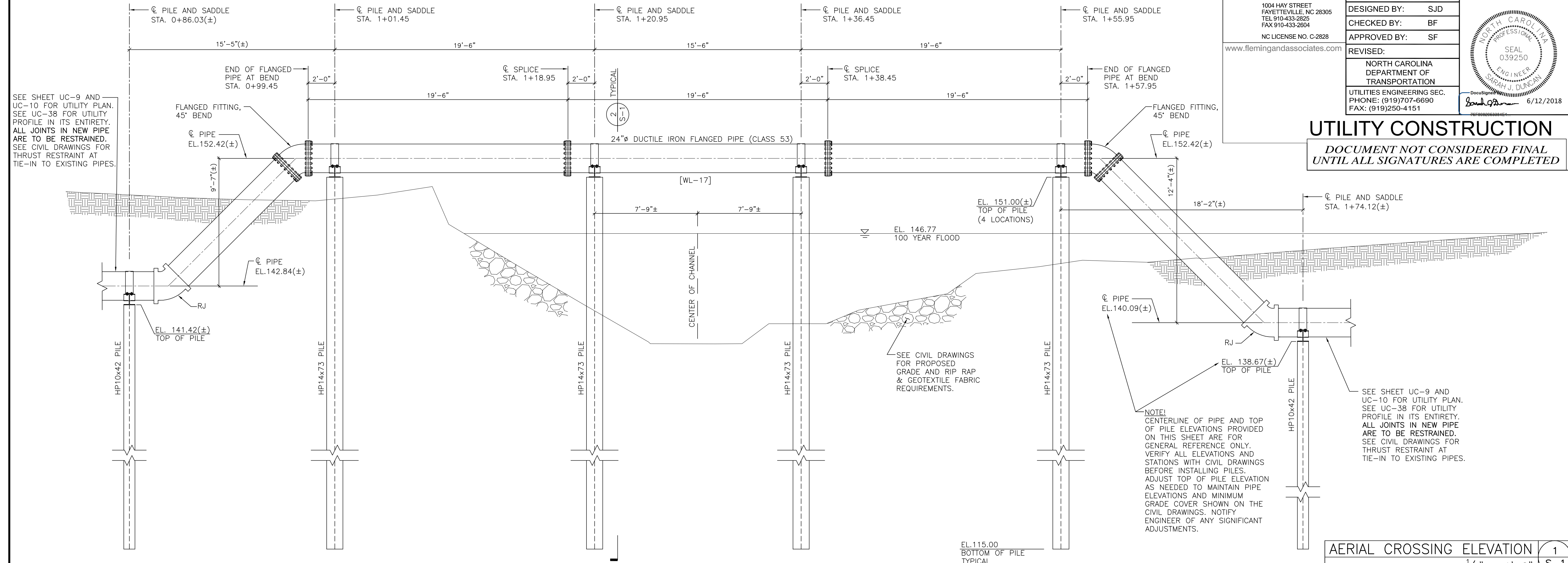


**FA FLEMING & ASSOCIATES, P.A.**  
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PROJECT REFERENCE NO. U-4405	SHEET NO. UC-3D
DESIGNED BY: SJD	
DESIGNED BY: SJD	
CHECKED BY: BF	
APPROVED BY: SF	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	

**UTILITY CONSTRUCTION**

DOCUMENT NOT CONSIDERED FINAL  
 UNTIL ALL SIGNATURES ARE COMPLETED



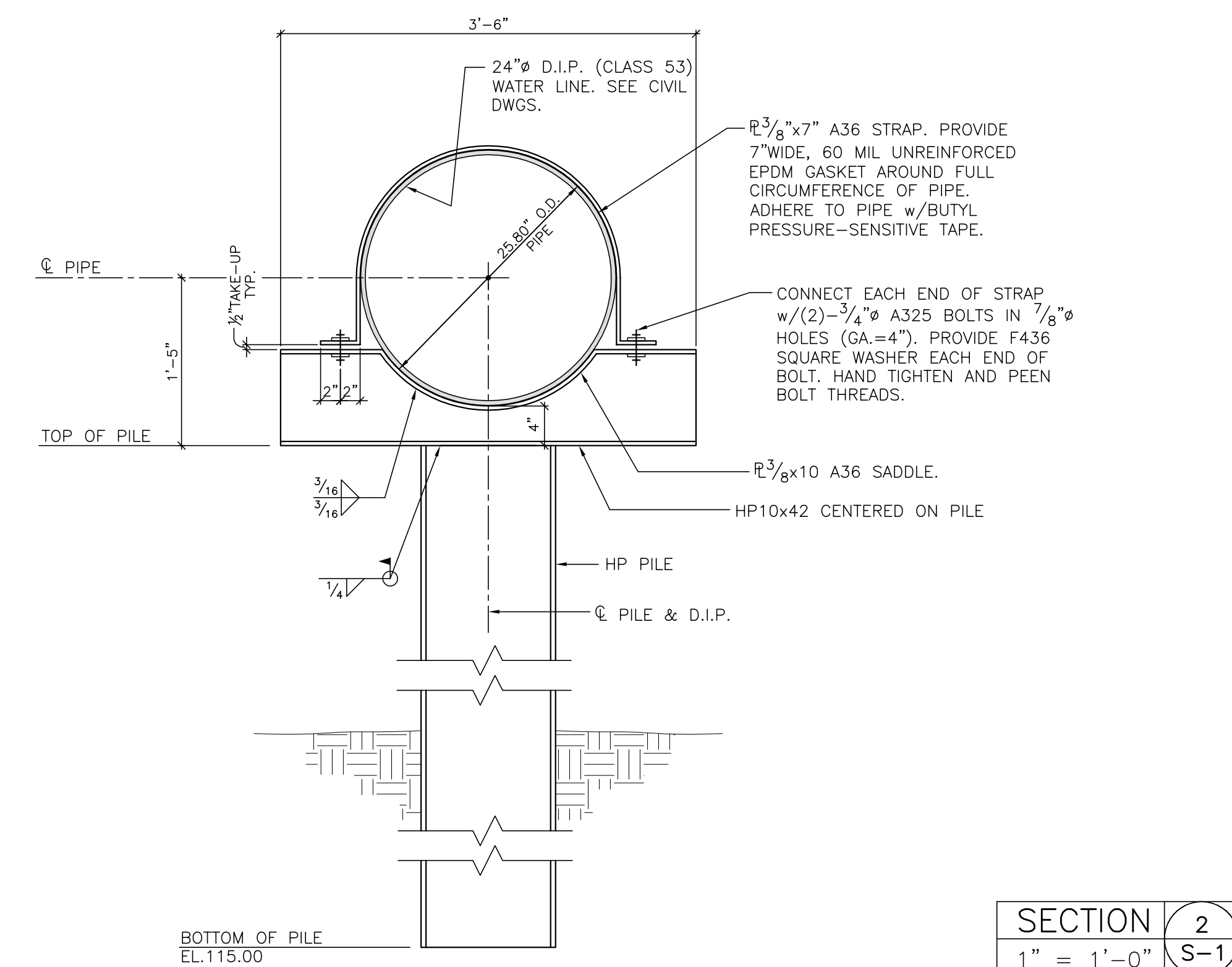
SEE SHEET UC-9 AND UC-10 FOR UTILITY PLAN. SEE UC-38 FOR UTILITY PROFILE IN ITS ENTIRETY. ALL JOINTS IN NEW PIPE ARE TO BE RESTRAINED. SEE CIVIL DRAWINGS FOR THRUST RESTRAINT AT TIE-IN TO EXISTING PIPES.

SEE SHEET UC-9 AND UC-10 FOR UTILITY PLAN. SEE UC-38 FOR UTILITY PROFILE IN ITS ENTIRETY. ALL JOINTS IN NEW PIPE ARE TO BE RESTRAINED. SEE CIVIL DRAWINGS FOR THRUST RESTRAINT AT TIE-IN TO EXISTING PIPES.

AERIAL CROSSING ELEVATION 1  
 1/4" = 1'-0" S-1

- Design Loads
  - Wind Load:
    - Basic Wind Speed (3-second gust) 100 mph (ASCE 7-05/2012 NC Building Code)
    - Exposure Category C
  - Estimated stream flow at flood stage: 8 ft/sec.
- Materials
  - Structural Steel:
    - ASTM A-36 U.N.O.
    - ASTM A-572 Grade 50 at HP shapes (Hot-dip galvanized per ASTM A123)
  - Bolts:
    - ASTM A-325N (Hot-dip galvanized per ASTM A153)
  - Weld Electrodes:
    - E70
  - Pile Driving Equipment:
    - All piles shall be driven to the specified embed depth with a steam, air, or hydraulically operated powered pile hammer having a rated energy of not less than 30,000 ft. lbs. of energy per blow. The capacity of the driving equipment shall be such that the number of blows per minute during and at the completion of driving of the pile can be maintained at approximately the normal rate given by the manufacturer of the hammer.
    - The pile driving rig shall be of adequate size and capacity to permit driving the piles at the locations shown on the drawings and with required axial alignment.
    - All piles shall be driven with a hammer operating in fixed leaders or other approved methods shall be used to hold the hammer and pile in accurate alignment. Leaders shall be equipped with extensions to hold the hammer and pile in alignment when the hammer operates below the bottom of the leader. The use of swinging or spud type leaders will not be permitted.
    - The cap block or hammer cushion shall consist of aluminum and mica discs stacked alternately in a steel housing with steel top and bottom plates, except that a one-piece hardwood block with grain parallel to the pile axis and enclosed in a close-fitting steel housing may be used, provided a satisfactory driving criterion has been established with such a cap block and a new cap block is not used during the final driving of the pile. The use of a cap block consisting of wood chips, small wood blocks, wood shavings, wire rope, or other materials with high elastic properties shall not be permitted.
  - Provide cast steel "H" pile driving points with cutting teeth if required to properly install piles to embed depth shown on the drawings.
- Quality Assurance
  - Comply with all pertinent federal, state, and local laws and codes. In addition, pile foundation work shall comply with the latest edition of the North Carolina State Building Code. Where Provisions of pertinent codes conflict with these drawings and notes, the more stringent provisions shall govern.
  - The inspector employed by the Owner shall overview the installation of the entire piling operation and advise the Owner of any extraordinary circumstances that need resolution and suggest measures as warranted to produce a sound foundation system.
  - Unless otherwise specifically approved by the Owner, the pile contractor shall have been successfully engaged in installing similar types of piling in the general area for a period of not less than five (5) years prior to performing this work.
- Pile Installation Notes
  - All pile locations shall be staked and surveyed as part of the construction staking process.
  - Subsurface parameters are based on the Report of Subsurface Exploration and Geotechnical Engineering Evaluation performed by Froehling & Robertson, Inc. (F&R Project No. 66U-0375) dated September 1, 2017.
  - Prior to installation, carefully inspect the site and verify that the piles can be installed as specified. Piles shall not be placed in the center of the stream. Contractor to verify dimensions and elevations shown on this drawing and on UC-9, UC-10, and UC-38 with existing conditions before placing piles. Verify that piles can be installed in accordance with all pertinent codes and regulations. Notify Engineer of any significant discrepancies.
  - Piles are to be cut off square at the required finish elevation and prepared for weld to saddle beam.
  - Pile Tolerances: plumbness = 1" total, alignment = 2" maximum, elevation = ±0.01'. The pile contractor shall be responsible for installing, at his expense, any piles which may be downgraded or rejected because of misalignment or misplacement.

- Superstructure
  - All structural bolts will have heavy hex nuts and (2) F436 square washers.
  - All welders, shop and field, will be certified for the type of work involved. Field welders must be certified for overhead welding.
  - All detailing, fabricating, and erection shall conform to the following specifications (latest editions), except as otherwise indicated:
    - AISC - "Specification for Structural Steel Buildings."
    - AISC - "Code of Standard Practice for Steel Buildings and Bridges."
    - Paragraph 4.4.1 of the above code is hereby modified by deletion of the following sentence:
      - "Confirmation that the Fabricator has correctly interpreted the Contract Documents in the preparation of those submittals."
    - AWS - "Structural Welding Code - Steel."
  - All steel saddle beams and straps will be power tool cleaned to a minimum of SSPC-SP3 and hot dip galvanized per ASTM A123. Similarly, power tool clean the (4)-HP14x73 piles and hot-dip galvanize the top 15 feet. Bolts and washers will be hot-dip galvanized per ASTM A153. All field welds will be grinded and coated with (2) coats of a cold applied galvanizing paint. Touch up any damaged galvanizing.
  - Contractor shall have sole responsibility for site safety.
- Submittals
  - Submit mill certificate on all structural steel shapes.
  - Equipment Data: Submit a detailed description of the equipment proposed to be used to install piles.
  - Steel shop drawings for saddle beam, straps, and bolts.
  - Pile inspector's report to include:
    - Actual installed depth elevation of each pile and the cut off elevation of each pile.
    - Any unusual conditions and/or obstructions encountered while driving pile.
    - Hammer blows per foot at not less than 5 feet intervals and continuous count during the last 6" of driving.
    - Elevations before and after cut off.
- Miscellaneous
  - The structural drawing UC-S-1 takes precedence when a conflict occurs between the structural drawing, the civil drawings, and the specifications concerning the aerial crossing. Notify Engineer in writing for clarification prior to bidding. The term unless noted otherwise (U.N.O.), means unless noted otherwise on the structural drawings. If there is a conflict on the structural drawings or specifications the most stringent requirement will control.
  - Construction of aerial crossing shall be sequenced so that it does not conflict with storm drainage installation and channel grading. Sequence installation so that the aerial crossing is performed after storm drainage work, specifically the trenchless installation of 72" RCP and 72" RCP extensions and concrete collar.
  - Coordinate placement of Class II Rip Rap and geotextile fabric with piles and exposed piping. Carefully place Class II Rip Rap to avoid any damage of installed facilities.
  - Installation of piles and any other work to install aerial crossing that shall come into contact with stream shall be performed in a dry condition. Provide coffer dam and pump around.



GENERAL NOTES 3  
 NO SCALE S-1

SECTION 2  
 1" = 1'-0" S-1