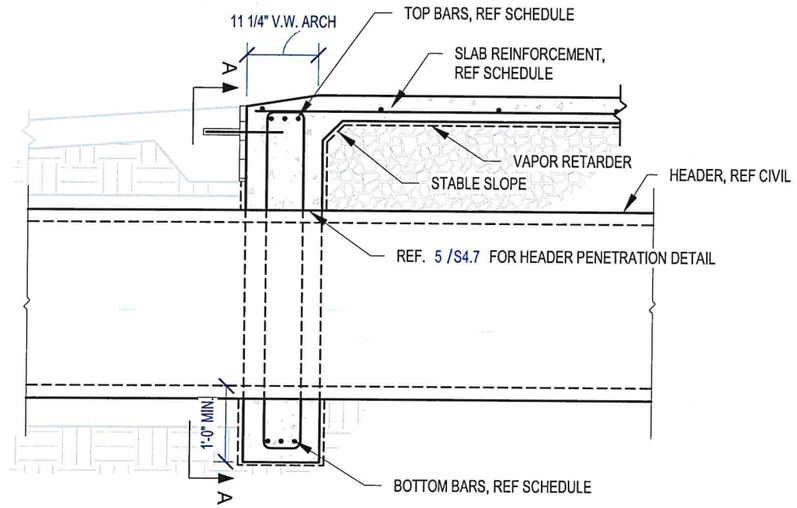
S4.8

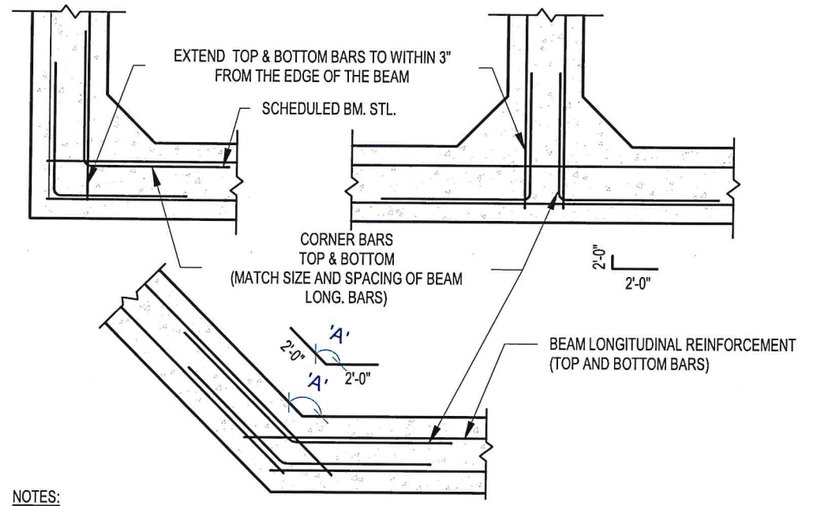
Date: 04/14/2022

Project No: 21-139



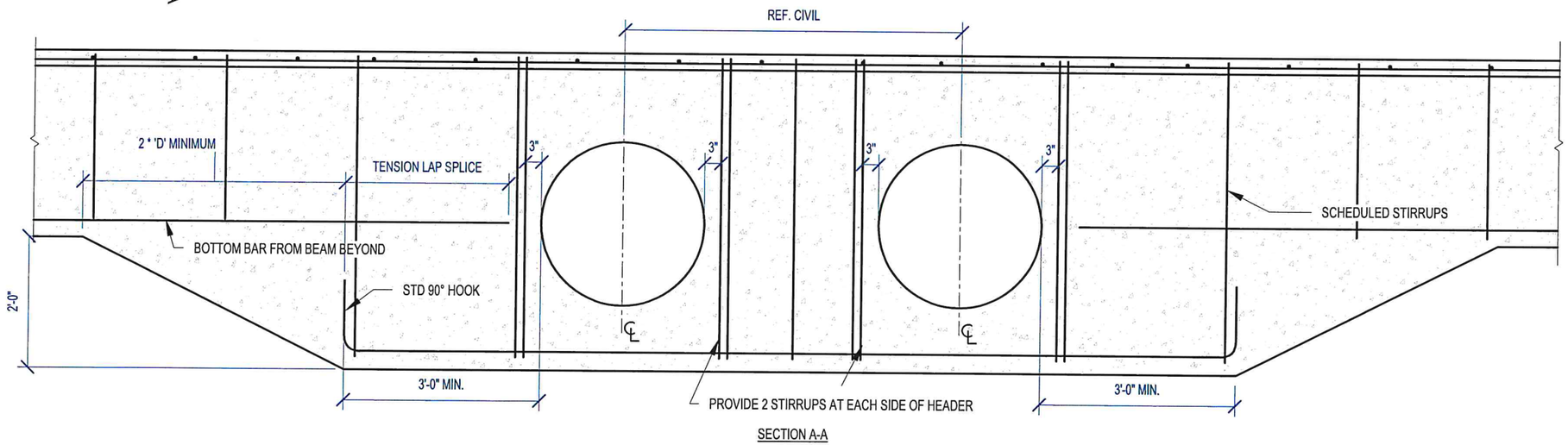
1 DECK ON SOUTHERN SIDE
1/2" = 1'-0"





NOTES:
1. BEAMS SHALL BE POURED MONOLITHICALLY UNLESS JOINTS ARE ALLOWED BY WRITTEN PERMISSION BY THE EOR.
2. UNLESS DETAILED OTHERWISE, ALL BEAM CORNERS AND INTERSECTIONS REQUIRE BENT DOWEL CORNER BARS TOP AND BOTTOM, AS SHOWN IN THIS DETAIL.

2 TYPICAL CORNER BARS
1/2" = 1'-0"



SECTION A-A

3 EXTERIOR GRADE BEAM AT DOUBLE HEADER INTERSECTION
1/2" = 1'-0"

Revision Schedule

Revision Number	Revision Description	Revision Date

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TEMPLE, TX

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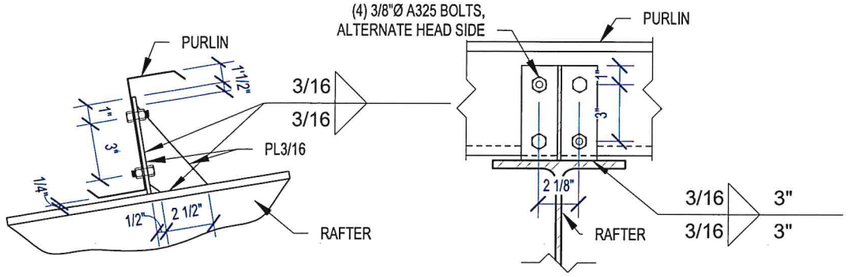
FOUNDATION DETAILS

S4.9

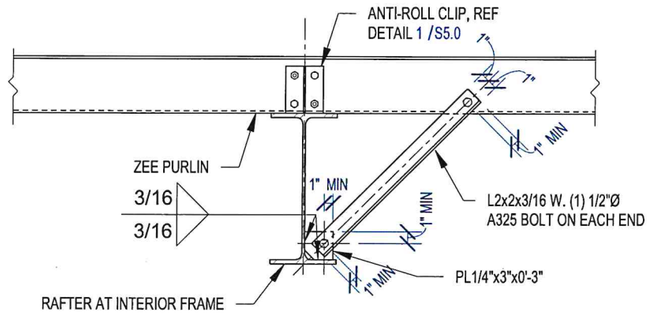
Date: 04/14/2022

Project No: 21-139

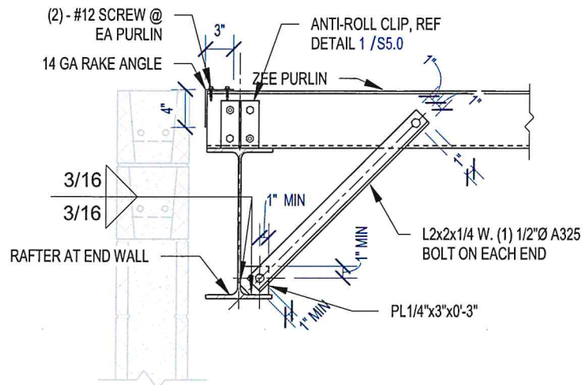
NOTE:
1. FOR PURLIN SPLICE REF DETAIL 4 /S5.0



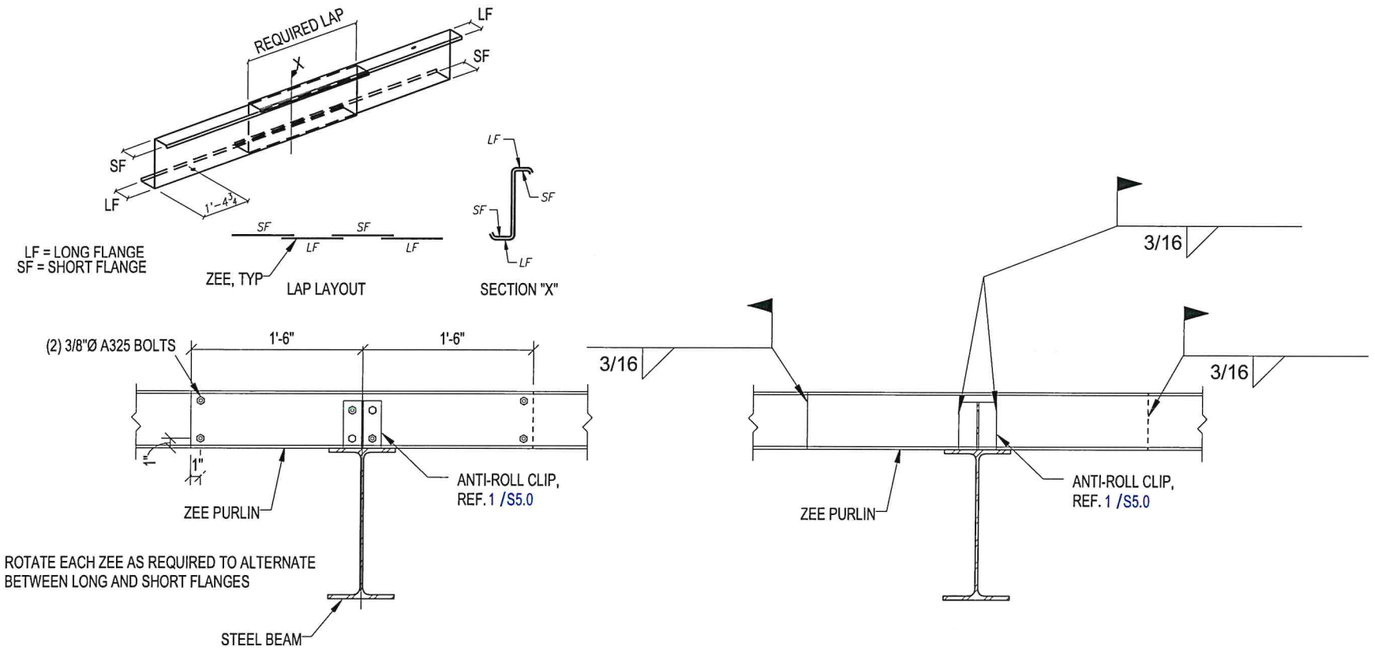
1 TYPICAL ROOF PURLIN ATTACHMENT TO RAFTER
1 1/2" = 1'-0"



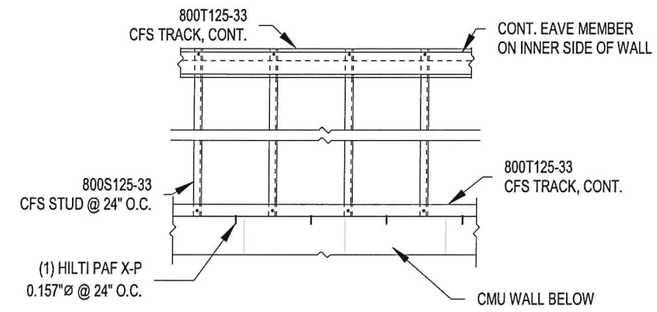
2 TYPICAL FLANGE BRACE AT INTERIOR FRAME RAFTER
3/4" = 1'-0"



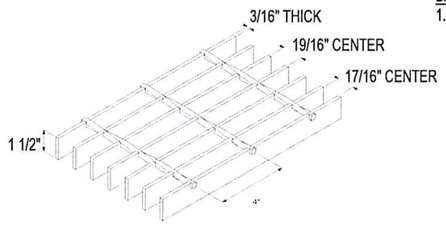
3 TYPICAL FLANGE BRACE AT END WALL RAFTER
3/4" = 1'-0"



4 TYPICAL PURLIN SPLICE
3/4" = 1'-0"



5 CFS WALL EXTENSION ABOVE EXISTING CMU WALL
1/2" = 1'-0"



BAR GRATING NOTES:

1. BAR GRATING SHALL ADHERE TO THE FOLLOWING SPECIFICATIONS:

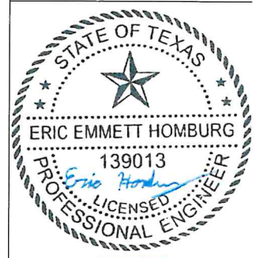
A.	CONSTRUCTION TYPE:	WELDED
B.	SERIES TYPE & NAME:	MCHNICHOLS GW & GW-2 OR APPROVED EQUIV.
C.	PRODUCT SPACING:	19-W-4
D.	PRIMARY MATERIAL:	CARBON STEEL
E.	BEARING BAR SHAPE:	RECTANGULAR
F.	BEARING BAR SURFACE:	SMOOTH
G.	CROSS BAR SPACING:	4" ON-CENTER
H.	FINISH:	GALVANIZED

I. FOR BAR GRATING ATTACHMENT DETAILS REFER TO TYPICAL BAR GRATING ATTACHMENT DETAIL.
J. BAND ALL OPENINGS IN GRATING WITH A BAR EQUIVALENT TO THE TYPICAL BAR GRATING BAR SIZE. AT A MINMUM PROVIDE A 1/8" FILLET WELD ON EACH SIDE CONNECTING THE GRATING BARS TO THE BAND.

6 BAR GRATING SPECIFICATIONS
3/8" = 1'-0"

Revision Schedule

Revision Number	Revision Description	Revision Date



4/14/2022

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TEMPLE, TX

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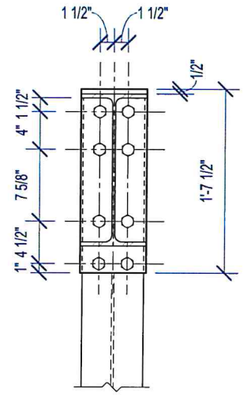
STEEL DETAILS

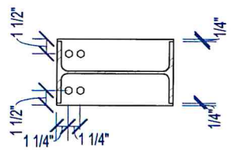
S5.0

Date: 04/14/2022

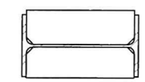
Project No: 21-139



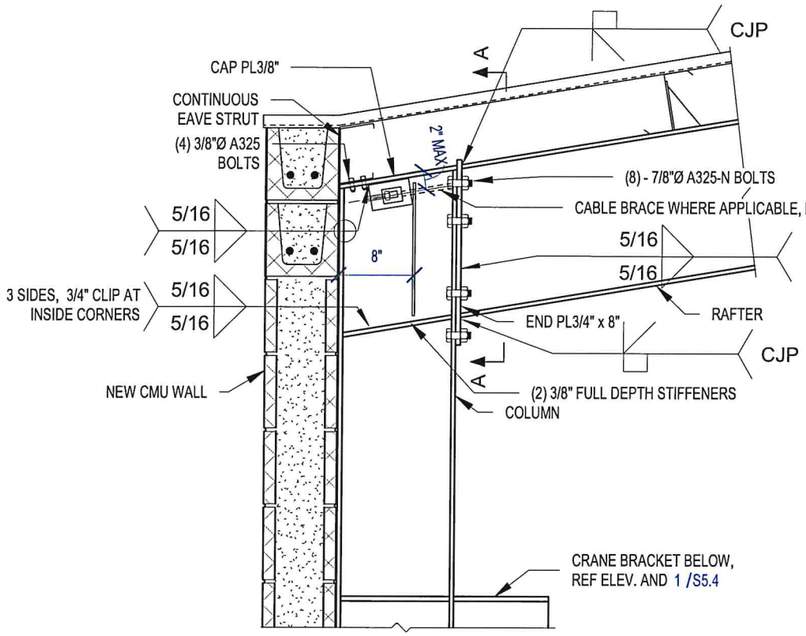
SECTION A-A



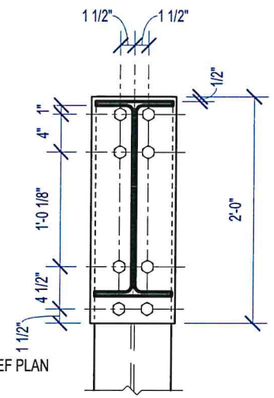
CAP PLATE



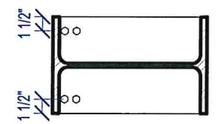
STIFFENERS



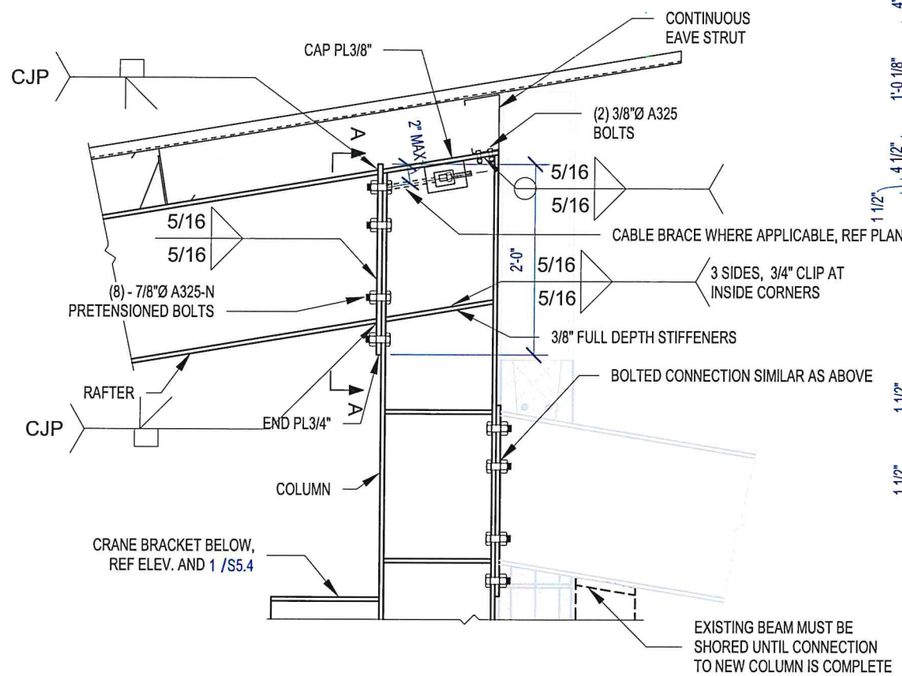
1 TYPICAL RAFTER / COLUMN CONNECTION - LOW END
3/4" = 1'-0"



SECTION A-A



CAP PLATE



2 TYPICAL RAFTER / COLUMN CONNECTION - HIGH END
3/4" = 1'-0"

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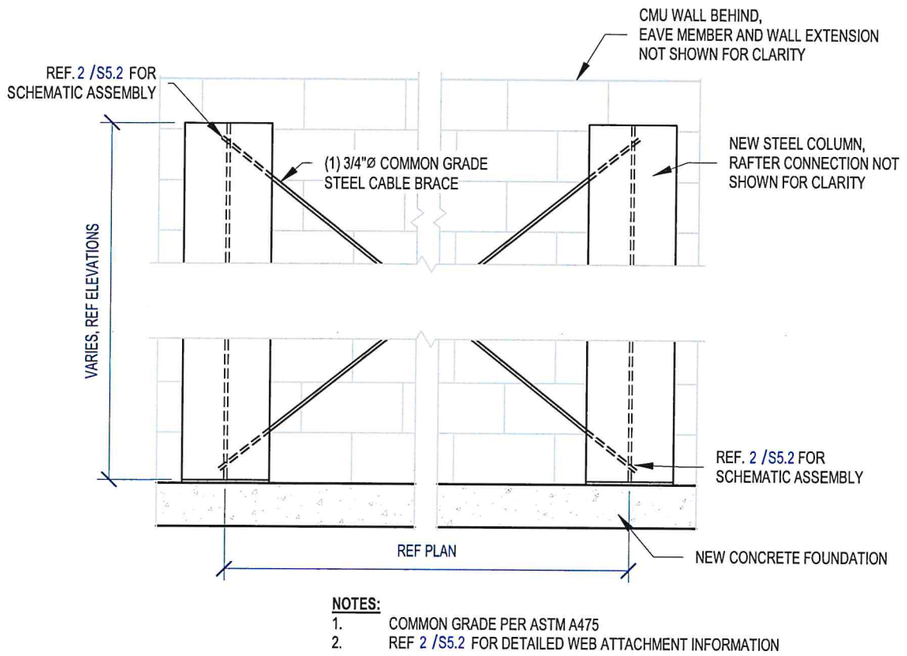
STEEL DETAILS

S5.1

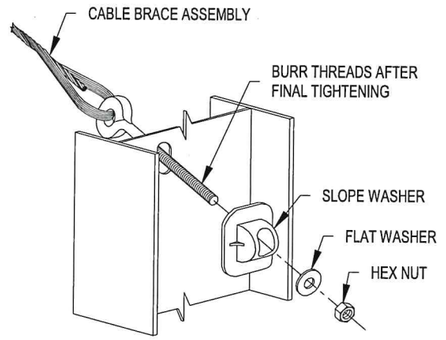
Date: 04/14/2022

Project No: 21-139

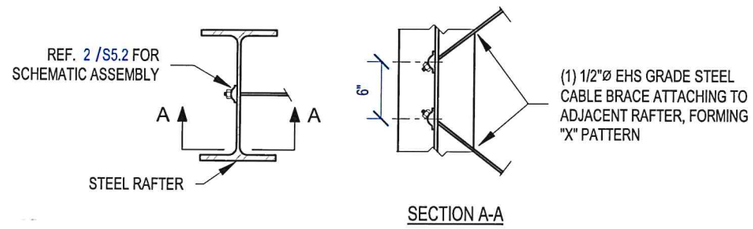


NOTES:
1. COMMON GRADE PER ASTM A475
2. REF 2 /S5.2 FOR DETAILED WEB ATTACHMENT INFORMATION

1 COLUMN CABLE ATTACHMENTS
1/2" = 1'-0"



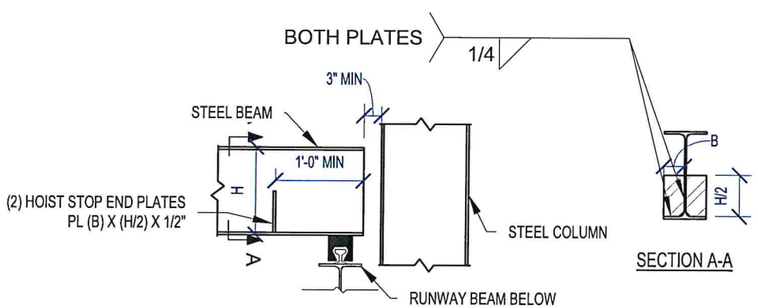
2 TYPICAL CABLE BRACE TO WEB ASSEMBLY
1/2" = 1'-0"



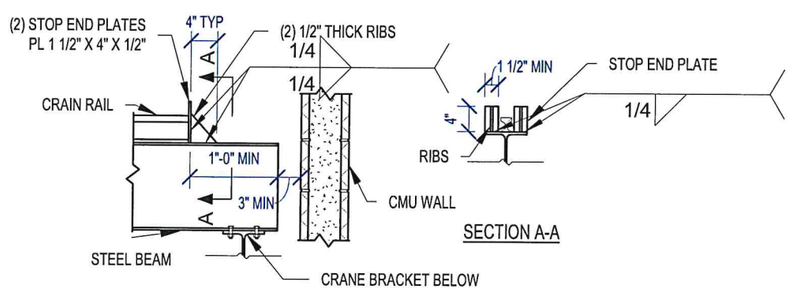
SECTION A-A

NOTES:
1. EHS GRADE - EXTRA HIGH STRENGTH GRADE PER ASTM A475
2. REF. 2 /S5.2 FOR DETAILED ATTACHMENT INFORMATION

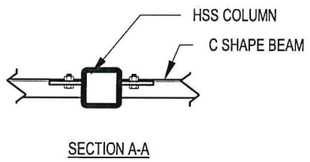
3 RAFTER ROOF CABLE BRACES
3/4" = 1'-0"



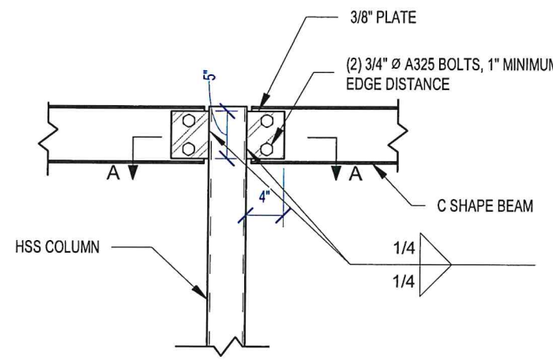
4 HOIST STOP END PLATE
1/2" = 1'-0"



5 BRIDGE GIRDER STOP END PLATE
1/2" = 1'-0"



SECTION A-A



6 HSS POST TO CHANNEL CONNECTION
3/4" = 1'-0"

Revision Schedule		
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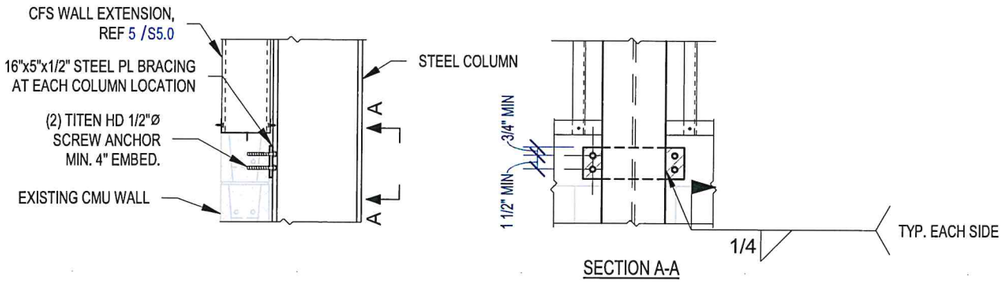
STEEL DETAILS

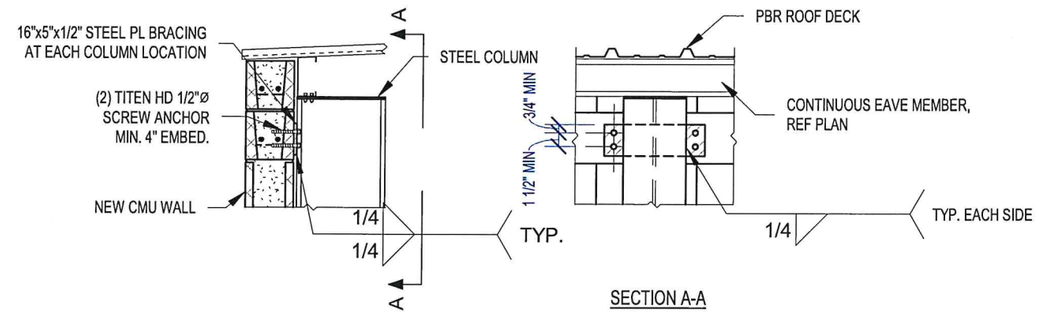
S5.2

Date: 04/14/2022

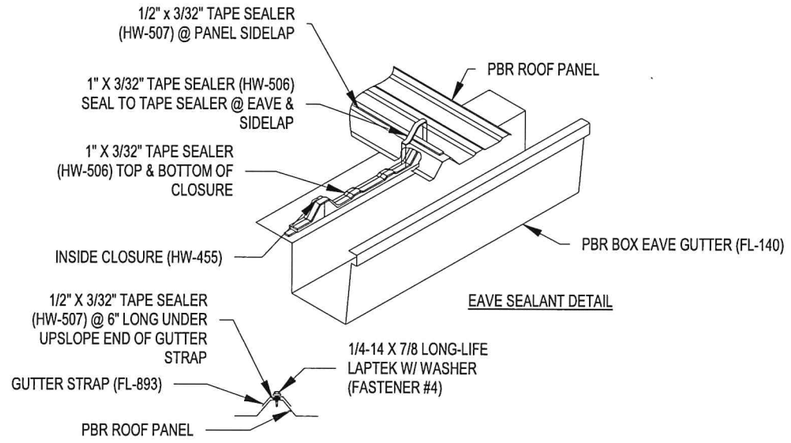
Project No: 21-139



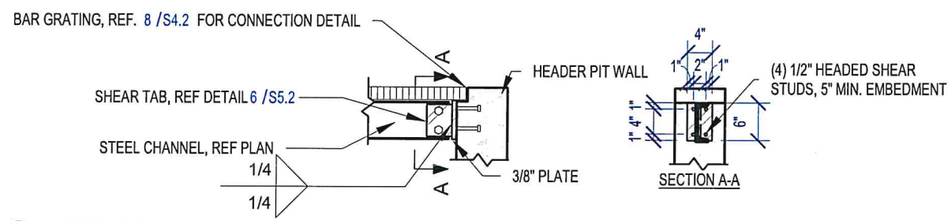
1 EXISTING CMU BRACED TO WESTERN COLUMNS
1/2" = 1'-0"



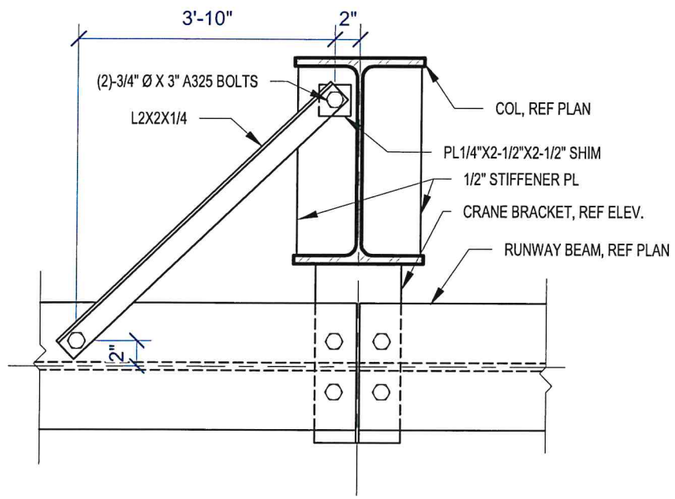
2 NEW CMU BRACED TO EASTERN COLUMNS
1/2" = 1'-0"



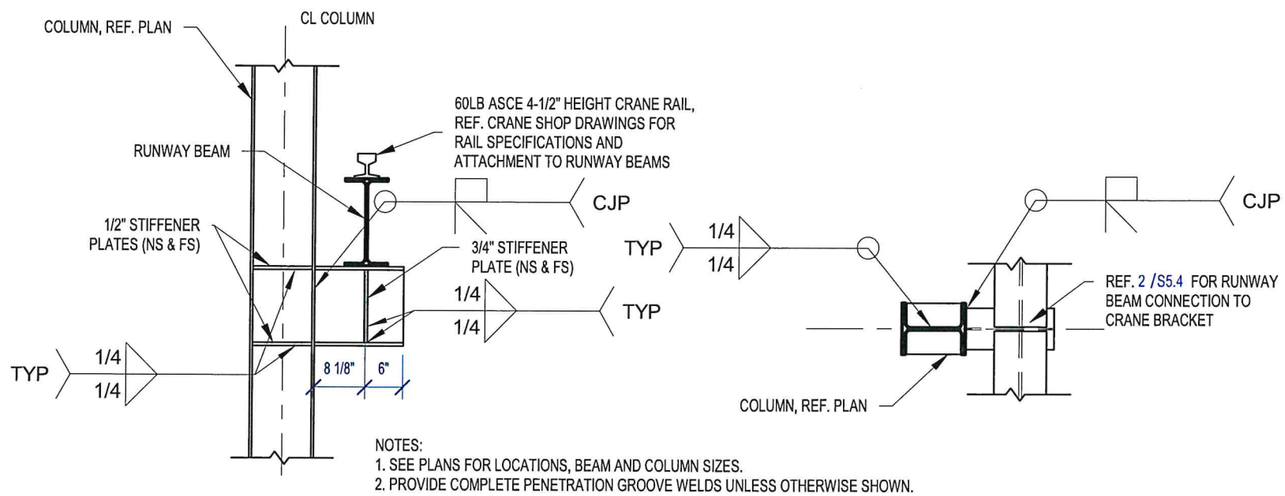
3 PBR ROOF PANEL EAVE SEALANT
1" = 1'-0"



4 STEEL BEAM TO CONCRETE WALL CONNECTION
1/2" = 1'-0"



5 TYPICAL RUNWAY BEAM BRACE
1" = 1'-0"



6 CRANE BRACKET TO COLUMN CONNECTION
1/2" = 1'-0"

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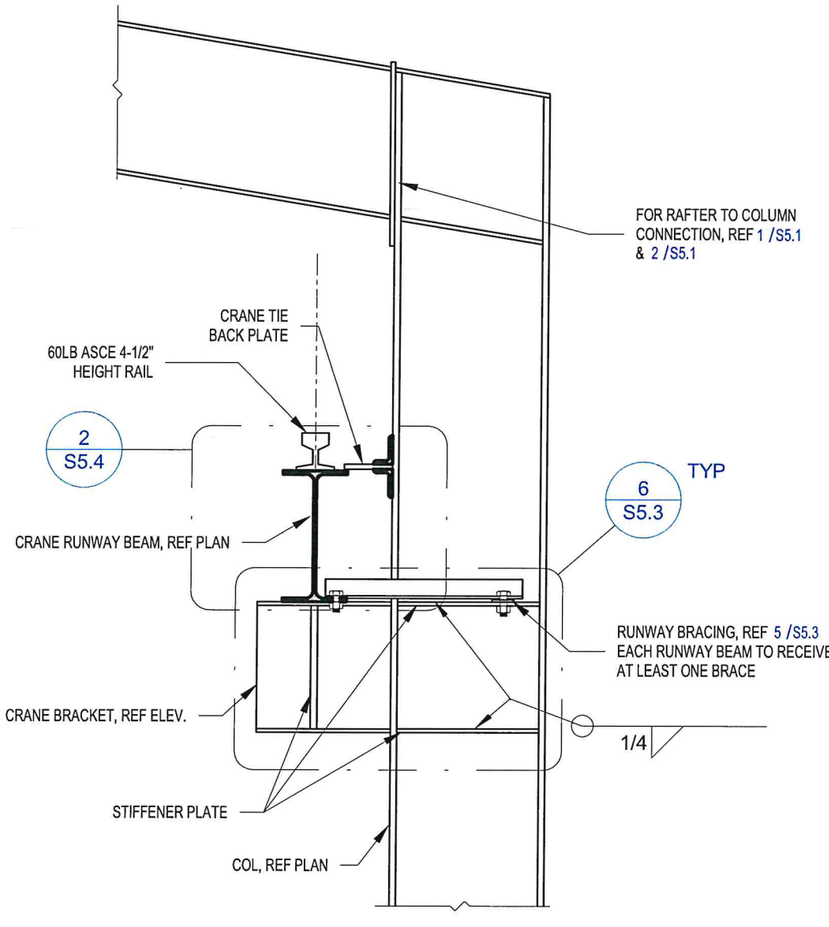
STEEL DETAILS

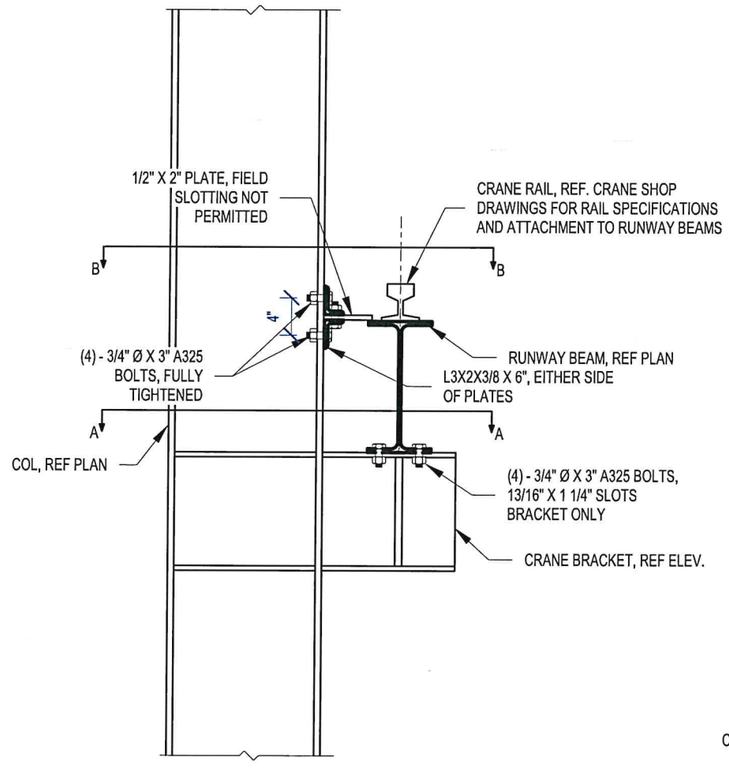
S5.3

Date: 04/14/2022

Project No: 21-139

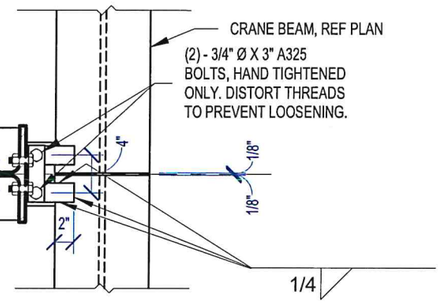


1 RUNWAY BEAM AT COLUMN
3/4" = 1'-0"

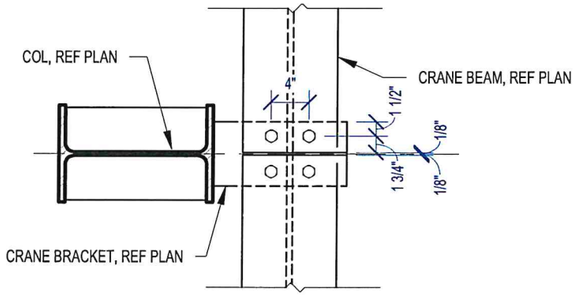


NOTES:
1. REF 6 /S5.3 FOR INFORMATION NOT SHOWN

2 RUNWAY BEAM CONNECTION DETAIL
3/4" = 1'-0"



SECTION B-B



SECTION A-A

Revision Schedule		
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STEEL DETAILS

S5.4

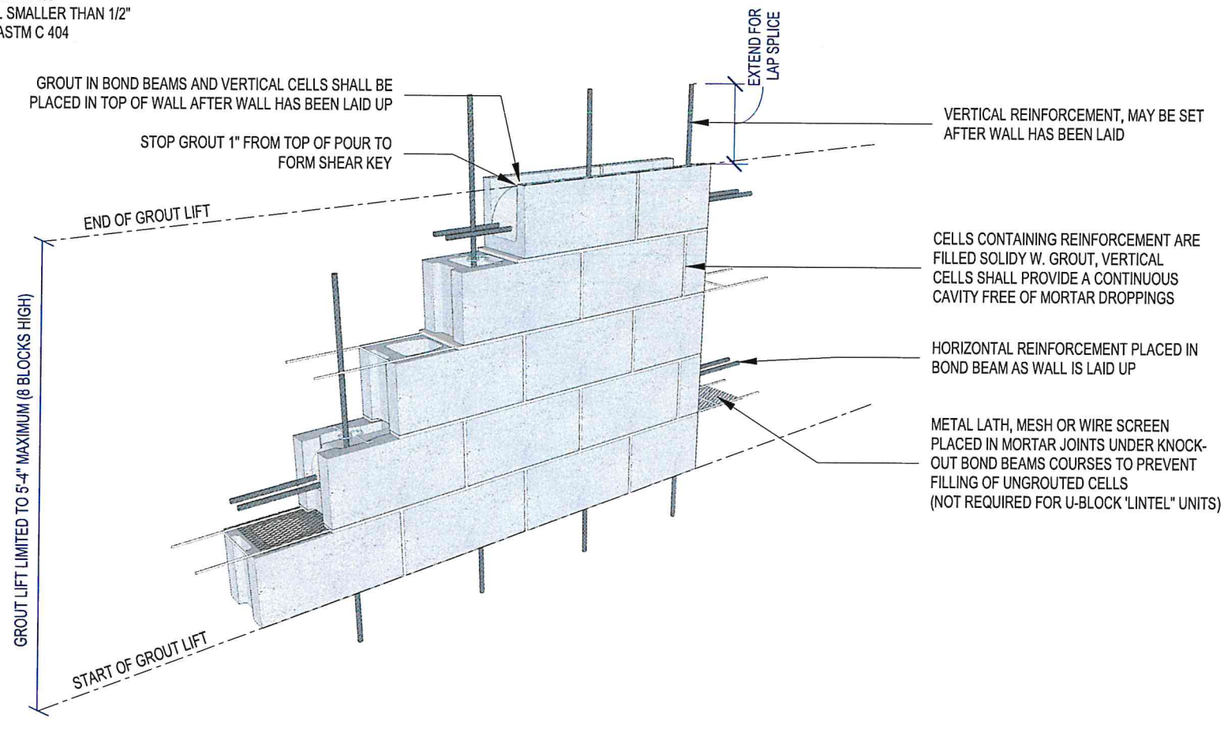
Date: 04/14/2022

Project No: 21-139

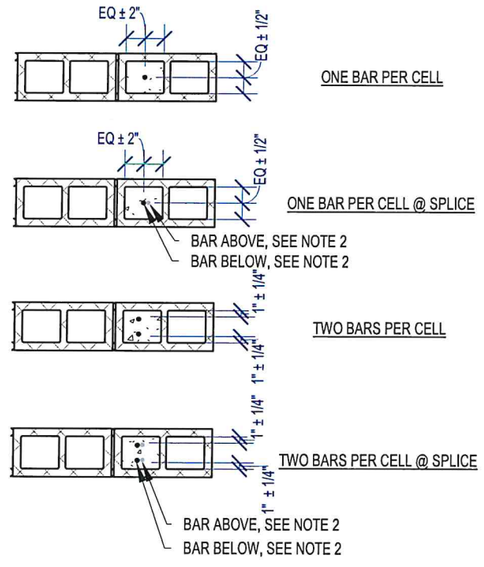
GROUT PROPORTIONS BY VOLUME				
TYPE	PARTS BY VOLUME OF PORTLAND CEMENT OR BLENDED CEMENT	PARTS BY VOLUME OF HYDRATED LIME OR LIME PUTTY	AGGREGATE MEASURED IN A DAMP, LOOSE CONDITION	
			FINE AGGREGATE	COARSE AGGREGATE
FINE	1	0 TO 1/10	2¼ - 3 TIMES THE SUM OF THE VOLUMES OF CEMENTITIOUS MATERIALS	NONE
COURSE	1	0 TO 1/10	2¼ - 3 TIMES THE SUM OF THE VOLUMES OF CEMENTITIOUS MATERIALS	1-2 TIMES THE SUM OF THE VOLUMES OF CEMENTITIOUS MATERIALS

FINE AGGREGATE = SAND SMALLER THAN 3/8"
COURSE AGGREGATE = PEA GRAVEL SMALLER THAN 1/2"
ALL AGGREGATE MUST ADHERE TO ASTM C 404

NOTES:
1. IF LOW LIFT GROUTING PROCEDURES ARE FOLLOWED THEN NO CLEAN-OUTS ARE REQUIRED.
2. EACH GROUT LIFT MUST BE CONSOLIDATED AND RECONSOLIDATED BY MECHANICAL VIBRATION UNLESS SELF-CONSOLIDATING GROUT IS USED.
3. GROUT FOR MASONRY CONSTRUCTION SHALL HAVE A HIGH SLUMP (8" - 11") WITH A FLOWABLE CONSISTENCY TO EASY PLACEMENT AND FACILITATE CONSOLIDATION.
4. THE MINIMUM COMPRESSIVE STRENGTH FOR ALL GROUT IS 2,000 PSI, UNLESS NOTED OTHERWISE.
5. GROUT MIXTURES MAY EITHER CONFORM WITH THE PROPORTIONS LISTED IN TABLE 1 OR BY COMPRESSIVE STRENGTH TESTING . WRITTEN ACCEPTANCE OF THE GROUT MIX SUBMITTALS IS REQUIRED PRIOR TO THE COMMENCEMENT OF GROUTING OPERATIONS.
6. ALL GROUT SHALL CONFORM TO ASTM C 1019



1 CMU WALL LOW LIFT GROUTING PROCEDURE
3/4" = 1'-0"



NOTES:
1. VERTICAL BAR POSITIONERS MUST BE PROVIDED AT THE TOP AND BOTTOM OF EACH VERTICAL BAR AND AT INTERVALS NOT EXCEEDING 8'-0". POSITIONERS SHALL BE MIN 9 GA DIAMETER PREFABRICATED FROM COLD-DRAWN STEEL WIRE CONFORMING TO ASTM A 1064, ASTM A 82 AND SHALL BE HOT-DIP GALVANIZED PER ASTM A 153.
2. BARS MUST BE IN CONTACT AND TIED TOGETHER OVER SPLICE LENGTH, REF SCHEDULE FOR MINIMUM SPLICE OVERLAP
3. THIS DETAIL DOES NOT APPLY TO RETAINING / BASEMENT WALLS.

3 TYPICAL CMU VERTICAL BAR PLACEMENT
1/2" = 1'-0"

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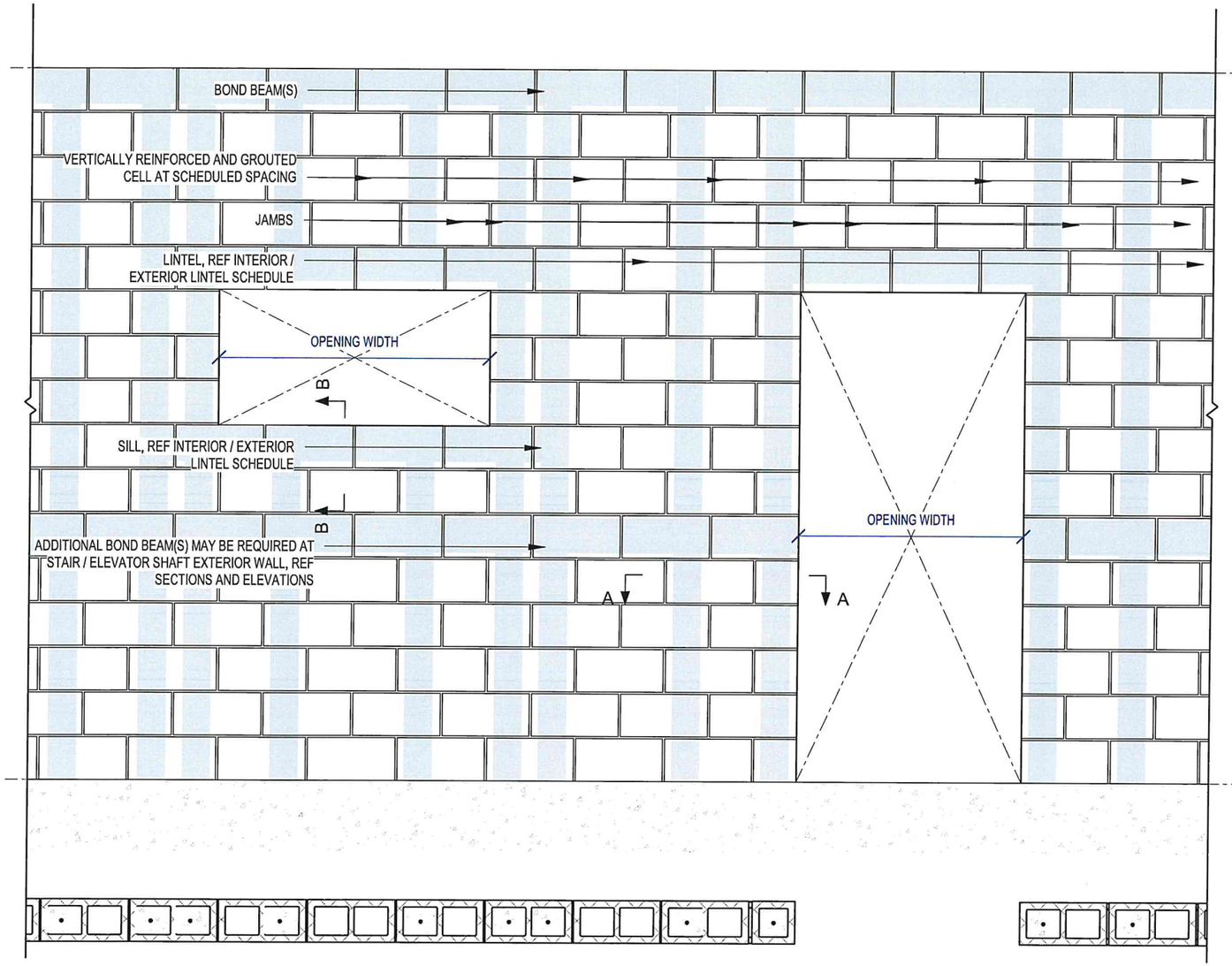
(o) 979.777.0720 | TBPE Firm No. F-18677

CMU DETAILS

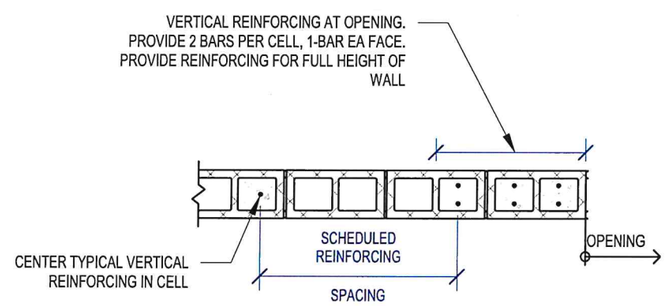
S6.0

Date: 04/14/2022
Project No: 21-139

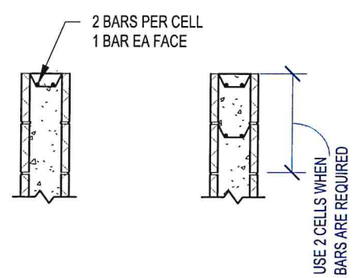


TYPICAL WALL REINFORCING		JAMB REINFORCING AT OPENING (EACH SIDE)			
WALL HEIGHT	VERT REINF	OPENING SIZE			
		<= 8'-0"	10'-0"	12'-0"	14'-0"
<=10'	#4 @48"	2-#4	2-#4	2-#4	2-#5
<=12'	#4 @40"	2-#5	2-#5	2-#6	2-#6
<=15'	#5 @40"	2-#6	2-#7	2-#7	4-#5
<=18'	#5 @32"	2-#7	2-#8	4-#5	4-#7
<=20'	#5 @16"	N/A	N/A	N/A	N/A
<=24'	#5 @8"	N/A	N/A	N/A	N/A

SILL REINFORCING				
SILL OPENING	<= 8'-0"	10'-0"	12'-0"	14'-0"
REINFORCING	2-#4	2-#5	2-#5	4-#5



SECTION A-A



SECTION B-B

NOTES:
1. SEE PLAN AND DETAILS FOR REINFORCING IN WALLS TALLER THAN 24'-0".
2. GROUT REINFORCED CELLS WITH 2000 PSI GROUT
3. REFER TO ARCH DRAWINGS FOR SIZES AND LOCATIONS OR DOOR AND WINDOW OPENINGS. REFER TO MECHANICAL, ELECTRICAL AND PLUMBING DRAWING FOR OTHER REQUIRED OPENINGS
4. SEE 5 /S6.2 FOR LINTELS IN LOAD BEARING OR EXTERIOR WALLS

1 TYPICAL NON-LOAD BEARING CMU WALL SCHEDULE (FOR WALLS NOT SHOWN ON ELEVATIONS)
1/2" = 1'-0"

Revision Schedule

Revision Number	Revision Description	Revision Date

THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE FOLLOWING PROJECT:

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

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STATE OF TEXAS
ERIC EMMETT HOMBURG
139013
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4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS
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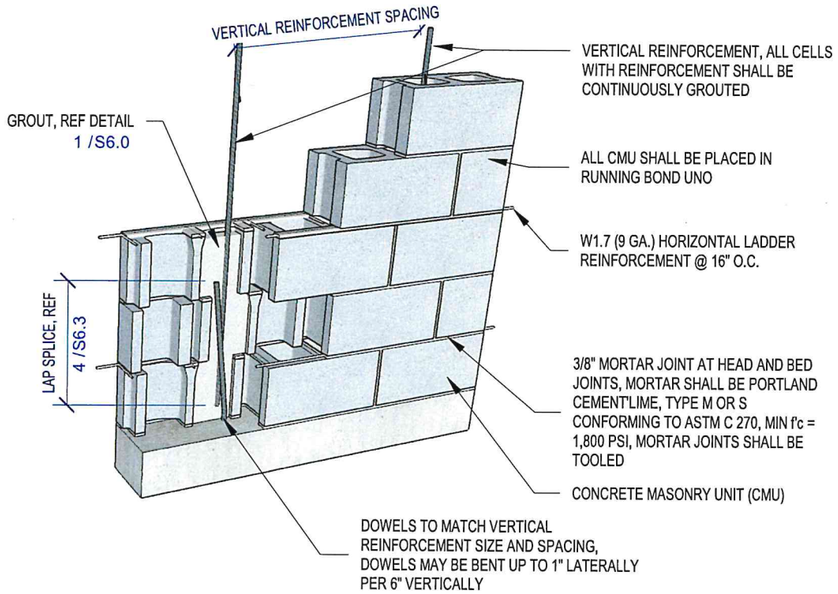
CMU DETAILS

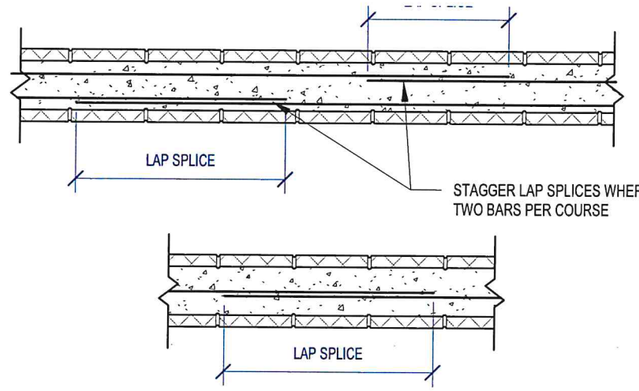
S6.1

Date: 04/14/2022

Project No: 21-139



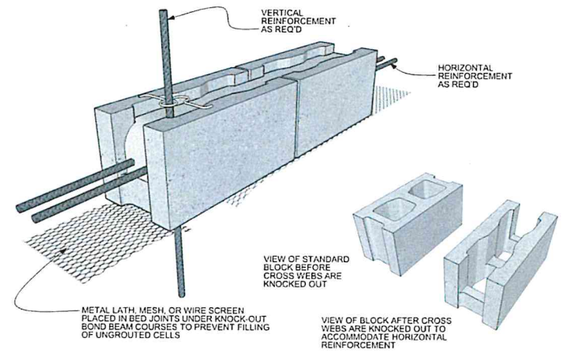
1 TYPICAL CMU WALL
3/8" = 1'-0"



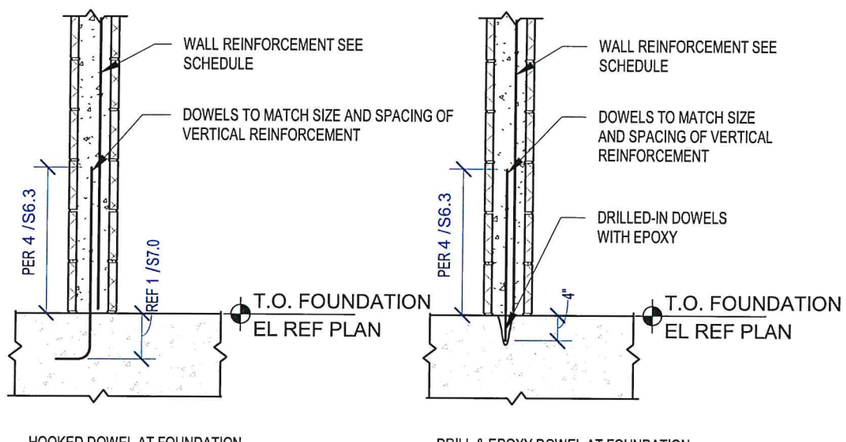
HORIZONTAL LAP SPLICE LENGTHS		
BAR SIZE	1 BAR IN COURSE	2 BARS IN COURSE
#3	18"	28"
#4	24"	36"
#5	26"	45"
#6	40"	54"

NOTES:
1. FOR 6" AND 8" WALLS WITH ONE HORIZONTAL BAR IN COURSE, USE SPLICE LENGTHS FOR TWO BARS IN COURSE.
2. SPLICES OF REINFORCEMENT WTH 2 BARS PER COURSE SHALL BE STAGGERED.

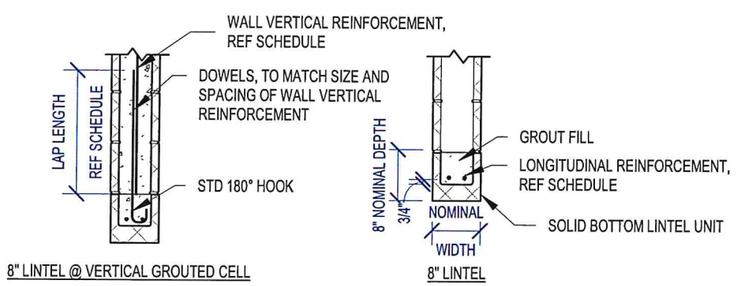
2 CMU HORIZONTAL BAR LAP SPLICE LENGTH
3/4" = 1'-0"



3 TYPICAL BOND BEAM UNITS
1/2" = 1'-0"



4 TYPICAL BASE OF CMU WALL
1/2" = 1'-0"



NOTES:
1. LINTEL SIZES SHOWN ABOVE INDICATE NOMINAL WIDTH x NOMINAL DEPTH. E.G. 8X16 INDICATES A LINTEL WITH A NOMINAL WIDTH OF 8" AND A NOMINAL DEPTH OF 16".
2. PROVIDE 1" OF BEARING AT EACH JAMB FOR EACH FOOT OF CLEAR SPAN BUT NOT LESS THAN 7 5/8".
3. REINFORCEMENT SHALL TERMINATE NO LESS THAN 1½ FROM THE END OF THE LINTEL.
4. CMU MUST BE STACKED IN RUNNING BOND.

5 TYPICAL CMU LINTEL
1/2" = 1'-0"

Revision Schedule		
Revision Number	Revision Description	Revision Date

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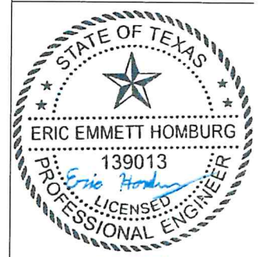
AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX



4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS
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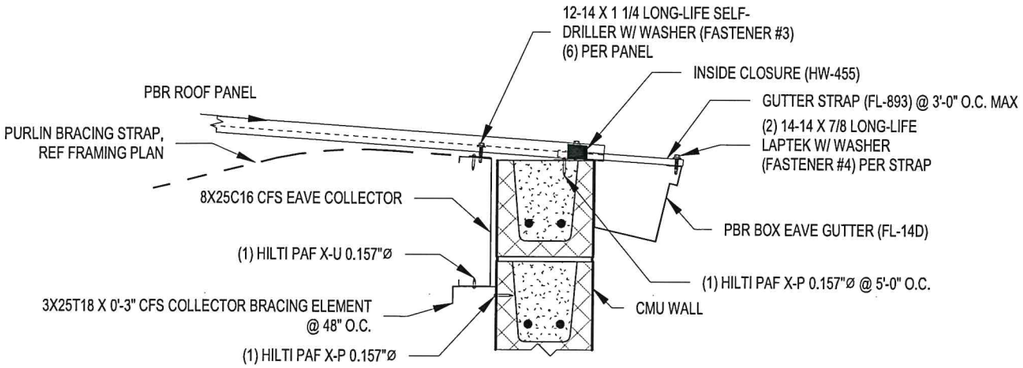
(o) 979.777.0726 | TBPE Firm No. F-18677

CMU DETAILS

S6.2

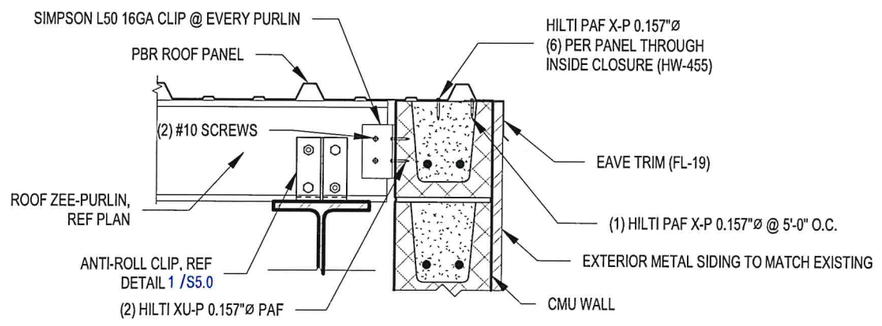
Date: 04/14/2022

Project No: 21-139



NOTES:
1. REF 3 /S5.3 FOR PBR EAVE SEALANT INFORMATION

1 CMU WALL W/ CFS EAVE STRUT, PBR DECK, AND EAVE GUTTER - LOW END
1" = 1'-0"



NOTES:
1. REF 3 /S5.3 FOR PBR EAVE SEALANT INFORMATION

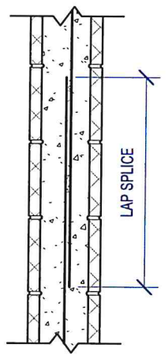
3 CMU WALL W/ CFS EAVE TRIM
1" = 1'-0"

1 BAR PER CELL - MINIMUM LAP SPLICE LENGTHS			
BAR SIZE	6" CMU	8" CMU	10" CMU
#3	16	16	16
#4	25	21	21
#5	40	27	26
#6	NP	51	40
#7	NP	63	52
#8	NP	72	72

NP = NOT PERMITTED

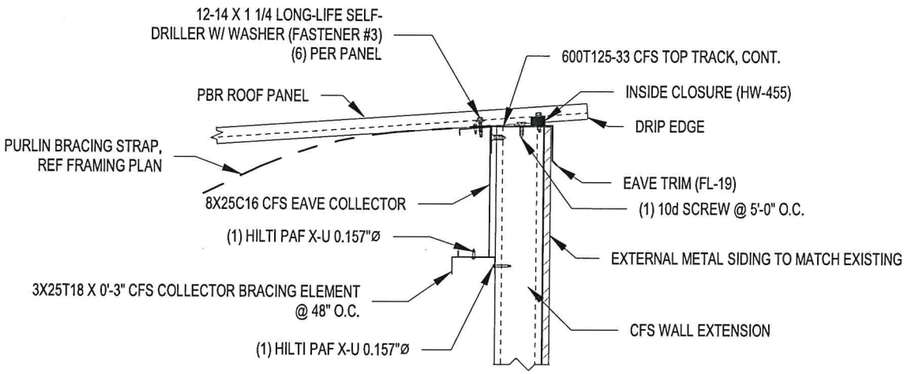
2 BARS PER CELL - MINIMUM LAP SPLICE LENGTHS			
BAR SIZE	6" CMU	8" CMU	10" CMU
#3	19	17	17
#4	34	29	29
#5	45	45	45
#6	NP	54	54
#7	NP	63	63
#8	NP	NP	72

NP = NOT PERMITTED



NOTES:
1. ALL LAP SPLICE LENGTHS ARE IN INCHES.
2. WHEN LAP SPLICING BARS OF DIFFERENT SIZES, THE LAP LENGTH IS DETERMINED BY THE SMALLER BAR

4 CMU VERTICAL BAR LAP SPLICE LENGTH
3/4" = 1'-0"

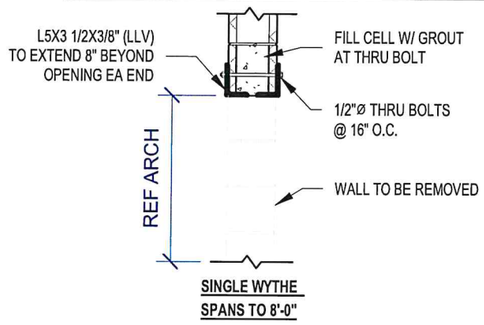


NOTES:
1. REF 3 /S5.3 FOR PBR EAVE SEALANT INFORMATION

2 CFS WALL EXTENSION W/ CFS EAVE STRUT AND PBR DECK - HIGH END
1" = 1'-0"

LINTEL INSTALLATION PROCEDURE:

1. CONTRACTOR TO VERIFY THAT JAMB CELLS ON EITHER SIDE OF FUTURE OPENING ARE FULLY GROUTED. IF NOT, CONTRACTOR TO BREAK SIDE WALL ABOVE EACH JAMB AND POUR GROUT INTO HOLE TO COMPLETELY FILL CORE. IF GROUT IS POURED IN JAMBS, 7 DAYS MUST ELAPSE BEFORE STEP 2 IS STARTED.
2. CUT A 5/8" GROOVE IN ONE FACE OF MASONRY WALL FOR ENTIRE LENGTH OF PROPOSED OPENING PLUS EIGHT INCHES AT EACH END.
3. INSTALL ANGLE WHICH IS 16 INCHES LONGER THAN PROPOSED OPENING WIDTH IN GROOVE AS SHOWN IN DETAIL.
4. DRILL HOLES THROUGH MASONRY USING ANGLE AS A TEMPLATE.
5. CUT GROOVE IN OPPOSITE FACE OF MASONRY AND INSTALL ANGLE WITH BOLT HOLES ALIGNED WITH FIRST ANGLE AND INSTALL BOLTS.
6. BREAK SIDE WALL OF BLOCK AT EACH END OF OPENING JUST BELOW ANGLE AND POUR GROUT INTO HOLE TO COMPLETELY FILL CORE.
7. BREAK SIDE WALL OF BLOCK ABOVE EACH BOLT AND POUR GROUT INTO HOLE TO COMPLETELY FILL CORE WITH BOLT.
8. AFTER A MINIMUM OF 7 DAYS, BLOCK IN OPENING BELOW ANGLES MAY BE REMOVED.



5 NEW OPENING IN EXISTING STRUCTURE - SINGLE WYTHE 8' MAX OPENING
1/2" = 1'-0"

Revision Schedule		
Revision Number	Revision Description	Revision Date

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TEMPLE, TX

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4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS
TEMPLE, TX

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Dudley Engineering LLC dba DUDLEY
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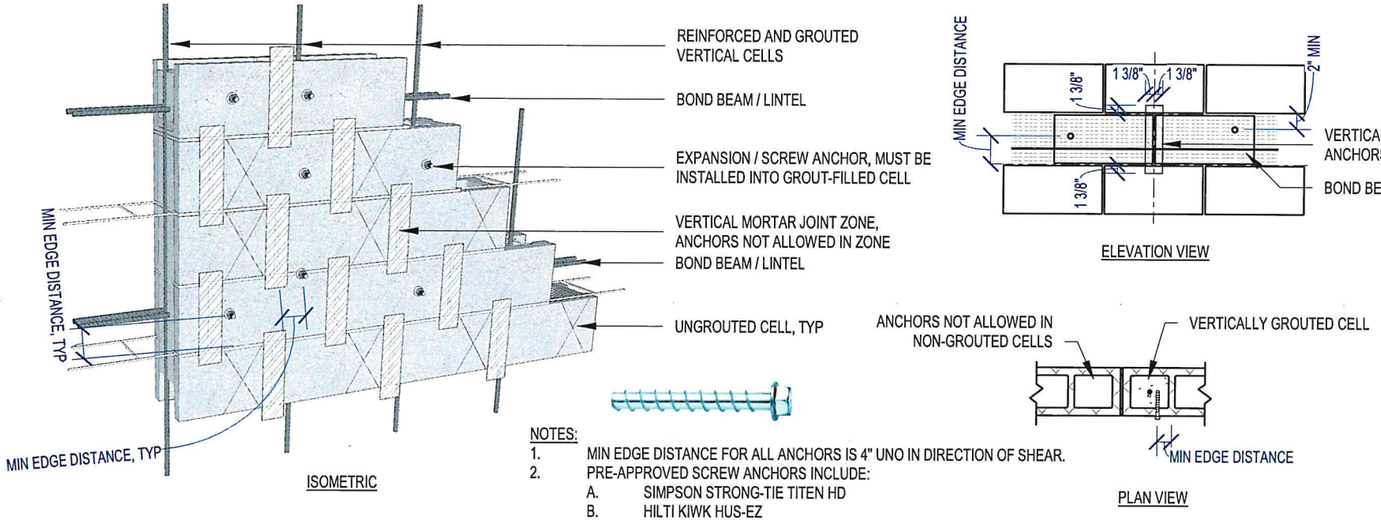
(o) 979.777.0726 | TBPE Firm No. F-18677

CMU DETAILS

S6.3

Date: 04/14/2022

Project No: 21-139



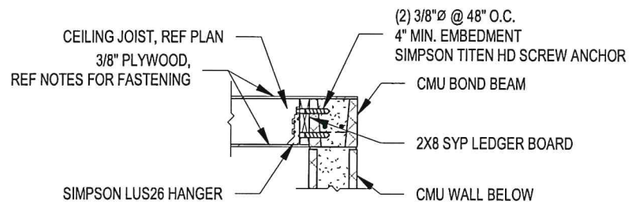
ISOMETRIC

ELEVATION VIEW

PLAN VIEW

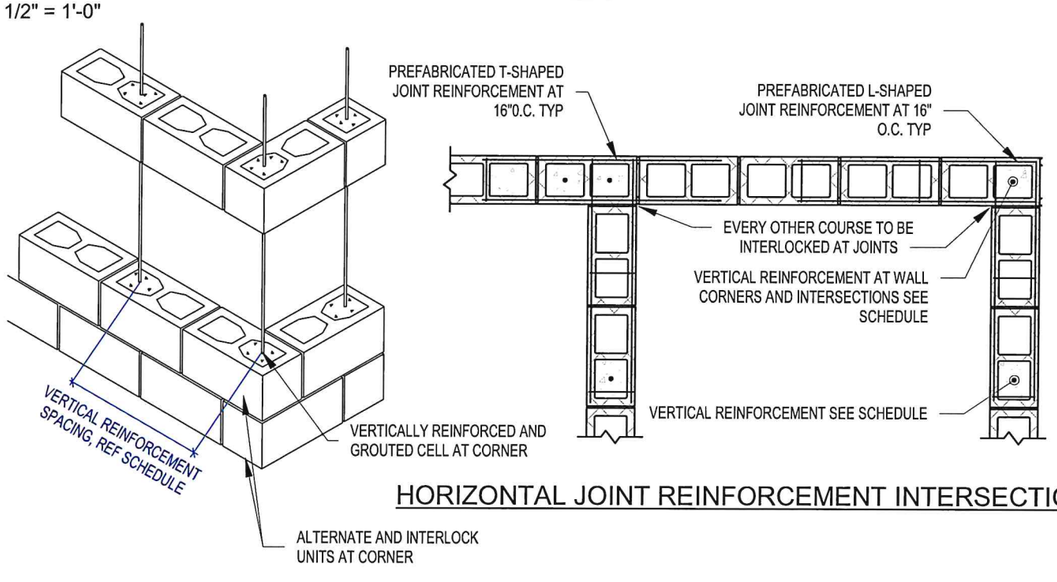
NOTES:
1. MIN EDGE DISTANCE FOR ALL ANCHORS IS 4" UNO IN DIRECTION OF SHEAR.
2. PRE-APPROVED SCREW ANCHORS INCLUDE:
   A. SIMPSON STRONG-TIE TITEN HD
   B. HILTI KIWK HUS-EZ

1 TYPICAL SCREW ANCHORS INTO GROUT-FILLED CMU
1/2" = 1'-0"



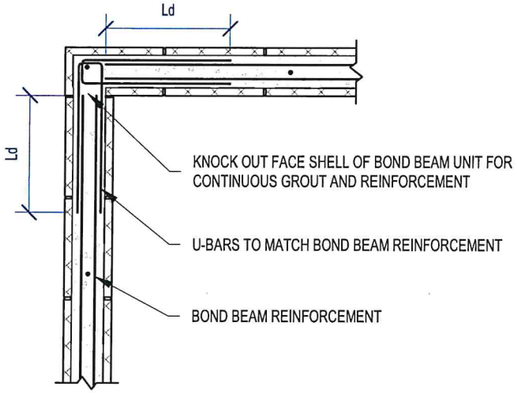
NOTES:
1. FASTEN PLYWOOD @ 12" O.C. MAX W/ 0.131"ø X 2-1/2" RING SHANK NAILS
2. FASTENERS MUST PENETRATE SUPPORTING FRAMING A MINIMUM OF 5/8"

2 RESTROOM CEILING CONNECTION
1/2" = 1'-0"

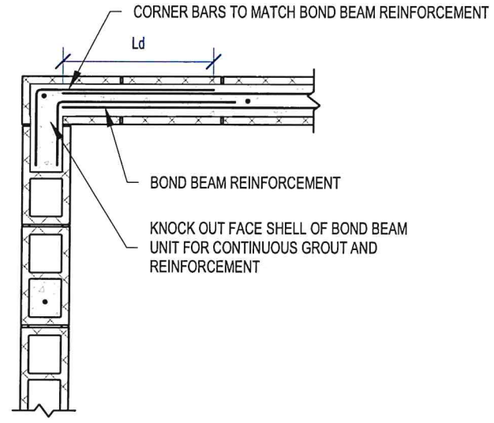


HORIZONTAL JOINT REINFORCEMENT INTERSECTION DETAIL

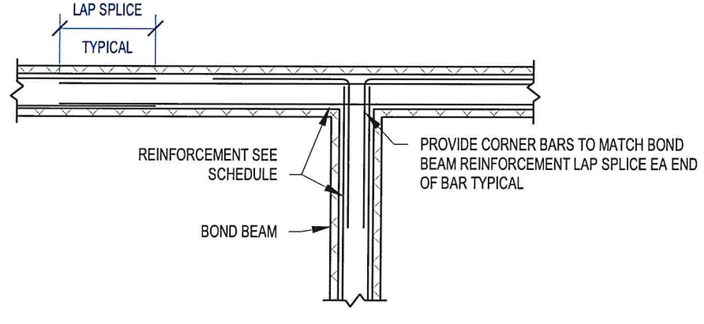
3 TYPICAL WALL CORNER ARRANGEMENT
1/2" = 1'-0"



BOND BEAM CONTINUOUS AROUND CORNER



BOND BEAM DISCONTINUOUS AT CORNER



INTERSECTION

4 TYPICAL BOND BEAM CORNER DETAILS
1/2" = 1'-0"

Revision Schedule		
Revision Number	Revision Description	Revision Date

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(o) 979.777.0720 | TBPE Firm No. F-18677

CMU DETAILS

S6.4

Date: 04/14/2022

Project No: 21-139

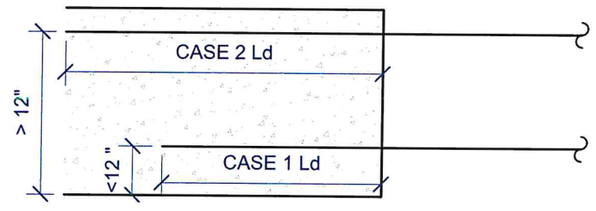
CASE 1: DEVELOPMENT LENGTHS OF REINFORCEMENT IN TENSION, Ld (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, f'c (PSI)					
BAR SIZE	db (IN)	f'c = 3,000	f'c = 4,000	f'c = 5,000	f'c = 5,000
#3	0.375	16	14	13	12
#4	0.5	22	19	17	15
#5	0.625	27	24	21	19
#6	0.75	33	28	25	23
#7	0.875	48	42	37	34
#8	1.00	55	47	42	39
#9	1.128	62	54	48	44
#10	1.27	70	60	54	49
#11	1.41	77	67	60	55

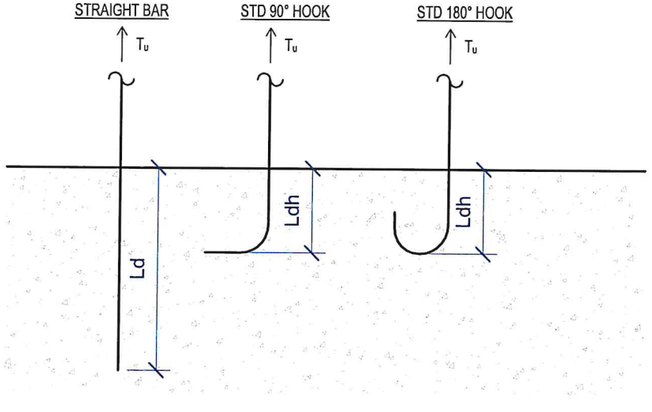
CASE 2: DEVELOPMENT LENGTHS OF REINFORCEMENT IN TENSION, Ld (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, f'c (PSI)					
BAR SIZE	db (IN)	f'c = 3,000	f'c = 4,000	f'c = 5,000	f'c = 5,000
#3	0.375	21	18	17	15
#4	0.5	28	25	22	20
#5	0.625	36	31	28	25
#6	0.75	43	37	33	30
#7	0.875	62	54	48	44
#8	1.00	71	62	55	50
#9	1.128	80	70	62	57
#10	1.27	90	78	70	64
#11	1.41	100	87	78	71

DEVELOPMENT LENGTHS OF STANDARD HOOKS IN TENSION, Ldh (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, f'c (PSI)					
BAR SIZE	db (IN)	f'c = 3,000	f'c = 4,000	f'c = 5,000	f'c = 6,000
#3	0.375	9	8	7	6
#4	0.5	11	10	9	8
#5	0.625	14	12	11	10
#6	0.75	17	15	13	12
#7	0.875	20	17	15	14
#8	1.00	22	19	17	16
#9	1.128	25	22	20	18
#10	1.27	28	25	22	20
#11	1.41	31	27	24	22

NOTES:
1. THE HOOK SHALL BE LOCATED WITHIN THE CONFINED CORE OF A COLUMN OR BOUNDARY ELEMENT, WITH THE HOOK BENT INTO THE JOINT.
2. THE DEVELOPMENT LENGTH SHALL BE MULTIPLIED BY A FACTOR OF 1.2 FOR EPOXY-COATED REINFORCING BARS.

NOTES:
1. CASE 1 APPLIES TO REINFORCEMENT THAT HAS LESS THAN 12" OF FRESH CONCRETE PLACED BELOW HORIZONTAL REINFORCEMENT. ALL VERTICAL REINFORCEMENT FALLS UNDER CASE 1.
2. CASE 2 APPLIES TO REINFORCEMENT THAT HAS MORE THAN 12" OF FRESH CONCRETE PLACED BELOW HORIZONTAL REINFORCEMENT.
3. CLEAR SPACING OF BARS BEING DEVELOPED MUST BE AT LEAST
4. 2db (DIA OF BAR) & CLEAR COVER AT LEAST db, INCREASE DEVELOPMENT LENGTH BY 1.5 IF OTHERWISE.
5. FOR EPOXY COATED REINFORCEMENT INCREASE THE LENGTH BY A FACTOR OF 1.2.



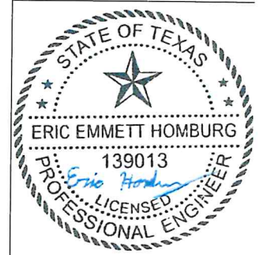


DEVELOPMENT LENGTH, Ld IS THE BONDED LENGTH REQUIRED TO ACHIEVE THE DESIGN STRENGTH OF A BAR (TO PRECLUDE THE BAR FROM SLIPPING OUT OF THE CONCRETE)

1 TENSION DEVELOPMENT LENGTH
1" = 1'-0"

Revision Schedule

Revision Number	Revision Description	Revision Date



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(o) 979.777.0720 | TBPE Firm No. F-18677

REINFORCEMENT DETAILS

S7.0

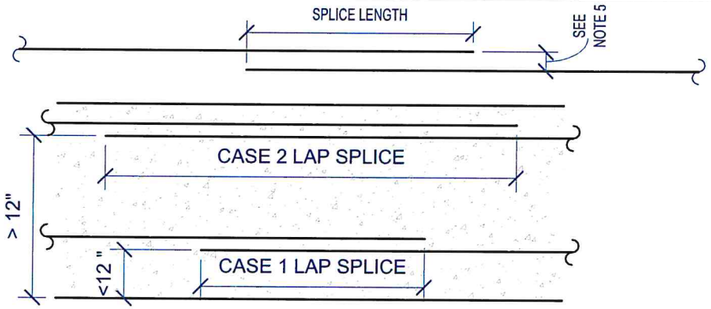
Date: 04/14/2022

Project No: 21-139

CASE 1: CLASS B SPLICE LENGTHS OF REINFORCEMENT IN TENSION, Ld (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, f'c (PSI)					
BAR SIZE	db (IN)	f'c = 3,000	f'c = 4,000	f'c = 5,000	f'c = 5,000
#3	0.375	21	18	17	15
#4	0.5	28	25	22	20
#5	0.625	36	31	28	30
#6	0.75	43	37	33	44
#7	0.875	62	54	48	44
#8	1.00	71	62	55	50
#9	1.128	80	70	62	57
#10	1.27	90	78	70	64
#11	1.41	100	87	78	71

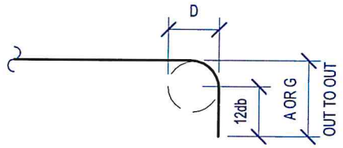
CASE 2: CLASS B SPLICE LENGTHS OF REINFORCEMENT IN TENSION, Ld (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, f'c (PSI)					
BAR SIZE	db (IN)	f'c = 3,000	f'c = 4,000	f'c = 5,000	f'c = 5,000
#3	0.375	28	24	22	20
#4	0.5	37	32	29	26
#5	0.625	46	40	36	33
#6	0.75	56	48	43	39
#7	0.875	81	70	63	57
#8	1.00	93	80	72	65
#9	1.128	104	90	81	74
#10	1.27	118	102	91	83
#11	1.41	131	113	101	92

NOTES:
1. CASE 1 APPLIES TO REINFORCEMENT THAT HAS LESS THAN 12" OF FRESH CONCRETE PLACED BELOW HORIZONTAL REINFORCEMENT. ALL VERTICAL REINFORCEMENT FALLS UNDER CASE 1.
2. CASE 2 APPLIES TO REINFORCEMENT THAT HAS MORE THAN 12" OF FRESH CONCRETE PLACED BELOW HORIZONTAL REINFORCEMENT.
3. CLEAR SPACING OF BARS BEING DEVELOPED MUST BE AT LEAST 2db (DIA OF BAR) & CLEAR COVER AT LEAST db, INCREASE DEVELOPMENT LENGTH BY 1.5 IF OTHERWISE.
4. FOR EPOXY COATED REINFORCEMENT INCREASE THE LENGTH BY A FACTOR OF 1.2.
5. ADJACENT BARS THAT ARE TO BE SPLICED SHALL BE IN CONTACT AND TIED TOGETHER WHERE POSSIBLE. WHERE CONTACT IS NOT POSSIBLE, THE MAXIMUM OFFSET SHALL BE ONE-FIFTH THE REQUIRED LAP SPLICE LENGTH OR 6", WHICHEVER IS LESS.

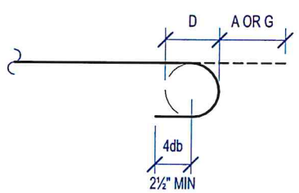


1 TENSION LAP SPLICE LENGTH
1" = 1'-0"

STANDARD END HOOK DIMENSIONS (IN)				
BAR SIZE	D	180° HOOKS		90° HOOKS
		A or G	J	A or G
#3	2 1/4	5	3	6
#4	3	6	4	8
#5	3 3/4	7	5	10
#6	4 1/2	8	6	12
#7	5 1/4	10	7	14
#8	6	11	8	16
#9	9 1/2	15	11 3/4	19
#10	10 3/4	17	13 1/4	22
#11	12	19	14 3/4	24



STD 90° HOOK



STD 180° HOOK

2 STANDARD END HOOK DIMENSIONS
1" = 1'-0"

Revision Schedule		
Revision Number	Revision Description	Revision Date

THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE FOLLOWING PROJECT:

AVENUE G PUMP STATION IMPROVEMENTS

TEMPLE, TX

THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT THE APPROVAL AND PARTICIPATION OF THE ENGINEER. REPRODUCTION IS PROHIBITED.

STATE OF TEXAS
ERIC EMMETT HOMBURG
139013
LICENSED PROFESSIONAL ENGINEER
4/14/2022

AVENUE G PUMP STATION IMPROVEMENTS
TEMPLE, TX

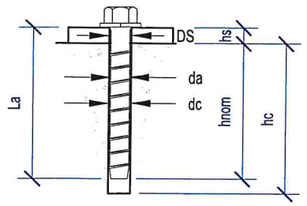
DUDLEY
GEOTECHNICAL | STRUCTURAL | ENVIRONMENTAL
Dudley Engineering LLC dba DUDLEY
6102 Imperial Loop Drive | College Station, Texas 77845
(o) 979.777.0720 | TBPE Firm No. F-18677

REINFORCEMENT DETAILS

S7.1

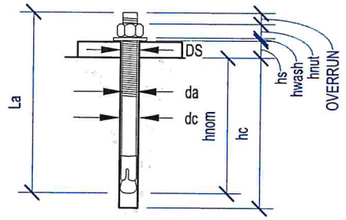
Date: 04/14/2022

Project No: 21-139



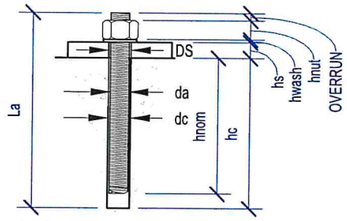
La ≥ La, min = hnom + hs

SCREW



La ≥ La, min = hnom + hs + hwash + hnut + OVERRUN

EXPANSION AND UNDERCUT



La ≥ La, min = hnom + hs + hwash + hnut + OVERRUN

ADHESIVE

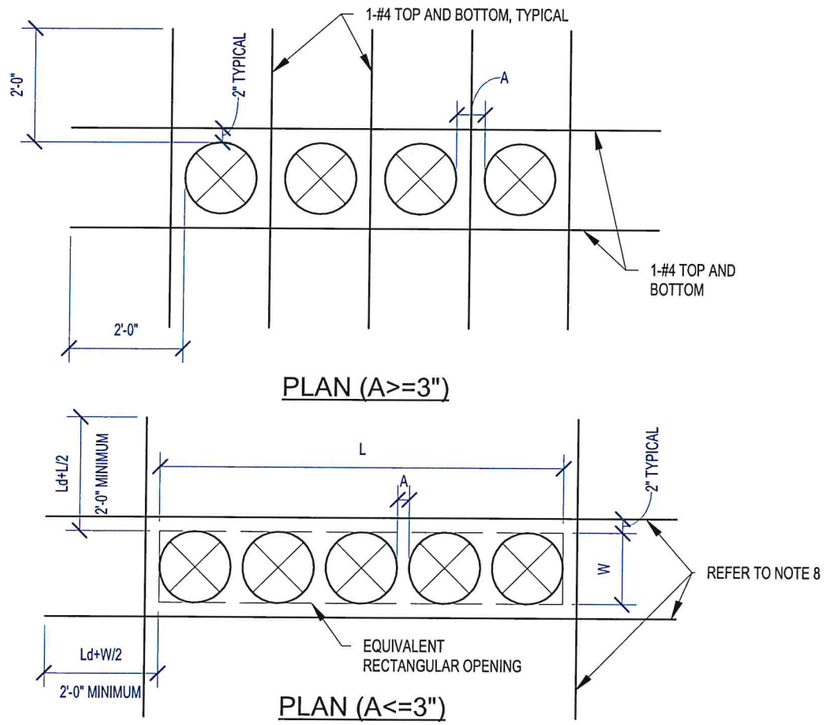
CONTRACTOR AND INSTALLER NOTES:

1. ONLY POST-INSTALLED ANCHOR PRODUCTS SPECIFIED IN THE CONTRACT DOCUMENTS SHALL BE USED WHERE SPECIFIED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL PROVIDE SIGNED AND SEALED CALCULATIONS TO THE ENGINEER OF RECORD (EOR) FOR ANCHOR PRODUCTS SUBSTITUTED FOR THOSE INDICATED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE EOR PRIOR TO USING POST-INSTALLED ANCHORS
2. **ANCHOR LENGTHS SPECIFIED IN THE CONTRACT DOCUMENTS INDICATE THE NOMINAL EMBEDMENT DEPTH.** REFER TO THE ANCHOR TYPE FOR THE DEFINITION OF NOMINAL EMBEDMENT DEPTH "hnom". IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE CORRECT ANCHOR LENGTH "La" FOR ORDER BASED ON THE SPECIFIED NOMINAL EMBEDMENT DEPTH, ATTACHMENT THICKNESS AND OTHER ANCHOR CHARACTERISTICS NOTED.
3. MINIMUM ANCHOR LENGTH "La,min" IS DETERMINED AS SHOWN FOR EACH ANCHOR. ORDER AND INSTALL AN ANCHOR LENGTH EQUAL TO OR GREATER THAN THIS VALUE. INSTALLED ANCHOR LENGTHS SHALL NOT HAVE NOMINAL EMBEDMENT DEPTHS THAT EXCEED THEIR CORRESPONDING MINIMUM CONCRETE THICKNESS LIMITS. REFER TO ANCHOR'S ICC-ES EVALUATION SERVICE REPORT (ESR).
4. REFER TO THE ANCHOR'S ICC=ES EVALUATION SERVICE REPORT (ESR) FOR DRILL BIT TYPE AND DIAMETER, AND DEPTH OF HOLE TO BE DRILLED IN THE CONCRETE.
5. FOLLOW THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII).

DEFINITIONS:

da =	DIAMETER OF ANCHOR (IN)
dc =	DIAMETER OF HOLE IN CONCRETE = DIAMETER OF DRILL BIT (IN)
ds =	DIAMETER OF HOLE IN STEEL ATTACHMENT (IN)
La,min =	MINIMUM LENGTH OF ANCHOR (IN)
La =	ORDERED LENGTH OF ANCHOR (IN)
hnom =	NOMINAL EMBEDMENT DEPTH (IN)
hc =	DEPTH OF HOLE IN CONCRETE (IN)
hs =	THICKNESS OF STEEL ATTACHMENT (IN)
hwash =	THICKNESS OF WASHER (IN)
hnut =	HEIGHT OF HEX NUT (IN)
OVERRUN =	1/4" UNLESS NOTED OTHERWISE

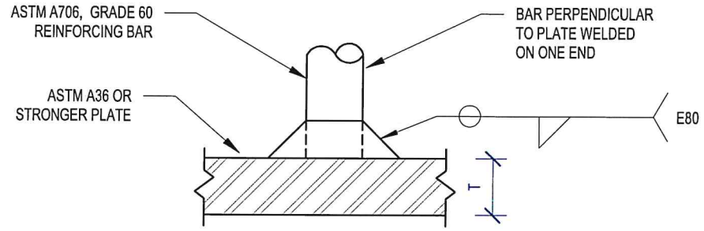
1 TYPICAL POST-INSTALLED ANCHOR INFORMATION
3" = 1'-0"



NOTES:

1. WHERE CLEAR SPACING BETWEEN ADJACENT SLEEVES IS LESS THAN 3", THE SLEEVE GROUP SHALL BE TREATED AS AN EQUIVALENT RECTANGULAR OPENING WITH LENGTH "L" AND WIDTH "W" AS SHOWN
2. WHERE CLEAR SPACING BETWEEN ADJACENT SLEEVES IS GREATER THAN OR EQUAL TO 3", SCHEDULED SLAB BAR REINFORCEMENT SHALL BE OFFSET AS REQUIRED TO MISS SLEEVES.
3. REINFORCEMENT SHOWN IS IN ADDITION TO SCHEDULED SLAB REINFORCEMENT
4. SCHEDULED SLAB MESH REINFORCEMENT MAY BE CUT AS REQUIRED TO MISS PIPE SLEEVES
5. REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR LOCATION AND SIZE OF SLEEVES
6. ISOLATED PIPE SLEEVES THAT ARE SMALLER THAN 5" AND DO NOT INTERRUPT REINFORCEMENT DO NOT REQUIRE THE USE OF THIS DETAIL
7. THIS DETAIL SHOULD NOT BE USED FOR OPENING GROUPS WITH DIAMETERS LARGER THAN 12". CONSULT STRUCTURAL ENGINEER FOR FRAMING OF SUCH CONDITIONS
8. PROVIDE HALF OF INTERRUPTED REINFORCEMENT PLUS ONE ADDITIONAL BAR OF SAME SIZE ON EACH SIDE OF EQUIVALENT RECTANGULAR OPENING. PROVIDE A MINIMUM OF 1-#4 TOP AND BOTTOM EACH OF OPENING

2 TYPICAL ADDITIONAL REINFORCEMENT AROUND PIPE SLEEVES
3/8" = 1'-0"

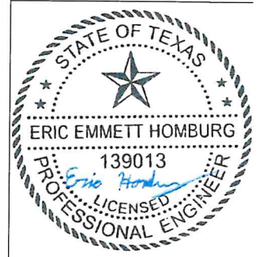


DEVELOPMENT OF WELDABLE REINFORCEMENT GRADE 60 REINFORCEMENT, E80 ELECTRODE		
BAR SIZE	NOMINAL WELD SIZE (INCHES)	MINIMUM PLATE THINCKNESS, T (INCHES)
#3	3/16	1/4
#4	1/4	1/4
#5	5/16	5/16
#6	5/16	7/16
#7	3/8	1/4
#8	7/16	1/4
#8	1/2	1/4
#10	9/16	1/4
#11	5/8	1/4

3 DEVELOPMENT OF WELDABLE REINFORCEMENT
3/4" = 1'-0"

Revision Schedule

Revision Number	Revision Description	Revision Date



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Dudley Engineering LLC dba DUDLEY
6102 Imperial Loop Drive | College Station, Texas 77845
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REINFORCEMENT DETAILS

S7.2

Date: 04/14/2022

Project No: 21-139