

KIAWAH RIVER PLANTATION (KRP) WASTEWATER TREATMENT PLANT (WWTP)

CONTRACT DOCUMENT AND TECHNICAL SPECIFICATIONS

PREPARED FOR:

KIAWAH RIVER PLANTATION HOLDINGS, LP
OCEAN BOULEVARD PROPERTIES, A SOUTH CAROLINA LIMITED PARTNERSHIP

T&H PROJECT NO.
J-25328

ADDENDUM NO. 2

March 18, 2016

This Addendum forms a part of the Contract Documents

PART I – BID DATE

Due to other commitments, the Bid Date has been extended to Wednesday, March 30, 2016 at 2:30 PM.

PART II – QUESTIONS

1. Can you clarify who pays field and lab testing for soil compaction and concrete materials? Various specifications sections are contradictory in who is responsible for testing costs.
 - a. These sections indicate the cost of testing is by the Contractor: 01 00 01 Part 10.09E; 01 45 00 Part 1.06A; 01 45 23 Part 1.04A; 01 79 01 Part 3.06A; 03 30 00 Part 1.6I; 31 00 00 Part 1.06E; and 31 23 23 Part 1.04.B.3.
 - b. These sections indicate the cost of testing is by the Owner: 03 30 00 Part 1.7A; 32 11 23 Part 1.06E; and 32 12 16SC Part 1.08C.
Answer: The Owner pays for "Special Inspection" Testing and the Contractor pays for all other testing.

2. Section 05 41 00 Cold Formed Steel Framing, Part 2.02A lists Angles Metal Systems(AMS), Clark Steel, Dale Industries and Dietrich Industries as approved manufacturers. It is our understanding that Clark Steel and Dale Industries have merged with Dietrich Industries, and AMS has merged with SACAFCO. Additionally, these manufactures do not produce roof trusses (only wall studs). Can you provide names of acceptable manufacturers for the roof trusses?
Answer: A revised version of this Section 05 41 00 was issued with the first Bid Addendum to address this question.

3. Spec Section 03 30 00 Para 3.7/ C.2-Can Thoroseal Products be used in lieu of the "Rubbing"?
Answer: No, Thoroseal is not acceptable in lieu of the "Rubbing".

KRP WWTP

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4. On drawing 50-E-05, what is the conduit and wire size for the site lighting?
Answer: Provide 1" conduit with 2 No.8, 1 No. 8(G).
5. On drawing 50-E-05, site lighting circuits are shown to be fed from panel HA thru the relay panel. There is no schedule for panel HA. Where is Panel HA located?
Answer:
- **The circuit references should be "DP".**
 - **Provide ten (10) 20A/1P breakers in panel DP for branch circuit lighting (interior and exterior).**
 - **Refer to Sheet 50-E-08 for location of panel DP.**
 - **All lighting circuits shall be served from panel DP.**
6. On drawing 50-E-10 notes 3 & 4, mini inverter and lighting control panel are shown. What is the conduit and wire size feeding these items?
Answer:
- **Serve the relay panel from Panel A, Circuit 37.**
 - **Provide ¾" C W/2No.12, 1 No. 12(G).**
 - **Serve the mini-inverter from Panel DP, assign a circuit from the 20A/1P breakers.**
 - **Circuits 1, 3, 5, 7, and 9 are utilized on the plans (see question #4 above).**
 - **Provide ¾"C W/2 No.12, 1 No. 12(G).**
7. On drawing 50-E-10: lighting circuits are shown coming from panel DP. DP panel schedule does not show any circuits for lighting. Where are these lighting circuits being fed from?
Answer: Refer to question #5 above.
- **Provide ten (10) 20A/1P breakers in Panel DP.**
 - **This is a repeat comment.**
8. On drawing 35-A-02 are the smoke detectors in this location to be tied back to in-plant SCADA panel?
Answer: Yes.
9. On drawing 50-E-13 is the 7.5 kVA transformer being supplied with the Triplex VFD Pump Control Panel?
Answer: The 7.5 kVA transformer should be provided as part of the pump control panel package.
- **This should come from the pump control panel fabricator.**
10. On drawing 50-E-15, the one line is showing that the feeder for Panel DP from the ATS to be Aluminum conductors. Is this correct?
Answer: No.
- **Provide four sets: 3 ½"C W/4No.350MCM, 1No.3/0(G).**
11. Drawing 02-C-07 shows the 8" water line to the WWTP as being DIP, Drawing 06-C-02 shows it as being C900 PVC. Please confirm that the 8" water line to the WWTP is to be C900 PVC.
Answer: DIP will be run up to the meter and BFP. After the BFP, PVC will be run into the plant site. See changes to plan sheets for modifications required by regulatory agencies.

12. Drawing 50-E-03 includes notes requiring exterior exposed conduit to be stainless steel. Drawings 50-E-12 and 50-E-13 are requiring all exposed conduits to be rigid aluminum. Please clarify the requirement for exterior exposed conduits.
Answer:
- **Stainless steel conduit is required in corrosive areas.**
 - **This includes all exposed conduit about the Fine Dual Double Drum Screens, the Anoxic Basin, the Pre-Aeration Basins, and the Membrane Basins.**
 - **Sheets 50-E-12 and 50-E-13 are areas that are not as corrosive and aluminum rigid conduit shall be used above grade.**
13. Refer to Drawing 09-C-02. Can you provide an enlarged detail showing the Spray Distribution Line connection to the Spray Irrigation Main?
Answer: Connect each spray distribution line to the irrigation main using an 8"x6" MJ Tee (megalug).
14. Detail calls for the Granite (more expensive-has come from Columbia) but Limestone is cheaper (local). I couldn't see where this was called for.
Answer: Specification is written to be equivalent to the SCDOT specification for graded aggregate base which allows granite or limestone.
15. Dwg 06-C-03 doesn't show any flared end sections. Dwg 02-C-07 shows what appears to be 24" FES. On each end of the road entrance cross drain?
Answer: Flared End Sections are not required on the proposed cross drain storm pipe under the new entry road.
16. 06-C-01A – Existing Tree Removal Schedule but no tree protection details.
Answer: Tree Protection detail has been added to the drawing sheets.
17. Please reference Sheet 06-C-02. It appears 80 – 90% of the yard piping material is PVC. It appears the only ductile lines are 6" material leaving the 2 story operations building. Typically on treatment plant projects, the yard piping is ductile iron. This project appears to call for PVC in the yard. Is this correct?
Answer: The pipe materials shown on Sheet 06-C-02 are correct.
18. At the proposed Chlorine Contact Chamber is the material exposed ductile?
Answer: Exposed piping at the Chlorine Contact Chamber is ductile iron (painted-color selected by Owner).
19. Will a davit crane be required for the Plant Drain Pump Station shown on Drawing 15-D-01? If so, please provide details and specifications.
Answer: Contractor shall provide a socket for a portable davit (hoist). See Item 1(a) on Bid Addendum No. 1.
20. Section 44 11 20.17 – Two Stage Biofiltration Odor Control System, Part 2.01 specifies only one (1) system. Drawing 06-C-01 shows two systems – one servicing the Screens/Treatment Basins and one servicing the Centrifuge Building. Please clarify the quantity of odor control systems required.
Answer: Two odor control systems are required. Both are shown on Sheets 06-C-01, 06-C-01A, 06-C-02, and 06-C-03.

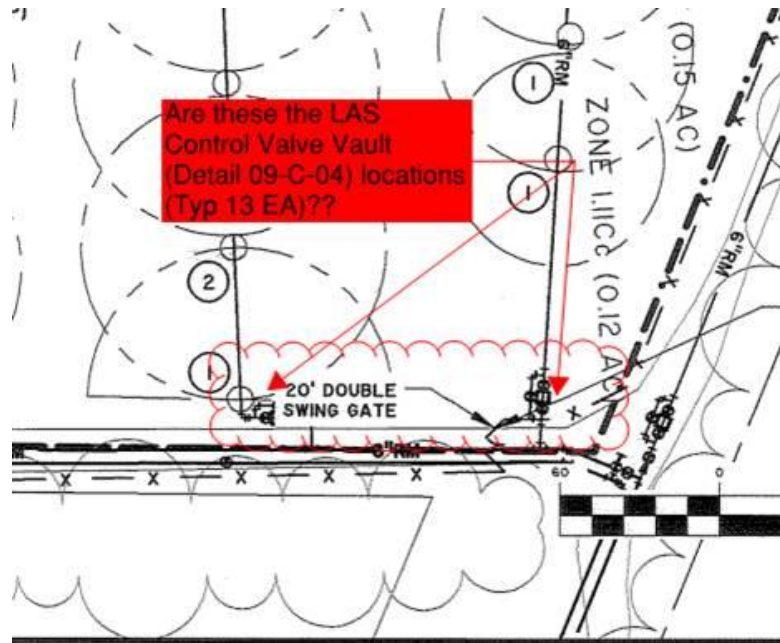
21. Drawing 06-C-02 calls for a composite sampler at the 5' diameter manhole on the 8" plant influent line. Another sampler is shown on Drawing 36-D-01 for the Chlorine Contact Facility. Please provide specifications for both of these samplers.
Answer: Composite samplers shall be equivalent to those by ISCO or Hach Sigma Series 900 (see Sheet 36-D-01).
22. Drawing 06-C-02 shows several 3" PVC "WL" Lines branching off of the C900 PVC "W" Line. Please confirm that Schedule 80 PVC is acceptable for these lines.
Answer: Water line pipe with diameter less than 4 inches shall conform to ASTM D-1784 and D-2241 (SDR 21) with a minimum pressure rating of 200 psi.
23. Drawing 06-C-03 shows some Reinforced Concrete Pipe as being Class 3 and some as Class 4. Please confirm that the callouts on the drawing are correct and a mix of both Class 3 and 4 is required.
Answer: Yes, there is a mixture of Class III and IV RCPs required due to the height of cover material over the pipes.
24. Please provide a Storm Drain Bedding Detail for lines under pavement.
Answer: See detail 4A on sheet 05-C-11 attached.
25. Please confirm that the Pipe Bedding Details on Drawing 09-C-03 apply to PVC and Ductile Iron Pipe in both unpaved and paved areas.
Answer: Details on Sheet 09-C-03 are for the Effluent spray distribution lines and the spray irrigation main.
26. Please provide a Sewer Main Line Bedding detail for lines that are under new pavement.
Answer: Detail 4 on Sheet 05-C-12 applies to under new pavement, also.
27. Drawing 45-D-03 shows two 10" Permeate lines under the operations building. Per Note 3 on Drawing 06-C-02 the portion of these lines under the structure are to be DIP. Please confirm that cement lining is acceptable for the DIP portion of these lines.
Answer: Yes, as long as the Effluent pH conforms to that allowable by cement-lined DIP.
28. Drawing 05-C-13 Detail 11 "Sodium Hypochlorite Injection Manhole" Note 2 says that if the manhole bottom is not 2' above the seasonal high water table install box in structure. The geotechnical report indicates that the water table is at 1'-9" below grade. Does this note apply? If so, where exactly should the Sodium Hypochlorite Injection Manhole be installed?
Answer: See revised Sheets 05-C-13 and 06-C-03.
29. The LAS Control Valve Assembly shown on Drawing 09-C-04 includes one gate valve while Drawing 09-C-02 shows that each Control Valve Assembly includes 3 gate valves and a bypass. Please confirm that the detail on Drawing 09-C-04 governs and the additional 2 gate valves and bypass are not required as part of each assembly.
Answer: The Detail on Sheet 09-C-04 is correct.
30. Can 304 SSSL be substituted for aluminum on the 3"x3"x8" Stabilizers and U-bolts found in the Spray Riser Detail on Drawing 09-C-04?
Answer: The Detail for the spray riser 09-C-04 has been revised. See revisions attached.

31. On the OVIVO drawings Sheet 2 of 6 and Section F show WAS pumps and piping in the Equipment Room, but the Contract Documents do not show these pumps in that location. Are the OVIVO WAS pumps in addition to the ones shown on the Contract Drawing 35-D-01? Confirm which configuration and location is to be utilized.
Answer: There are 4 WAS pumps. Two are in the Equipment Room (45-D-03) and two are outside the Anoxic Basin (near an odor control unit).
32. Drawing 36-D-01, Section 2, shows 2 feet of #57 stone underneath the Chlorine Contact Chamber. However, structural drawing 36-S-02 does not show this. Please confirm if 2 feet of stone is required.
Answer: The Chlorine Contact Chamber does not need to be installed on top of 2 feet of #57 stone (structural drawing is accurate). Please refer to the geotechnical report for subgrade preparation for shallow foundations.
33. Would silt fence be required around the perimeter of the LAS while work is taking place there?
Answer: As of this date it is not required.
34. Reference Drawing 5-C-05. Is a turf reinforcement mat required around the effluent lagoon outer berm? The turf mat symbol makes it uncertain how to interpret work in this area.
Answer: Turf reinforcement mats are required where swale discharges stormwater runoff into the proposed ponds, example Sheet 06-C-03. A temporary erosion control blanket, to minimize erosion of the outer effluent lagoon banks, is required until the bank slopes are stabilized.
35. Drawings 35-D-01 and 35-D-02 include different tag numbers for the recycle pumps. Two (2) pumps are identified on 35-D-01 and four (4) are shown on 35-D-02. Section 43 21 39 Solids Handling Submersible Pumps, Part 2.01B indicates three (3) pumps are to be provided. The one-line diagram on Drawing 50-E-15 indicates four (4) new "internal" recycle pumps. Please clarify the quantity of recycle pumps required.
Answer: Two recycle pumps are provided in this Phase (one for duty and one for standby). These pumps feed into the Pre-Aeration Basin (PA-01).
36. Section 43 21 21 Self-Priming Pumps, Part 2.01D indicates that three (3) Permeate Pumps are to be provided. Drawing 45-D-03 only shows two (2) permeate pumps to be installed. Please clarify the quantity of permeate pumps required.
Answer: Three (3) are to be provided. There is one per basin and one shelf spare.
37. Drawing 50-E-15 indicates that four (4) WAS pumps are required. There are two (2) WAS Pumps shown on Drawing 35-D-01. Where are the other two WAS Pumps required?
Answer: Two (2) WAS pumps are in the equipment room and two (2) WAS pumps are outside, adjacent to the Anoxic Basin.
38. No structural details are provided for the Odor Control equipment slabs and supports, and Drawing 30-D-01 indicates that the equipment manufacturer is responsible for the design of the concrete slabs and pads. We have been informed by EW2 that Biorem will not be providing structural design of the concrete equipment supports and area slab (see attached e-mail). Can you provide structural details for these items?
Answer: Equipment Pad Detail is shown as 6/01-S-02.

39. On Drawing 40-D-01, Piping and Equipment Legend, Item Number 27 references Detail 4/05-C-13 for the Water Hose Bibb (with Vacuum Breaker), but this detail does not exist. Please provide the detail required.
Answer: The proper detail is 5/05-C-13.
40. On Drawing 40-D-02, please confirm that all of the items (valves, etc.) shown on the Andritz & Fluid Dynamics details will be provided by the manufacturer.
Answer: Please reference specifications. Vendor supplier can verify.
41. Please confirm that all of the items (valves, accessories, pipe, etc.) shown on the Detail 1/45-D-02 will be provided by the manufacturer.
Answer: The unit is configured to ship to the site as shown so it can be piped on each end.
42. Provide more detail, including piping layout & connections, for Legend Item #22 on Drawing 45-D-01.
Answer: These items will be similar to the details 5, 6, 7, 9, and 10 on Sheet 05-C-13.
43. Confirm Legend Items 17, 18, & 28 on 45-D-01 will be supplied with the Snyder Tanks shown on Detail 2/45-D-02.
Answer: This information can be obtained from supplier. Items shown are required to complete the installation.
44. Provide the size of the Legend Item 25 Drain Valve on 45-D-01.
Answer: Item 25 Drain Valve is 1.25". Item 19 Tank Fill is 1.25" minimum.
45. The OVIVO Drawings provided under the Section 60 part of the Contract Drawings are noted as "Conceptual Only Not for Construction". Provide final drawings with scale and dimensions so that an accurate estimate may be provided.
Answer: Final drawings come as part of the OVIVO Shop Drawing submittal package – but the drawings included in the bid set are to scale – so items like pipe lengths, etc. can be estimated from the drawings.
46. Provide specifications for the odor control duct that connects to the Two-Stage Biofiltration Odor Control System specified in 44 11 20.17.
Answer: All system piping and fittings shall be PVC or FRP (ASTM 3982) chemical-resistant with stainless steel accessories as applicable. Duct shall include gel or similar coating with pigment for color (Owner to select color) and ultraviolet inhibitor. Control dampers shall be heavy duty, industrial-type constructed of stainless steel with manual adjustment and position locking arrangement. Dampers shall have replaceable neoprene or EPDM seals provided with damper.

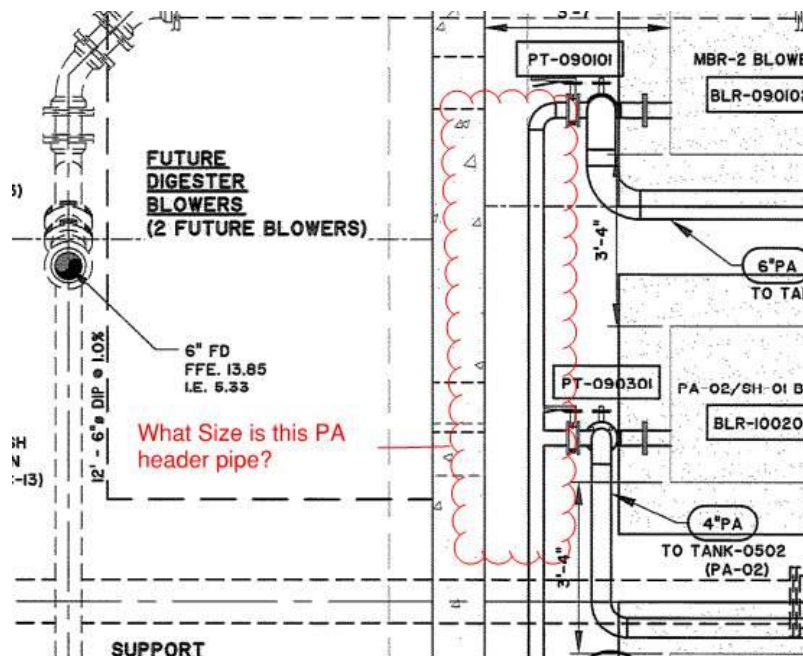
47. Provide locations and quantities of the LAS Control Valve Vault shown on Drawing 09-C-04. See below picture for clarification of locations.

Answer: There are 13 LAS Control Valve Assemblies all shown on Sheet 09-C-02.



48. Provide a size for the Process Air Header Line between the five blowers shown on Drawing 45-D-03 (see below).

Answer: OVIVO says the header should be 6-inch.



PART III – CLARIFICATION

1. Sheet 06-C-02 – All manholes shall be coated with two coats (minimum) of Raven Coat 405 with 120 millimeter thickness.
2. James Adams, Electric Power Sales Engineer, Blanchard Power Systems, Caterpillar requested approval to use a Caterpillar ATS.
 - a. The proposed ATS is a CAT ATC Series Contractor-Based Bypass Isolation ATS.
 - b. Blanchard shall coordinate with the electrical contractor for the required orientation of the termination lugs.
 - c. The ATS shall be front or side connectable with the lugs in the top.
 - d. Conduit will not be permitted to pass through the chemical feed room below.
 - e. Blanchard is approved to bid with ATC Series Bypass Isolation ATS.
3. Sheet 50-E-01.
 - a. Delete Note G3.
 - b. There is no heat tape in this project.
4. Sheet 50-E-05.
 - a. For each site lighting home run, add “Note 15”.
 - b. Add to the box adjacent to the pad-mounted transformer “Note 17”.
5. Sheet 50-E-07.
 - a. At the Main Plant Odor Control System Control Panel.
 - b. Add a home run to Panel DP.
6. Sheet 50-E-11.
 - a. The photo cell for the Centrifuge Building exterior lights shall be a Tork/LSI model 2107.
7. Sheet 50-E-15.
 - a. Add to Panel DP a 30A/3P breaker for the Plant Odor Control System.
 - b. Add a feeder to the Odor Control System: ¾ “C W/3No.10, 1No. 10(G).
 - c. Add to Panel DP ten (10) 20A/1P branch breakers; refer to comments above.
8. Sheet 50-E-16.
 - a. Schedule Panel A.
 - b. Add Relay Panel at circuit A-37.
9. Prior approval request was received. All of the HVAC equipment listed on the attached document is approved by Chatham Engineering as equivalent.
10. Two recycle pumps are to be provided in this phase. There is one for duty and one for standby that feed into the first pre-air zone. The other two recycle pumps are to be installed when capacity dictates. The piping, rails, control, power, valving, etc. shall be installed in this initial phase so only the pumps have to be added later.
11. Flow meter shown as Detail 6 on Sheet 05-C-14 is for wastewater applications.

PART IV - REVISIONS

1. Contract Documents
 - a. Delete Item B of Part III. "Listing of Subcontractors and Suppliers". This list will be submitted by the two low bidders within 24 hours after the bid opening.
2. Drawings
 - a. Sheets 35-S-03, 35-S-04 and 35-S-08 have revised and are attached.
3. Specifications
 - a. Specification section 09 90 00 Painting and Protective Coatings has been revised and is attached.



Mark F. Yodice

Mark F. Yodice, P.E.
Project Manager/Engineer of Record

Attachments

1. Revised Sheet 09-C-04.
2. Storm Drain Bedding Detail added to Sheet 05-C-11.
3. Revised Sheets 35-S-03, 35-S-04 and 35-S-08
4. Revised specification section 09 90 00 Painting and Protective Coatings

End of ADDENDUM NO. 2

SECTION 09 90 00**PAINTING AND PROTECTIVE COATINGS****PART 1 – GENERAL****1.01 REFERENCES**

- A. The following is a list of standards which may be referenced in this section:
1. American Water Works Association (AWWA):
 - a. C203, Coal-Tar Protective Coatings and Linings for Steel Water Pipelines-Enamel and Tape-Hot-Applied.
 - b. C209, Cold-Applied Tape Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines.
 - c. C213, Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines.
 - d. C214, Tape Coating Systems for the Exterior of Steel Water Pipelines.
 2. Environmental Protection Agency (EPA).
 3. NACE International (NACE): RP0188, Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates.
 4. NSF International (NSF): 61, Drinking Water System Components Health Effects.
 5. Occupational Safety and Health Act (OSHA).
 6. The Society for Protective Coatings (SSPC):
 - a. P A 2, Measurement of Dry Coating Thickness with Magnetic Gages.
 - b. P A 3, Guide to Safety in Paint Applications.
 - c. SP 1, Solvent Cleaning.
 - d. SP 2, Hand Tool Cleaning.
 - e. SP 3, Power Tool Cleaning.
 - f. SP 5, White Metal Blast Cleaning.
 - g. SP 6, Commercial Blast Cleaning.
 - h. SP 7, Joint Surface Preparation Standard Brush-Off Blast Cleaning.
 - i. SP 10, Near-White Blast Cleaning.
 - j. SP 11, Power Tool Cleaning to Bare Metal.

- k. SP 12, Surface Preparation and Cleaning of Metals Water jetting Prior to Recoating.
 - l. SP 13, Surface Preparation of Concrete.
 - m. Guide 15, Field Methods for Retrieval and Analysis of Soluble Salts on Steel and Other Nonporous Substrates.
7. Master Painters Institute (MPI)

1.02 DEFINITIONS

- A. Terms used in this section:
- 1. Coverage: Total minimum dry film thickness in mils or square feet per gallon.
 - 2. FRP: Fiberglass Reinforced Plastic.
 - 3. HCl: Hydrochloric Acid.
 - 4. MDFT: Minimum Dry Film Thickness, mils.
 - 5. Mil: Thousandth of an inch.
 - 6. PDS: Product Data Sheet.
 - 7. PSDS: Paint System Data Sheet.
 - 8. PVC: Polyvinyl Chloride.
 - 9. SFPG: Square Feet per Gallon.
 - 10. SFPGPC: Square Feet per Gallon per Coat.
 - 11. SP: Surface Preparation.

1.03 SUBMITTALS

- A. Action Submittals:
- 1. Data Sheets:
 - a. For each product, furnish a Product Data Sheet (PDS), the manufacturer's technical data sheets, and paint colors available (where applicable). The PDS form is appended to the end of this section.
 - b. For each paint system, furnish a Paint System Data Sheet (PSDS). The PSDS form is appended to the end of this section.
 - c. Technical and performance information that demonstrates compliance with Specification.
 - d. Furnish copies of paint system submittals to the coating applicator.
 - e. Indiscriminate submittal of only manufacturer's literature is not acceptable.

- f. Provide a cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - g. Printout of current "MPI Approved Products List" with the proposed product highlighted for those products specified in paragraph "Architectural Paint Systems and Application Schedule" herein.
 - 2. Detailed chemical and gradation analysis for each proposed abrasive material.
 - 3. Paint Color Schedule: List of paint colors selected (manufacturer, name and number) and corresponding locations of application.
 - 4. Samples:
 - a. Reference Panel:
 - 1) Paint & Coatings:
 - (a) Unless otherwise specified, before painting work is started, prepare samples as required in "Mockup" herein.
 - (b) Furnish additional samples as required until colors, finishes, and textures are approved.
 - (c) Approved samples to be the quality standard for final finishes.
- B. Informational Submittals:
 - 1. Applicator's Qualification: List of references substantiating experience.
 - 2. Coating manufacturer's Certificate of Compliance, in accordance with Section 01 00 01, General Requirements.
 - 3. Factory Applied Coatings: Manufacturer's certification stating factory applied coating system meets or exceeds requirements specified.
 - 4. Manufacturer's written verification that submitted material is suitable for the intended use and is compatible with any other products applied to the same surface.
 - 5. Manufacturer's written instructions and special details for applying each type of paint and coating.

1.04 QUALITY ASSURANCE

- A. Applicator Qualifications: Minimum 5 years' experience in application of specified products.
- B. Regulatory Requirements:
 - 1. Meet federal, state, and local requirements limiting the emission of volatile organic compounds (VOC).
 - 2. Perform surface preparation and painting in accordance with recommendations of the following:
 - a. Paint manufacturer's instructions.

- b. SSPC P A 3, Guide to Safety in Paint Applications.
 - c. Federal, state, and local agencies having jurisdiction.
- C. MPI Standards for Architectural Paint Systems:
 - 1. Products listed in paragraph "Architectural Paint Systems and Application Schedule" shall comply with MPI Standards indicated and listed in current "MPI approved Products List".
 - 2. Preparation and workmanship of products listed in paragraph "Architectural Paint Systems and Application Schedule" shall comply with requirements in "MPI Architectural Painting Specification Manual".
- D. Mockup:
 - 1. Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 2. Unless noted otherwise, prepare minimum 8-inch by 10-inch sample with type of paint and/or coating and application specified on similar substrate to which paint and/or coating is to be applied.
 - a. Wall Surfaces: Provide samples on at least 100 sq. ft. of wall surface.
 - b. Doors: Provide full size samples for interior and exterior doors.
 - 3. If preliminary color selections are not approved, additional benchmark samples of additional colors selected by Architect shall be provided by the Contractor at no added cost to Owner.
 - 4. Final approval of color selections will be based on benchmark samples which shall serve as the quality standard for final finishes.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Delivery:
 - 1. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
 - a. Product name or title of material.
 - b. Product description (generic classification or binder type).
 - c. Manufacturer's stock number and date of manufacture.
 - d. Contents by volume, for pigment and vehicle constituents.
 - e. Thinning instructions.
 - f. Application instructions.
 - g. Color name and number.
- B. Shipping:

1. Where precoated items are to be shipped to the Site, protect coating from damage. Batten coated items to prevent abrasion.
 2. Protect shop painted surfaces during shipment and handling by suitable provisions including padding, blocking, and use of canvas or nylon slings.
 3. Contractor shall repair damages that have occurred during transit, to the satisfaction of the Owner, or shall supply a replacement.
- C. Storage:
1. Store products in a protected area that is heated or cooled to maintain temperatures within the range recommended by paint manufacturer.
 2. Primed surfaces shall not be exposed to weather for more than 2 months before being top coated, or less time if recommended by coating manufacturer.

1.06 PROJECT CONDITIONS

- A. Environmental Requirements:
1. Do not apply paint in temperatures or moisture conditions outside of manufacturer's recommended maximum or minimum allowable.
 2. Do not perform final abrasive blast cleaning whenever relative humidity exceeds 85 percent, or whenever surface temperature is less than 5 degrees F above dew point of ambient air.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Nationally recognized manufacturers of paints and protective coatings who are regularly engaged in the production of such materials for essentially identical service conditions.
- B. Minimum of 5 years' verifiable experience in manufacture of specified product.
- C. Each of the following manufacturers is capable of supplying most of the paint products specified in paragraph "Architectural Paint Systems and Application Schedule" herein:
1. Sherwin Williams.
 2. Tnemec.
 3. PPG Architectural Finishes.
 4. Benjamin Moore & Co.
 5. Rose Talbert Paints
- D. Acceptable manufacturers of other paints and/or coatings are as specified in Section 3.

2.02 ABRASIVE MATERIALS

- A. Select abrasive type and size to produce surface profile that meets coating manufacturer's recommendations for specific primer and coating system to be applied.

2.03 PAINT MATERIALS

- A. General:
1. Manufacturer's highest quality products suitable for intended service.
 2. Compatibility: Only compatible materials from a single manufacturer shall be used in the Work. Particular attention shall be directed to compatibility of primers and finish coats.
 3. Thinners, Cleaners, Driers, and Other Additives: As recommended by coating manufacturer.
- B. Products:

Product	Definition
Acrylic Latex	Single-component, finish as required.
Acrylic Latex (Flat)	Flat latex
Acrylic Sealer	Clear acrylic
Alkyd (Semigloss)	Semigloss alkyd
Alkyd Enamel	Optimum quality, gloss or semigloss finish as required, medium long oil.
Alkyd Wood Primer	Flat alkyd
Bituminous Paint	Single-component, coal-tar pitch based.
Block Filler	Primer-sealer designed for rough masonry surfaces, 100% acrylic emulsion.
Coal-Tar Epoxy	Amine, polyamide, or phenolic epoxy type 70% volume solids minimum, suitable for immersion service.
DTM Acrylic Primer	Surface tolerant, direct-to-metal water borne acrylic primer.
DTM Acrylic Finish	Surface tolerant, direct-to-metal water borne acrylic finish coat.
Elastomeric Polyurethane	100% solids, plural component, spray applied, high build, elastomeric polyurethane coating, suitable for the intended service.
Epoxy Filler/Surfacer	100% solids epoxy trowel grade filler and surfacer, nonshrinking, suitable for application to concrete and masonry. Approved for potable water contact and conforming to NSF 61, where required.
Epoxy Nonskid (Aggregated)	Polyamidoamine or amine converted epoxies aggregated; aggregate may be packaged

Product	Definition
	separately
Epoxy Primer-Ferrous Metal	Anticorrosive, converted epoxy primer containing rust-inhibitive pigments.
Epoxy Primer-Other	Epoxy primer, high-build, as recommended by coating manufacturer for specific galvanized metal, copper, or nonferrous metal alloy to be coated.
Fusion Bonded Coating	100% solids, thermosetting, fusion bonded, dry powder epoxy, suitable for the intended service.
Fusion Bonded, TFE Lube or Grease Lube	Tetrafluoroethylene, liquid coating, or open gear grease as supplied by McMaster-Carr Supply Corporation., Elmhurst, IL; RL 736 manufactured by Amrep, Inc., Marietta, GA.
High Build Epoxy	Polyamidoamine epoxy, minimum 69% volume solids, capability of 4 to 8 MDFT per coat.
High Solids Polyurethane	Two-component, low VOC, aliphatic, acrylic polyurethane resin coating having a minimum of 65% volume solids; high gloss or semi gloss finish
Inorganic Zinc Primer	Solvent or water based, having 85% metallic zinc content in the dry film; follow manufacturer's recommendation for top coating.
Latex Primer Sealer	Waterborne vinyl acrylic primer/sealer for interior gypsum board and plaster. Capable of providing uniform seal and suitable for use with specified finish coats.
NSF Epoxy	Polyamidoamine epoxy, approved for potable water contact and conforming to NSF 61
Epoxy, High Solids	Polyamidoamine epoxy, 80% volume solids, minimum, suitable for immersion service
Polyurethane Enamel	Two-component, aliphatic or acrylic based polyurethane; high gloss finish
Rust-Inhibitive Primer	Single-package steel primers with anticorrosive pigment loading
Sanding Sealer	Co-polymer oil, clear, dull luster.
Silicone/Silicone Acrylic	Elevated temperature silicone or silicone/acrylic based.
Stain, Concrete	Acrylic, water repellent, penetrating stain.

Product	Definition
Stain, Wood	Satin luster, linseed oil, solid or transparent as required.
Varnish	Non-pigmented vehicle based on a variety of resins (alkyd, phenolic, urethane) in gloss, semigloss, or flat finishes, as required.
Water Base Epoxy	Two-component, polyamide epoxy emulsion, finish as required.

2.04 MIXING

- A. Multiple-Component Coatings:
1. Prepare using each component as packaged by paint manufacturer.
 2. No partial batches will be permitted.
 3. Do not use multiple-component coatings that have been mixed beyond their pot life.
 4. Furnish small quantity kits for touchup painting and for painting other small areas.
 5. Mix only components specified and furnished by paint manufacturer.
 6. Do not intermix additional components for reasons of color or otherwise, even within the same generic type of coating.
- B. Colors: Formulate paints with colorants free of lead, lead compounds, or other materials that might be affected by presence of hydrogen sulfide or other gas likely to be present at Site.

2.05 SHOP FINISHES

- A. Shop Blast Cleaning: Reference Paragraph, Shop Coating Requirements.
- B. Surface Preparation: Provide Contractor minimum 7 days' advance notice to start of shop surface preparation work and coating application work.
- C. Shop Coating Requirements:
1. When required by equipment Specifications, such equipment shall be primed and finish coated in shop by manufacturer and touched up in field with identical material after installation.
 2. Where manufacturer's standard coating is not suitable for intended service condition, Engineer may approve use of a tie-coat to be used between manufacturer's standard coating and specified field finish. In such cases, tie-coat shall be surface tolerant epoxy as recommended by manufacturer of specified field finish coat. Coordinate details of equipment manufacturer's standard coating with field coating manufacturer.

2.06 ARCHITECTURAL PRODUCTS

The following is to be applied to all paint systems except where specifically noted otherwise herein and on the Drawings.

- A. Exterior Metal Primer: Primer, Epoxy, Anti-Corrosive, for Metal: MPI #101
- B. Exterior Wood Primer: Primer, Alkyd for Exterior Wood: MPI #5.
- C. Exterior Water-Based Paint: Light Industrial Coating, Exterior, Water Based, Gloss (Gloss Level 6): MPI #164.
- D. Exterior Latex Paint: Exterior Latex (Semigloss) MPI #11 (Gloss Level 5).
- E. Interior Primers / Sealers: Interior Latex Primer/Sealer MPI #50.
- F. Interior Metal Primers:
 - a. Quick-Drying Alkyd Metal Primer MPI #76.
 - b. Waterborne Galvanized-Metal Primer: MPI #134.
- G. Interior Latex Paints:
 - a. Interior Latex (Eggshell) MPI #52 (Gloss Level 3).
 - b. Interior Latex (Semigloss): MPI #54 (Gloss Level 5).
- H. Epoxy Coatings: Epoxy-Modified Latex, Interior, Gloss (Gloss Level 6) MPI #115.

PART 3 – EXECUTION

3.01 GENERAL

- A. Provide Contractor minimum 7 days' advance notice to start of field surface preparation work and coating application work.
- B. Perform the Work only in presence of Contractor, unless Engineer grants prior approval to perform the Work in Contractor's absence.
- C. Schedule inspection of cleaned surfaces and all coats prior to succeeding coat in advance with Contractor.

3.02 EXAMINATION

- A. Factory Finished Items:
 - 1. Schedule inspection with Contractor before repairing damaged factory-finished items delivered to Site.
 - 2. Repair abraded or otherwise damaged areas on factory-finished items as recommended by coating manufacturer. Carefully blend repaired areas into original finish. If required to match colors, provide full finish coat in field.
- B. Surface Preparation Verification: Inspect and provide substrate surfaces prepared in accordance with these Specifications and printed directions and recommendations of paint manufacturer whose product is to be applied. The more stringent requirements shall apply.
- C. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent
 - 2. Masonry: 12 percent
 - 3. Wood: 15 percent
 - 4. Gypsum Board: 12 percent

- D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- E. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry. Commencement of coating application constitutes Contractor's acceptance of substrates and conditions.

3.03 PROTECTION OF ITEMS NOT TO BE PAINTED

- A. Remove, mask, or otherwise protect hardware, lighting fixtures, switch plates, aluminum surfaces, machined surfaces, couplings, shafts, bearings, nameplates on machinery, and other surfaces not specified elsewhere to be painted.
- B. Provide drop cloths to prevent paint materials from falling on or marring adjacent surfaces.
- C. Protect working parts of mechanical and electrical equipment from damage during surface preparation and painting process.
- D. Mask openings in motors to prevent paint and other materials from entering.
- E. Protect surfaces adjacent to or downwind of Work area from overspray.

3.04 SURFACE PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated in paragraph "Architectural Paint Systems and Application Schedule".
- B. Metal Surface Preparation:
 - 1. Where indicated, meet requirements of SSPC Specifications summarized below:
 - a. SP 1, Solvent Cleaning: Removal of visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants by cleaning with solvent.
 - b. SP 2, Hand Tool Cleaning: Removal of loose rust, loose mill scale, loose paint, and other loose detrimental foreign matter, using nonpower hand tools.
 - c. SP 3, Power Tool Cleaning: Removal of loose rust, loose mill scale, loose paint, and other loose detrimental foreign matter, using power-assisted hand tools.
 - d. SP 5, White Metal Blast Cleaning: Removal of visible oil, grease, dust, dirt, mill scale, rust, coatings, oxides, corrosion products, and other foreign matter by blast cleaning.
 - e. SP 6, Commercial Blast Cleaning: Removal of visible oil, grease, dust, dirt, mill scale, rust, coatings, oxides, corrosion products, and other foreign matter, except for random staining limited to no more than 33 percent of each unit area of surface which may consist of light shadows, slight streaks, or minor discolorations

caused by stains of rust, stains of mill scale, or stains of previously applied coatings.

- f. SP 7, Brush-Off Blast Cleaning: Removal of visible rust, oil, grease, soil, dust, loose mill scale, loose rust, and loose coatings. Tightly adherent mill scale, rust, and coating may remain on surface.
 - g. SP 10, Near-White Blast Cleaning: Removal of visible oil, grease, dust, dirt, mill scale, rust, coatings, oxides, corrosion products, and other foreign matter, except for random staining limited to no more than 5 percent of each unit area of surface which may consist of light shadows, slight streaks, or minor discolorations caused by stains of rust, stains of mill scale, or stains of previously applied coatings.
 - h. SP 11, Power Tool Cleaning to Bare Metal: Removal of visible oil, grease, dirt, dust, mill scale, rust, paint, oxide, corrosion products, and other foreign matter using power-assisted hand tools capable of producing suitable surface profile. Slight residues of rust and paint may be left in lower portion of pits if original surface is pitted.
 - i. SP 12, Surface Preparation and Cleaning of Metals by Waterjetting Prior to Recoating: Surface preparation using high-pressure and ultrahigh-pressure water jetting to achieve specified surface cleanliness condition. Surface cleanliness conditions are defined in SSPC SP 12 and are designated WJ-1 through WJ-4 for visual surface preparation definitions and SC-1 through SC-3 for nonvisual surface preparation definitions.
2. The words "solvent cleaning," "hand tool cleaning," "wire brushing," and "blast cleaning," or similar words of equal intent in these Specifications or in paint manufacturer's specification refer to the applicable SSPC Specification.
 3. Where OSHA or EPA regulations preclude standard abrasive blast cleaning, wet or vacu-blast methods may be required. Coating manufacturers' recommendations for wet blast additives and first coat application shall apply.
 4. Ductile Iron Pipe Supplied with Asphaltic Varnish Finish: Remove asphaltic varnish finish prior to performing specified surface preparation.
 5. Hand tool clean areas that cannot be cleaned by power tool cleaning.
 6. Round or chamfer sharp edges and grind smooth burrs, jagged edges, and surface defects.
 7. Welds and Adjacent Areas:
 - a. Prepare such that there is:
 - 1) No undercutting or reverse ridges on weld bead.

- 2) No weld spatter on or adjacent to weld or any area to be painted.
 - 3) No sharp peaks or ridges along weld bead.
 - b. Grind embedded pieces of electrode or wire flush with adjacent surface of weld bead.
8. Preblast Cleaning Requirements:
- a. Remove oil, grease, welding fluxes, and other surface contaminants prior to blast cleaning.
 - b. Cleaning Methods: Steam, open flame, hot water, or cold water with appropriate detergent additives followed with clean water rinsing.
 - c. Clean small isolated areas as above or solvent clean with suitable solvent and clean cloth.
9. Blast Cleaning Requirements:
- a. Type of Equipment and Speed of Travel: Design to obtain specified degree of cleanliness. Minimum surface preparation is as specified herein and takes precedence over coating manufacturer's recommendations.
 - b. Select type and size of abrasive to produce surface profile that meets coating manufacturer's recommendations for particular primer to be used.
 - c. Use only dry blast cleaning methods.
 - d. Do not reuse abrasive, except for designed recyclable systems.
 - e. Meet applicable federal, state, and local air pollution and environmental control regulations for blast cleaning, confined space entry (if required), and disposition of spent aggregate and debris.
10. Post-Blast Cleaning and Other Cleaning Requirements:
- a. Clean surfaces of dust and residual particles from cleaning operations by dry (no oil or water vapor) air blast cleaning or other method prior to painting. Vacuum clean enclosed areas and other areas where dust settling is a problem and wipe with a tack cloth.
 - b. Paint surfaces the same day they are blasted. Reblast surfaces that have started to rust before they are painted.

C. Galvanized Metal Surface Preparation:

1. Prepare in accordance with ASTM D 6386 and recommended procedures from the American Galvanizers Association (AGA).
2. Notify galvanizer that steel will be painted.
3. Newly Galvanized Metal (48 hours or less since galvanizing):
 - a. Grinding: removed excess zinc, remove dross particles, bumps, runs and drips by hand grinder. If process removes too much zinc, surface must be repaired in accordance with ASTM A780.
 - b. Ensure surface is free of oil, grease, dirt and other organic materials. If it is not, see Partially Weathered for cleaning procedure.
 - c. Rinse thoroughly and dry.
 - d. Profile by sweep blasting at a maximum pressure of 40 psi, wash primer or acrylic pre-treatment. Take care not to damage the galvanized coating.
4. Partially Weathered Metal (2 days – 12 months from galvanizing):
 - a. Grinding as previously defined for Newly Galvanized Metal.
 - b. Clean surface of organic compounds and wet storage stain using alkaline solution or solvent cleaning.
 - c. Rinse thoroughly and dry.
 - d. Profile as previously defined for Newly Galvanized Metal.
5. The pressure of cleaning or rinsing performed must not exceed 1450 psi.
6. Apply paint or coating within 12 hours of drying.

D. Nonferrous Metal Alloy Surface Preparation:

1. Remove soil, cement spatter, and other surface dirt with appropriate hand or power tools.
2. Remove oil and grease by wiping or scrubbing surface with suitable solvent, rag, and brush. Use clean solvent and clean rag for final wiping to avoid contaminating surface.
3. Obtain and follow coating manufacturer's recommendations for additional preparation that may be required.

E. Concrete Surface Preparation:

1. Do not begin until a minimum of 30 days after concrete has been placed, and longer if directed by product manufacturer.
2. Meet requirements of SSPC SP 13.

3. Adhere to manufacturer's recommendations for preparation of the concrete surface. Ensure surface is free from grease, oil, dirt, salts or other chemicals, loose materials, or other foreign matter.
4. Secure coating manufacturer's recommendations for additional preparation, if required, for excessive bug holes exposed after preparation.
5. Unless otherwise required for proper adhesion, ensure surfaces are dry prior to painting.

F. Plastic Surface Preparation:

1. Hand sand plastic surfaces to be coated with medium grit sandpaper to provide tooth for coating system.
2. Large areas may be power sanded or brush-off blasted, provided sufficient controls are employed so surface is roughened without removing excess material.

G. Masonry Surface Preparation:

1. Complete and cure masonry construction for 14 days or more before starting surface preparation work.
2. Remove oil, grease, dirt, salts or other chemicals, loose materials, or other foreign matter by solvent, detergent washing, or other suitable cleaning methods.
3. Clean masonry surfaces of mortar and grout spillage and other surface deposits using one of the following:
 - a. Nonmetallic fiber brushes and commercial muriatic acid followed by rinsing with clean water.
 - b. Brush-off blasting.
 - c. Water blasting.
4. Do not damage masonry mortar joints or adjacent surfaces.
5. Leave surfaces clean and, unless otherwise required for proper adhesion, dry prior to painting.
6. Masonry Surfaces to be Painted: Uniform texture and free of surface imperfections that would impair intended finished appearance.
7. Masonry Surfaces to be Clear Coated: Free of discolorations and uniform in texture after cleaning.

H. Wood Surface Preparation:

1. Replace damaged wood surfaces or repair in a manner acceptable to Contractor prior to start of surface preparation.
2. Solvent clean (mineral spirits) knots and other resinous areas and coat with shellac or other knot sealer, prior to painting. Remove pitch by scraping and wipe clean with mineral spirits or turpentine prior to applying knot sealer.
3. Round sharp edges by light sanding prior to priming.
4. Filler:
 - a. Synthetic-based wood putty approved by paint manufacturer for paint system.
 - b. For natural finishes, color of wood putty shall match color of finished wood.
 - c. Fill holes, cracks, and other surface irregularities flush with surrounding surface and sand smooth.
 - d. Apply putty before or after prime coat, depending on compatibility and putty manufacturer's recommendations.
 - e. Use cellulose type putty for stained wood surfaces.
 - f. Ensure surfaces are clean and dry prior to painting.
- I. Gypsum Board Surface Preparation: Typically, new gypsum board surfaces need no special preparation before painting.
 1. Surface Finish: Dry, free of dust, dirt, powdery residue, grease, oil, or any other contaminants.

3.05 SURFACE CLEANING

- A. Brush-off Blast Cleaning:
 1. Equipment, procedure, and degree of cleaning shall meet requirements of SSPC SP 7.
 2. Abrasive: Either wet or dry blasting sand, grit, or nutshell.
 3. Select various surface preparation parameters, such as size and hardness of abrasive, nozzle size, air pressure, and nozzle distance from surface such that surface is cleaned without pitting, chipping, or other damage.
 4. Verify parameter selection by blast cleaning a trial area that will not be exposed to view.
 5. Engineer will review acceptable trial blast cleaned area and use area as a representative sample of surface preparation.

6. Repair or replace surface damaged by blast cleaning.
- B. Solvent Cleaning:
1. Consists of removal of foreign matter such as oil, grease, soil, drawing and cutting compounds, and any other surface contaminants by using solvents, emulsions, cleaning compounds, steam cleaning, or similar materials and methods that involve a solvent or cleaning action.
 2. Meet requirements of SSPC SP 1.

3.06 APPLICATION

- A. General:
1. The intention of these Specifications is for new, interior and exterior masonry, concrete, and metal, surfaces to be painted, whether specifically mentioned or not, except as specified otherwise. Do not paint exterior concrete surfaces, unless specifically indicated.
 2. Apply coatings and paint in accordance with these Specifications and manufacturers' printed recommendations and special details. The more stringent requirements shall apply. Allow sufficient time between coats to assure thorough drying of previously applied paint.
 3. Vacuum clean surfaces free of loose particles. Use tack cloth just prior to applying next coat.
 4. Coat units or surfaces to be bolted together or joined closely to structures or to one another prior to assembly or installation.
 5. Water-Resistant Gypsum Board: Use only solvent type paints and coatings.
 6. On pipelines, terminate coatings along pipe runs to 1 inch inside pipe penetrations.
 7. Keep paint materials sealed when not in use.
 8. Where more than one coat is applied within a given system, alternate colors to provide a visual reference showing required number of coats have been applied.
- B. Galvanized Metal, Copper, and Nonferrous Metal Alloys:
1. Concealed galvanized, copper, and nonferrous metal alloy surfaces (behind building panels or walls) do not require painting, unless specifically indicated herein.
 2. Prepare surface and apply primer in accordance with System No. 10 specification.
 3. Apply intermediate and finish coats of the coating system appropriate for the exposure.
- C. Porous Surfaces, Such As Concrete and Masonry:

1. Repairs shall be completed using products specified in Section 03 30 00 Cast-In-Place Concrete.
 2. Filler/Surfacer: Use coating manufacturer's recommended product to fill air holes, bug holes, and other surface voids or defects that may inhibit or prevent adequate application of coating.
 3. Prime Coat: If it acceptable to the manufacturer, prime coat may be thinned to provide maximum penetration and adhesion. The reduction volume shall be determined by the manufacturer specific to the density and type of coating being applied. Reduction shall not be implemented if it voids the warranty of any product.
 4. Surface Specified to Receive Water Base Coating: For most applications, surface shall be damp just prior to application of coating, but free of running water. Verify this requirement with manufacturer for specified product.
- D. Film Thickness and Coverage:
1. Number of Coats:
 - a. Minimum required without regard to coating thickness.
 - b. Additional coats may be required to obtain minimum required paint thickness, depending on method of application, differences in manufacturers' products, and atmospheric conditions.
 2. Application Thickness:
 - a. Do not exceed coating manufacturer's recommendations.
 - b. Measure using a wet film thickness gauge to ensure proper coating thickness during application.
 3. Film Thickness Measurements and Electrical Inspection of Coated Surfaces:
 - a. Perform with properly calibrated instruments.
 - b. Recoat and repair as necessary for compliance with Specification.
 - c. Coats are subject to inspection by Contractor and coating manufacturer's representative.
 4. Visually inspect concrete, masonry, nonferrous metal, plastic, and wood surfaces to ensure proper and complete coverage has been attained.
 5. Give particular attention to edges, angles, flanges, and other similar areas, where insufficient film thicknesses are likely to be present, and ensure proper millage in these areas.
 6. Apply additional coats as required to achieve complete hiding of underlying coats. Hiding shall be so complete that additional coats would not increase the hiding.

3.07 FIRE RATED ASSEMBLIES

- A. Permanently identify corridor partitions, smoke stop partitions, horizontal exit partitions, exit enclosures and fire walls. Above decorative ceiling line and in concealed spaces, apply a minimum one-inch wide red line interrupted at maximum 15-ft spacing with the wording "XX HOUR FIRE AND SMOKE BARRIER -

PROTECT ALL OPENINGS" in 4-inch high letters with "XX" designating the appropriate hourly rating.

3.08 FIELD QUALITY CONTROL

- A. Owner reserves the right to invoke test procedure at any time and as often as Owner deems necessary during the period when paint is being applied.
1. Owner may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint.
- B. Testing:
- Testing is to be performed on the waterproof and anti-corrosion coatings applied to the interior surfaces of the Basins.
1. Thickness and Continuity Testing:
 - a. Measure coating thickness specified in mils with a magnetic type, dry film thickness gauge, in accordance with SSPC P A 2. Check each coat for correct millage. Do not make measurement before a minimum of 8 hours after application of coating.
 - b. Holiday detect coatings 20 mils thick or less, except zinc primer and galvanizing, with low voltage wet sponge electrical holiday detector in accordance with NACE RP0188.
 - c. Holiday detect coatings in excess of 20 mils dry with high voltage spark tester as recommended by coating manufacturer and in accordance with NACE RP0188.
 - d. After repaired and recoated areas have dried sufficiently, retest each repaired area. Final tests may also be conducted by Engineer.
 2. Testing Equipment:
 - a. Provide magnetic type dry film thickness gauge to test coating thickness specified in mils, as manufactured by Nordson Corp., Anaheim, CA, Mikrotest.
 - b. Provide low-voltage wet sponge electrical holiday detector to test completed coating systems, 20 mils dry film thickness or less, except zinc primer, high-build elastomeric coatings, and galvanizing, for pinholes, holidays, and discontinuities, as manufactured by Tinker and Rasor, San Gabriel, CA, Model M-I.
 - c. Provide high-voltage spark tester to test completed coating systems in excess of 20 mils dry film thickness. Unit as recommended by coating manufacturer.
- C. Inspection: Leave staging and lighting in place until Engineer has inspected surface or coating. Replace staging removed prior to approval by Engineer. Provide additional staging and lighting as requested by Engineer.
- D. Unsatisfactory Application:

1. If item has an improper finish color or insufficient film thickness, clean surface and topcoat with specified paint material to obtain specified color and coverage. Obtain specific surface preparation information from coating manufacturer.
 2. Evidence of runs, bridges, shiners, laps, or other imperfections is cause for rejection.
 3. Repair defects in accordance with written recommendations of coating manufacturer.
- E. Damaged Coatings, Pinholes, and Holidays:
1. Feather edges and repair in accordance with recommendations of paint manufacturer.
 2. Hand or power sand visible areas of chipped, peeled, or abraded paint, and feather the edges. Follow with primer and finish coat. Depending on extent of repair and appearance, a finish sanding and topcoat may be required.
 3. Apply finish coats, including touchup and damage-repair coats in a manner that will present a uniform texture and color-matched appearance.

3.08 MANUFACTURER'S SERVICES

- A. Coating manufacturer's representative shall be present at Site for the application of the waterproof and anti-corrosion coatings for the Basins as follows:
1. On first day of application of any coating system.
 2. A minimum of two additional Site inspection visits, each for a minimum of 4 hours, in order to provide Manufacturer's Certificate of Proper Installation.
 3. During thickness and continuity testing to verify conformance with project and manufacturer requirements.
 4. As required to resolve field problems attributable to or associated with manufacturer's product.
 5. To verify full cure of coating prior to coated surfaces being placed into immersion service.

3.09 CLEANUP

- A. Place cloths and waste that might constitute a fire hazard in closed metal containers or destroy at end of each day.
- B. Upon completion of the Work, remove staging, scaffolding, and containers from Site or destroy in a legal manner.
- C. Remove paint spots, oil, or stains upon adjacent surfaces and floors and leave entire job clean.

3.10 PROTECTIVE COATINGS SYSTEMS AND APPLICATION SCHEDULE

A. Unless otherwise shown or specified, paint surfaces—in accordance with the following application schedule and the environmental types defined in Section 01 00 01, General Requirements. In the event of discrepancies or omissions in the following, request clarification from Engineer before starting work in question.

B. System No. 2 Submerged Metal:

Surface Prep.	Paint Material	Min. Coats, Cover
SP 5, White Metal Blast Cleaning	Prime in accordance with manufacturer's recommendations	
	Coal-Tar Epoxy	2 coats, 16 MDFT
	–OR– High Build Epoxy	2 coats, 16 MDFT

1. Use on the following items or areas:

- a. New metal surfaces located in submerged environment type.
- b. New metal surfaces above maximum liquid surface that are a part of submerged equipment.
- c. Submerged surfaces of metallic items, such as wall pipes, pipes, pipe sleeves, access manholes, gates, gate guides, thimbles, and structural steel that are embedded in concrete.
- d. Interior surfaces of steel piping noted in the Piping Schedule.

C. System No. 4 Galvanized Metal, Corrosive:

Surface Prep.	Paint Material	Min. Coats, Cover
See Preparation section of this specification	Zinc-Rich Primer	1 coat, per mfr
	Top Coat – Acrylic Latex	1 coat, per mfr

1. Use on the following items or areas:

- a. Exposed new galvanized metal surfaces located in interior equipment/blower room
- b. Exposed galvanized metal deck: exterior and interior.
- c. Exposed galvanized structural steel, including beams and columns of monorail and porch framing.
- d. Exposed galvanized steel stair and platform framing (exterior).
- e. Galvanized steel lintels.
- f. Galvanized exterior doors and frames.

D. System No. 5 Exposed Metal, Mildly Corrosive:

Surface Prep.	Paint Material	Min. Coats, Cover
SP 10, Near-White Blast Cleaning	Epoxy Primer – Ferrous Metal	1 coat, 2.5 MDFT
	Polyethylene Enamel	1 coat, 3 MDFT

1. Use on the following items or areas:
 - a. Miscellaneous exposed new metal surfaces inside the 2nd level of the building.
 - b. Interior doors and frames.

E. System No. 6 Exposed Metal Atmospheric:

Surface Prep.	Paint Material	Min. Coats, Cover
SP 6, Commercial Blast Cleaning	Rust Inhibitive Primer	1 coat, 2 MDFT
	Alkalyd Enamel	2 coats, 4 MDFT

1. Use on the following items or areas:
 - a. Exposed new metal surfaces including vents, exterior metal ductwork, flashing, sheet metalwork and miscellaneous architectural metal trim.
 - b. Apply surface preparation and primer to surfaces prior to installation. Finish coats need only be applied to surfaces exposed after completion of construction.

F. System No. 8 Buried Metal General:

Surface Prep.	Paint Material	Min. Coats, Cover
SP 10, Near White Blast Cleaning	Coal-Tar Epoxy	2 coats, 125 microns each
	Coal-Tar Primer,	1 coat, per mfr
	Coal-Tar Enamel	2 coats, hot applied per mfr

1. Use on the following items or areas:
 - a. Buried, below grade portions of steel items, except buried stainless steel or ductile iron and the following specific surfaces:
 - 1) Fasteners and accessories of buried piping related items.

G. System No. 10 Nonferrous Metal Alloy Conditioning:

Surface Prep.	Paint Material	Min. Coats, Cover
In accordance with Paragraph Nonferrous Metal Alloy Surface Preparation	Epoxy Primer-Other	As recommended by coating manufacturer Remaining coats as required for exposure

1. Use on the following items or areas:
 - a. Aluminum handrail, grating, panels, and miscellaneous components both interior and exterior.
 - b. After application of System No. 10, apply finish coats as required for exposure. For handrail apply per specifications herein. For other items apply per manufacturer recommendations.

H. System No. 11 Galvanized Metal Repair:

Surface Prep.	Paint Material	Min. Coats, Cover
Solvent Clean (SP1) Followed by Hand Tool (SP 2), Power Tool (SP 3) or Brush off Blast (SP 7)	Organic Zinc Rich Primer	1 coat, 3 MDFT

1. Use on the following items or areas:
 - a. Galvanized surfaces that are abraded, chipped or otherwise damaged.

I. System No. 19 Concrete Tank Waterproof Coating:

Surface Prep.	Paint Material	Min. Coats, Wet Thickness
As specified by the manufacturer	CIM 61TN Epoxy Primer	2 coat, 5 mil (wet) – recoat w/in 48 hrs
	CIM 1000	2 coats, 60* mil (dry)

*Apply extra thickness at corners, intersections, angles and over joints.

1. Use on the following items or areas:
 - a. Walls and base slab of Chlorine Contact Basin.

J. System No. 20 Concrete Tank Anti-Corrosion Coating:

Surface Prep.	Paint Material	Min. Coats, Dry Thickness
As specified by the Manufacturer	Raven 404 System	3 coats min, 60 mil

1. Use on the following items or areas:
 - a. Walls & base slab of Anoxic Basin, Pre-Aeration Basins, Splitter Box Channel, and Membrane Basins.
 - b. Underside of all concrete slabs and walkways over all Basins.
 - c. Coating of all exposed piping inside of all basins.

K. System No. 21 Decorative Abrasion Resistant Concrete Finish:

Surface Prep.	Paint Material	Min. Coats, Cover
Shot blast concrete as specified by manufacturer	Stontec UTF, by Stonhard Inc.	As specified by manufacturer

1. Use on the following items or areas:
 - a. Interior floors on 2nd floor of the building.

L. System No. 22 Decorative Abrasion Resistant Non-Slip Concrete Coating:

Surface Prep.	Paint Material	Min. Coats, Cover
Shot blast concrete as specified by manufacturer	Stontec UTF with White Texture, by Stonhard Inc.	As specified by manufacturer

2. Use on the following items or areas:
 - a. Exterior concrete slab on 2nd level at top of stairs and at covered area between monorail bay and building CMU wall.

M. System No. 23 Chemical-Resistant Non-Slip Floor and Wall Coating:

Surface Prep.	Paint Material	Min. Coats, Cover
Shot blast concrete as specified by manufacturer	Stonchem 830, by Stonhard Inc.	As specified by manufacturer

3. Use on the following items or areas:
 - a. Interior slab on grade and equipment slabs of the Equipment Room, Equipment Support Room and Chemical Room.

- b. Lower 6 inches of all walls in the Equipment Room, Equipment Support Room and Chemical Room.

N. System No. 25 Exposed PVC:

Surface Prep.	Paint Material	Min. Coats, Cover
In accordance with Paragraph Plastic and FRP Surface Preparation	Acrylic Latex Semigloss	2 coats, 320 SFGPC

1. Use on the following items or areas:
- a. All exterior, exposed-to-view PVC and CPVC surfaces.

O. System No. 27 Aluminum and Dissimilar Metal Insulation:

Surface Prep.	Paint Material	Min. Coats, Cover
Solvent Clean (SP 1)	Prime in accordance with manufacturer's recommendations	
	Bituminous Paint	1 coat, 10 MDFT

1. Use on aluminum surfaces embedded or in contact with concrete.

P. System No. 29 Fusion Bonded Coating:

Surface Prep.	Paint Material	Min. Coats, Cover
SP 10, Near-White Blast Cleaning	Fusion Bonded Coating 100% Solids Epoxy	1 or 2 coats, 7 MDFT

1. For steel pipe and fittings, meet all requirements of AWWA C213.
2. Use on the following items:
- a. Interior and exterior of valves as specified in Section 40 27 02 Process Valves and Operators.

3.11 ARCHITECTURAL PAINT SYSTEMS AND APPLICATION SCHEDULE

A. Unless otherwise shown or specified, paint surfaces in accordance with the following application schedule. In the event of discrepancies or omissions in the following, request clarification from Engineer before starting work in question.

B. System No. 102 Wood, Exterior:

Surface Prep.	Paint Material	Min. Coats, Cover
In accordance with Paragraph Wood Surface Preparation	Alkyd Wood Primer, MPI #5	1 coat
	Latex, exterior, matching topcoat	1 coat
	Latex, exterior gloss (Gloss Level 6), MPI #119	1 coat

1. Use on the following items or areas:

a. All exterior wood.

C. System No. 1 06 Wood, Interior, Latex System: n/a

D. System No. 109 Masonry, Semigloss:

Surface Prep.	Paint Material	Min. Coats, Cover
In accordance with Paragraph Masonry Surface Preparation	Block Filler	1 coat, 75 SFPG
	Acrylic Latex (Semigloss)	2 coats, 240 SFPGPC

1. Use on the following items or areas:

a. Interior CMU walls in Centrifuge Building.

E. System No. 112 Concrete, Flat:

Surface Prep.	Paint Material	Min. Coats, Cover
In accordance with Paragraph Concrete Surface Preparation	Acrylic Latex (Flat)	2 coats, 240 SFPGPC

1. Use on the following items or areas:

- a. Basin exterior walls.
- b. Lower wall of building on North side.

F. System No. 114 Gypsum Board, Latex System:

Surface Prep.	Paint Material	Min. Coats
In accordance with Paragraph Gypsum Board Surface preparation	Interior Latex Primer Sealer	1 coat
	Interior latex matching topcoat	1 coat
	Interior latex (eggshell)	1 coat

- 1. Use Latex System MPI INT 9.2A on the following items or areas:
 - a. Interior gypsum board in dry areas.

G. System No. 115 Gypsum Board, Epoxy-Modified Latex System:

Surface Prep.	Paint Material	Min. Coats
In accordance with Paragraph Gypsum Board Surface preparation	Skim coat of joint compound	1 coat
	Primer sealer, latex, interior	1 coat
	Epoxy-modified latex, interior, gloss (Gloss Level 6)	2 coats

- 1. Use Epoxy-Modified Latex System MPI INT 9.2F on the following items or areas:
 - a. Interior gypsum board in wet areas.

3.12 COLORS

- A. Provide as designated by the Architect in Finish Schedule.
- B. Proprietary identification of colors is for identification only. Selected manufacturer may supply matches.
- C. Equipment Colors:

1. Equipment includes the machinery or vessel itself plus the structural supports and fasteners and attached electrical conduits.
 2. Paint equipment and piping one color as selected.
 3. Paint non – submerged portions of equipment the same color as the piping it serves, except as itemized below:
 - a. Dangerous Parts of Equipment and Machinery: OSHA Orange.
 - b. Fire Protection Equipment and Apparatus: OSHA Red.
 - c. Physical hazards in normal operating area and energy lockout devices, including, but not limited to, electrical disconnects for equipment and equipment isolation valves in air and liquid lines under pressure: OSHA Yellow.
- D. Pipe Identification Painting:
1. Color code non – submerged metal piping, except electrical conduit. Paint fittings and valves the same color as pipe, except equipment isolation valves.
 2. Pipe Color Coding: In accordance with Piping Schedule and/or selected by the Engineer.
 3. Pipe Supports (for metals that are not galvanized steel, aluminum and stainless steel): Painted light gray, as approved by Engineer.
 4. PVC and CPVC pipe located inside of buildings and enclosed structures will not require painting except as noted or scheduled.

3.13 SUPPLEMENTS

- A. The supplements listed below, following "End of Section," are a part of this Specification:
1. Paint System Data Sheet (PSDS).
 2. Product Data Sheet (PDS).

END OF SECTION

PAINT PRODUCT DATA SHEET

Complete and attach manufacturer's Technical Data Sheet to this PDS for each product submitted. Provide manufacturer's recommendations for the following parameters at temperature (F)/relative humidity:

Temperature/RH	50/50	70/30	90/25
Induction Time			
Pot Life			
Shelf Life			
Drying Time			
Curing Time			
Min. Recoat Time			
Max. Recoat Time			

Provide manufacturer's recommendations for the following:

Mixing Ratio: _____

Maximum Permissible Thinning: _____

Ambient Temperature Limitations: min.: _____ max: _____

Surface Temperature Limitations: min.: _____ max: _____

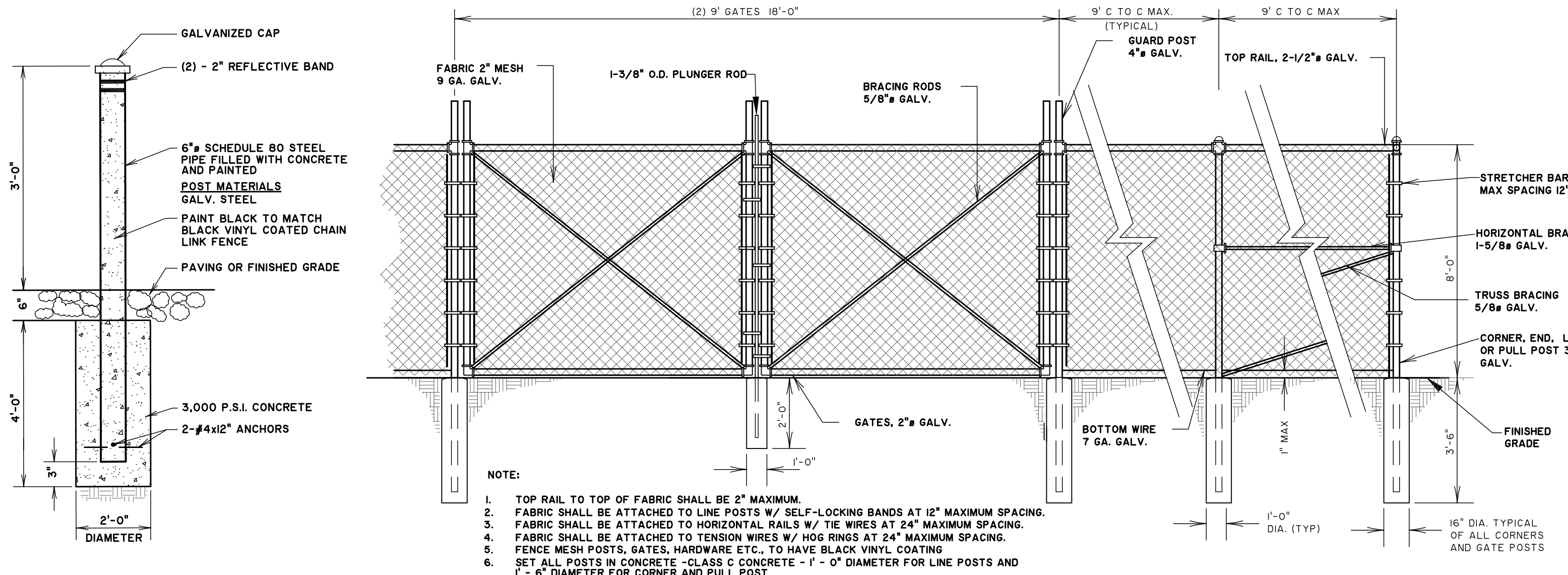
Surface Profile Requirements: min.: _____ max: _____

Attach additional sheets detailing manufacturer's recommended storage requirements and holiday testing procedures.

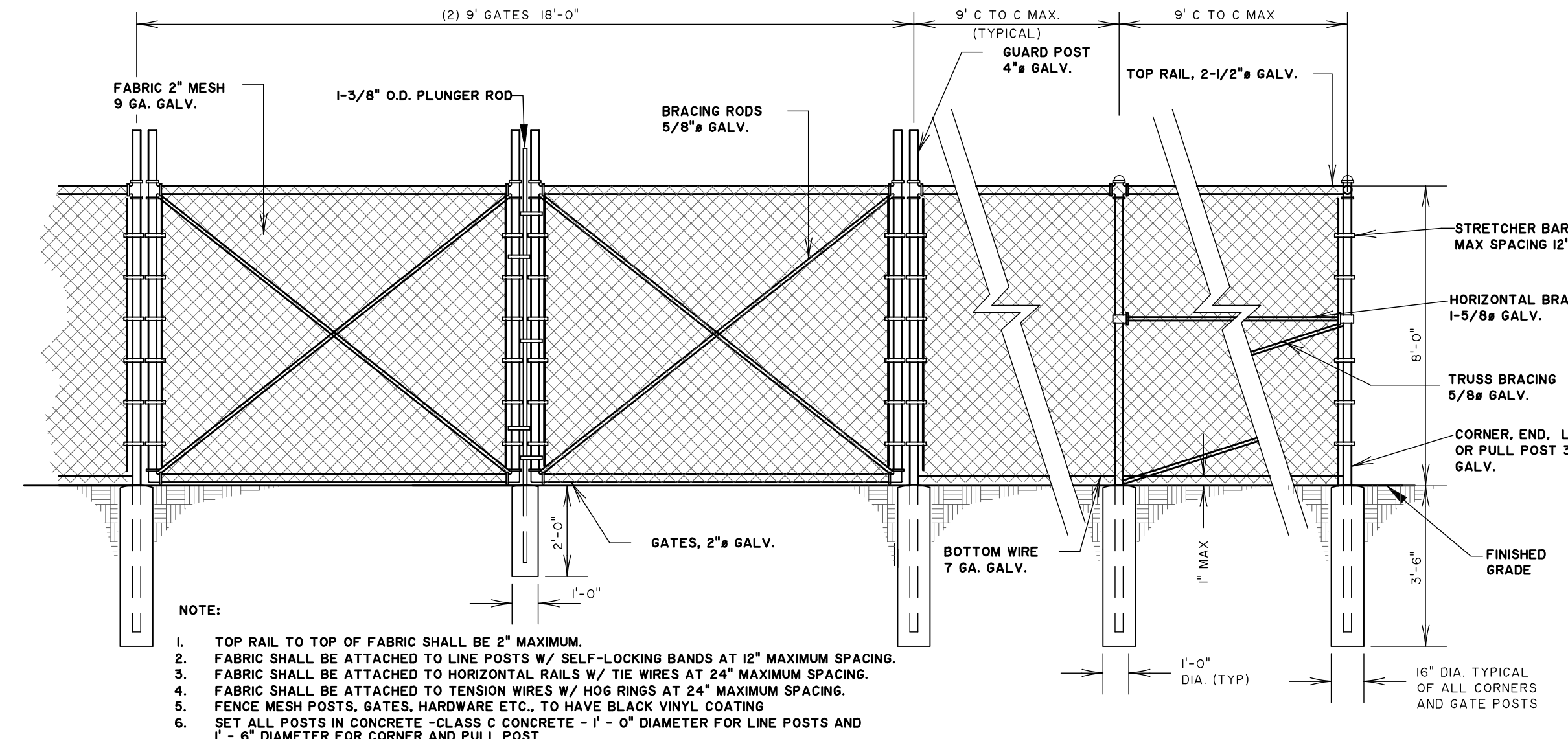
PAIN T SYSTEM DATA SHEET

Complete this PDS for each coating system, include all components of the system (surface preparation, primer, intermediate coats, and finish coats). Include all components of a given coating system on a single PDS.

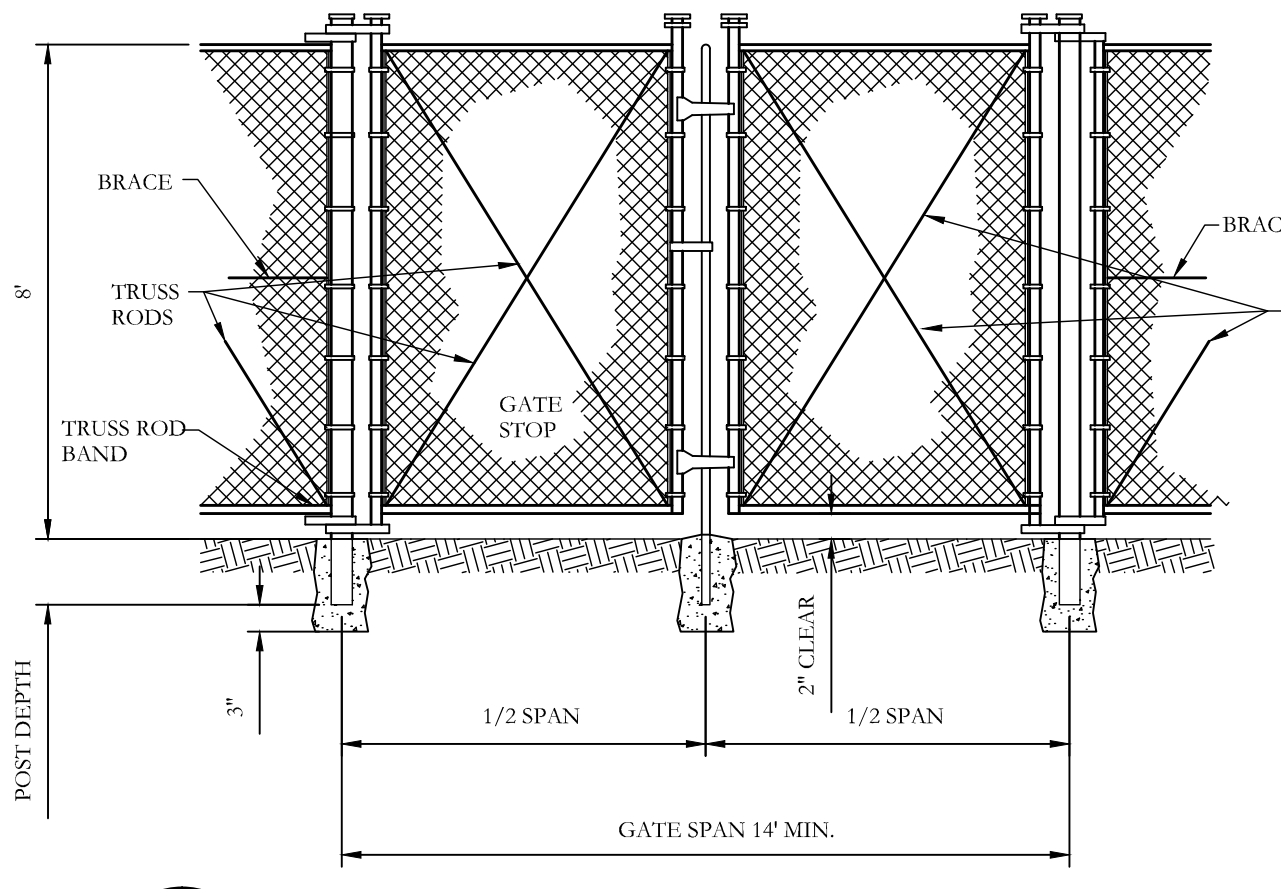
Paint System Number (from Spec):		
Paint System Title (from Spec):		
Coating Supplier:		
Representative:		
Surface Preparation:		
Paint Material (Generic)	Product Name/Number (Proprietary)	Min. Coats, Coverage



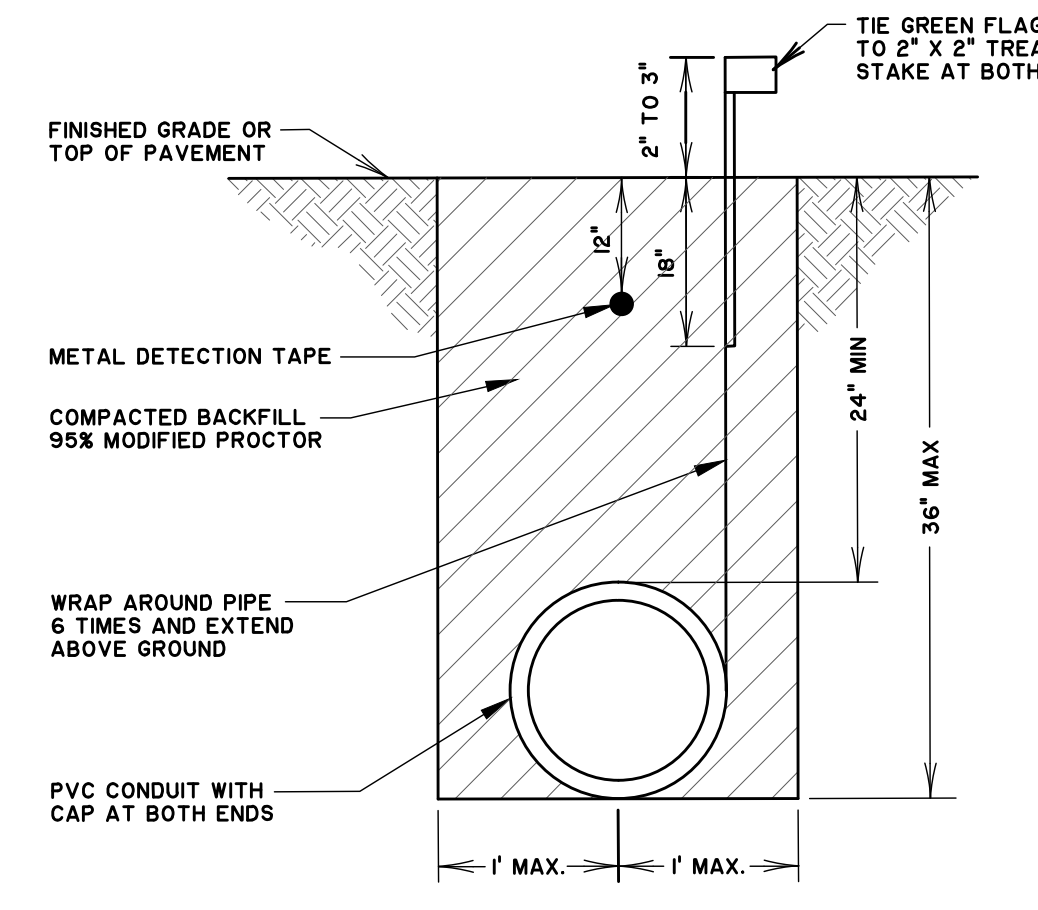
1 BOLLARD DETAIL
05-C-11 SCALE: N.T.S.



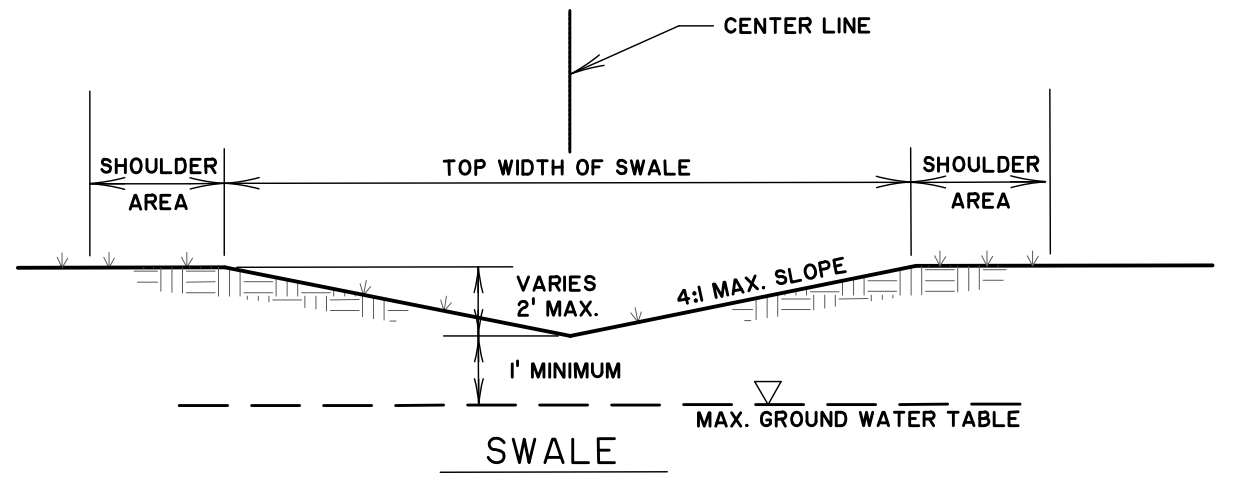
2 FENCE DETAILS
05-C-11 SCALE: N.T.S.



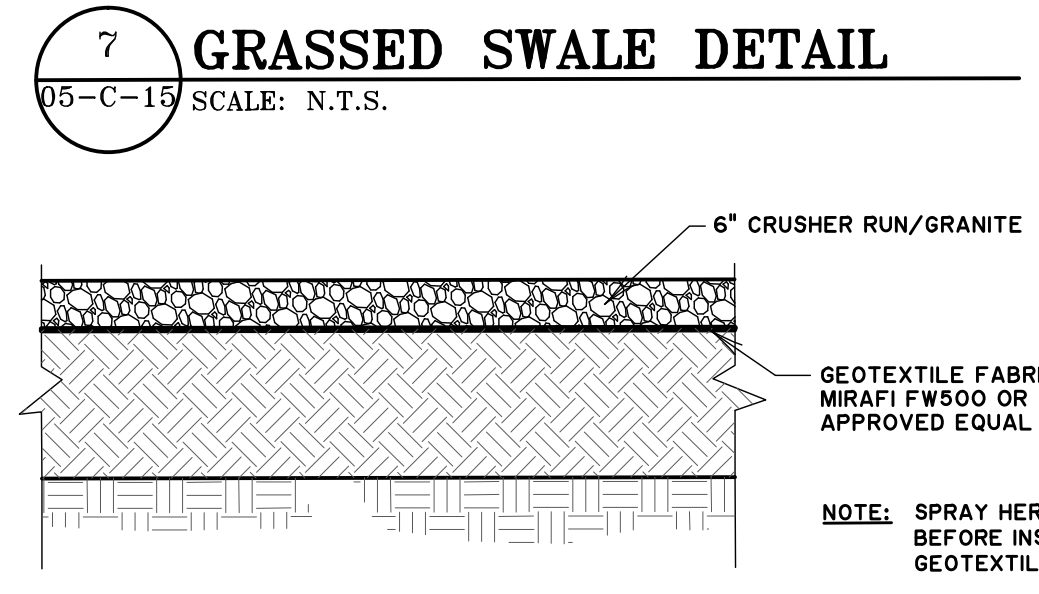
3 DOUBLE SWING DRIVE GATE
05-C-11 SCALE: N.T.S.



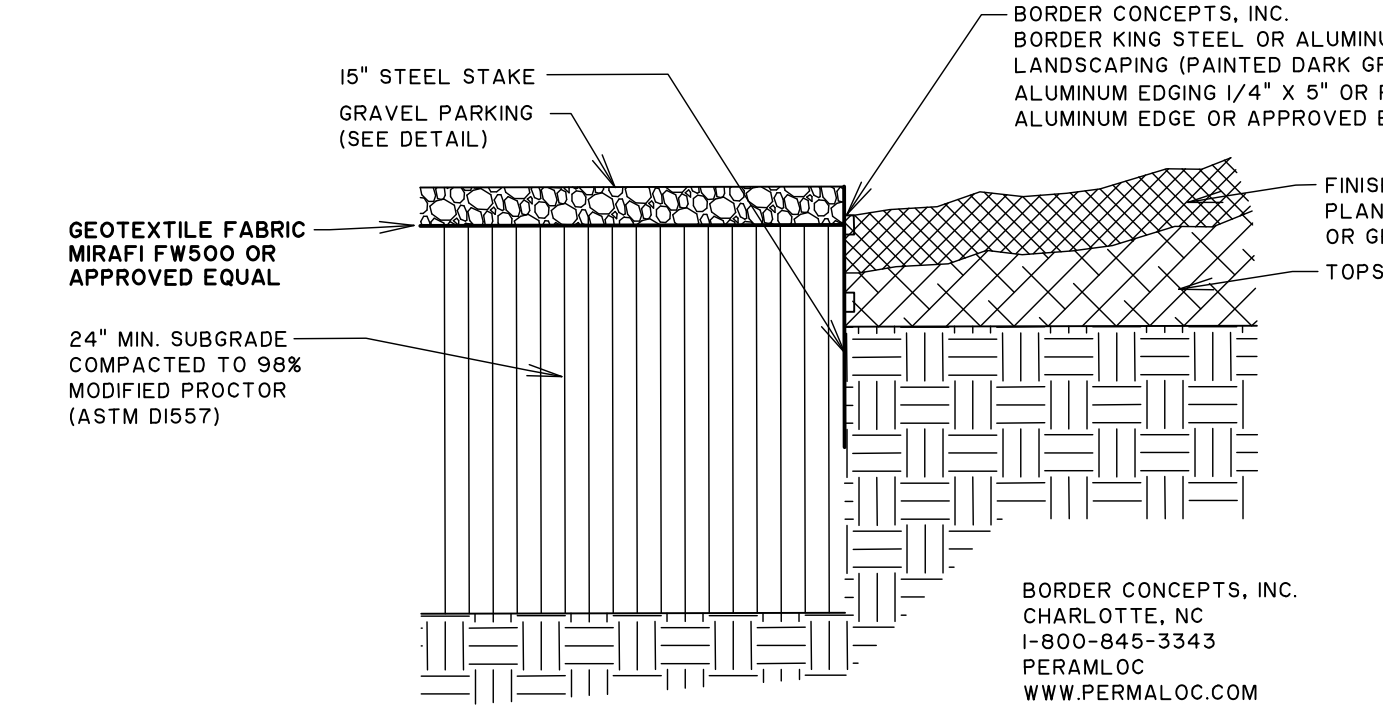
4 CONDUIT DETAIL
05-C-11 SCALE: N.T.S.



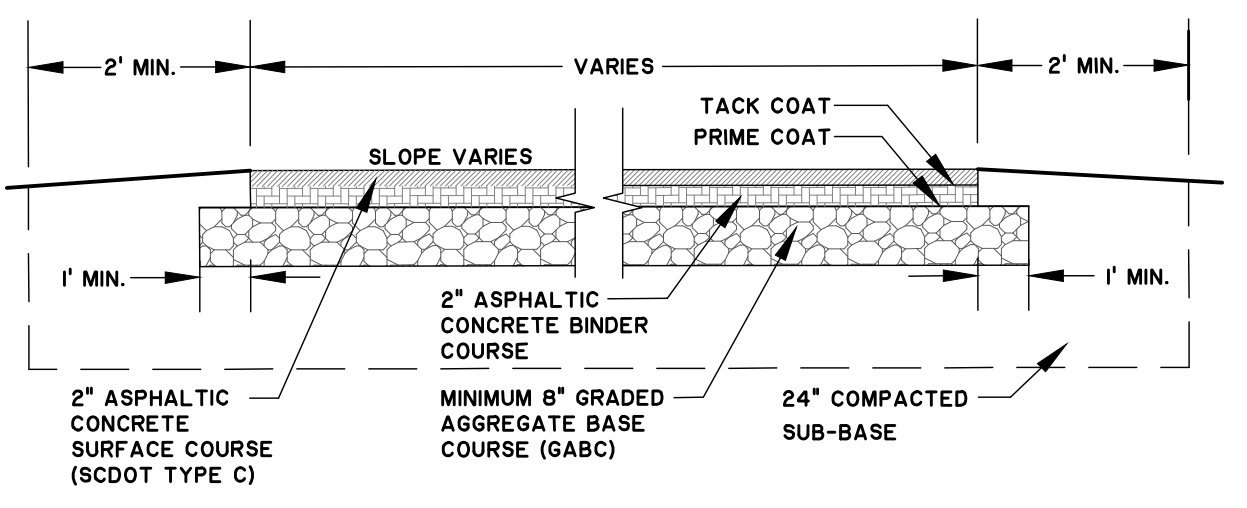
5 TYPICAL STORM DRAIN BEDDING DETAIL
05-C-11 SCALE: N.T.S.



6 GRASSED SWALE DETAIL
05-C-11 SCALE: N.T.S.

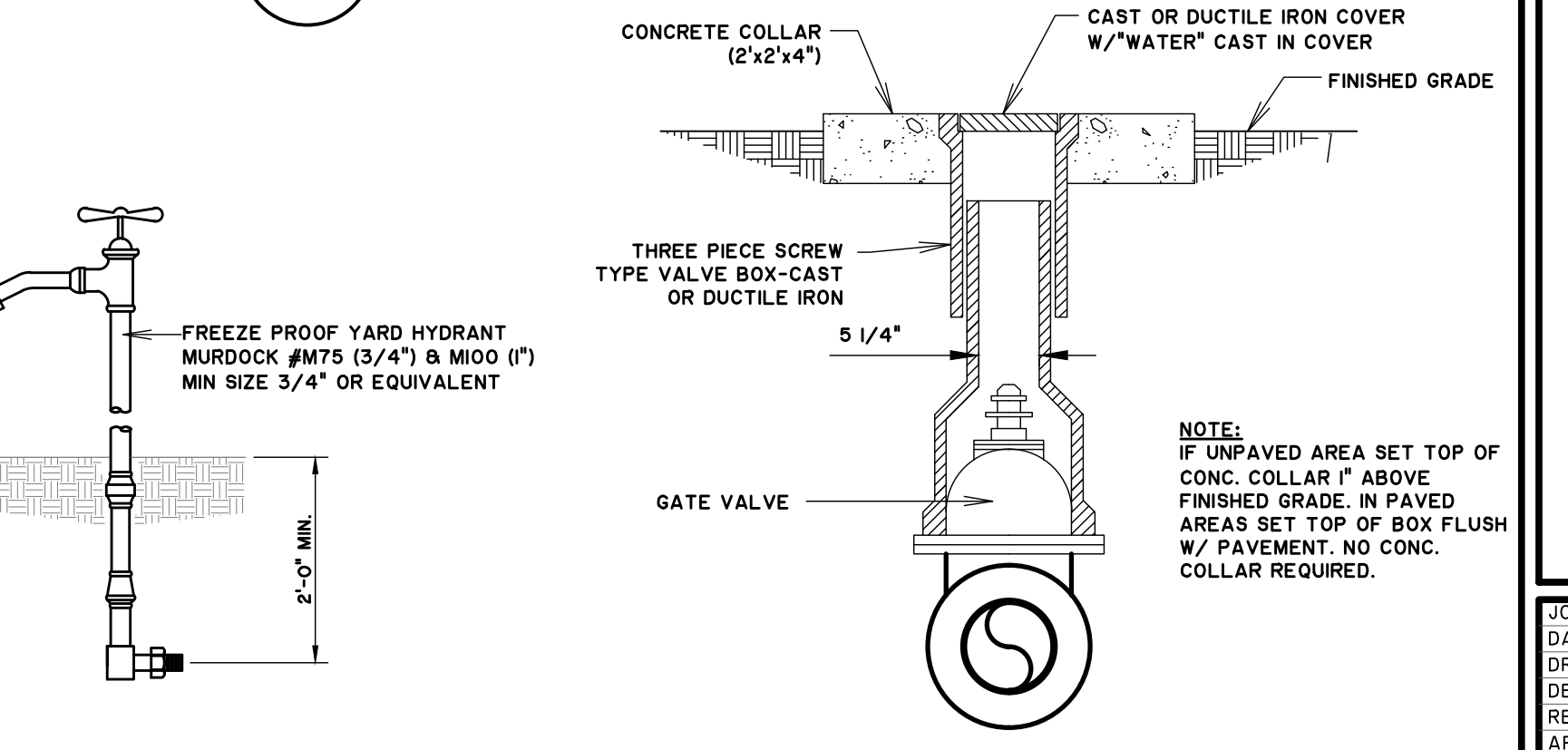


7 EDGING GRAVEL
05-C-11 SCALE: N.T.S.



8 PLANT PAVEMENT SECTION
05-C-11 SCALE: N.T.S.

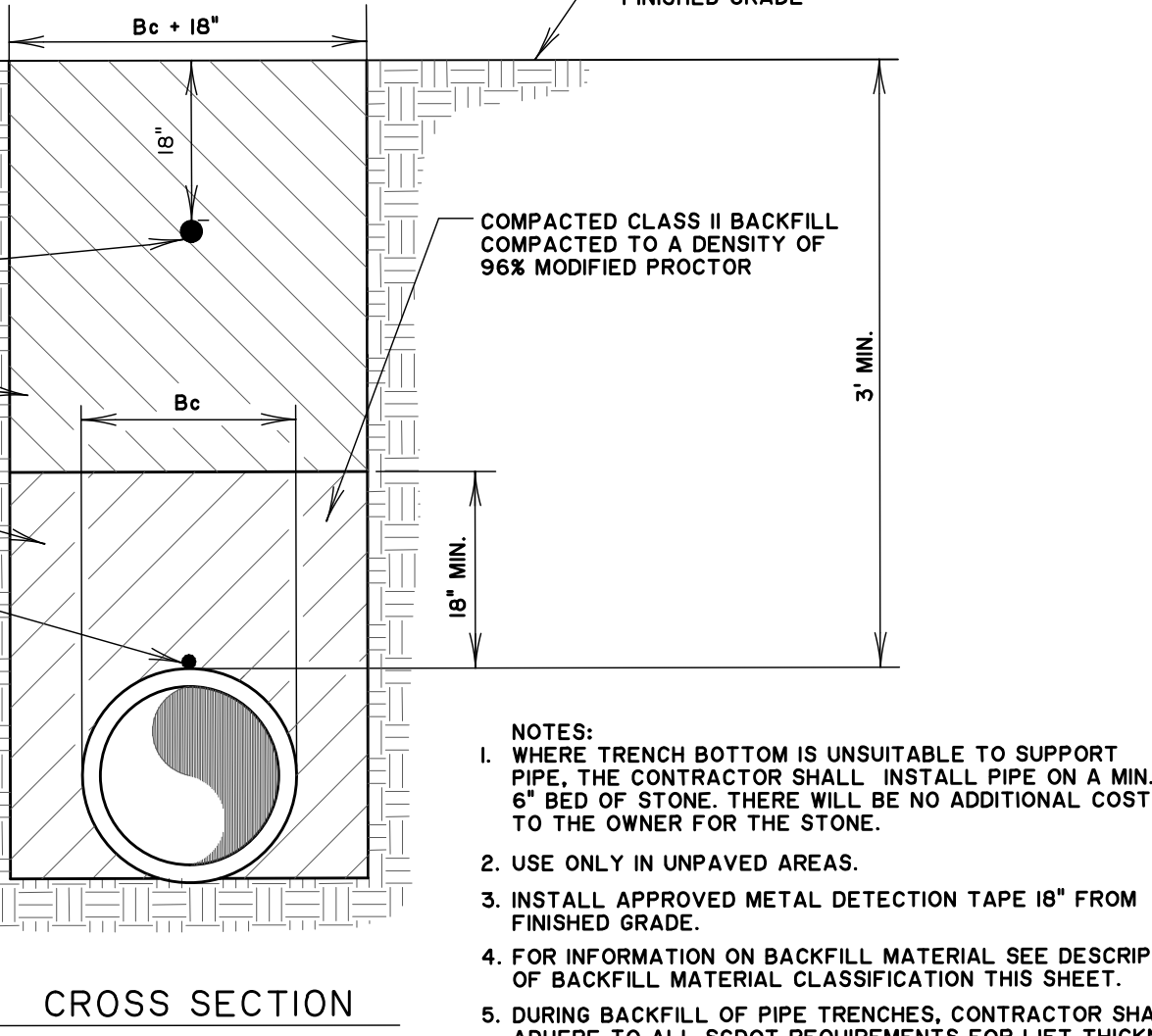
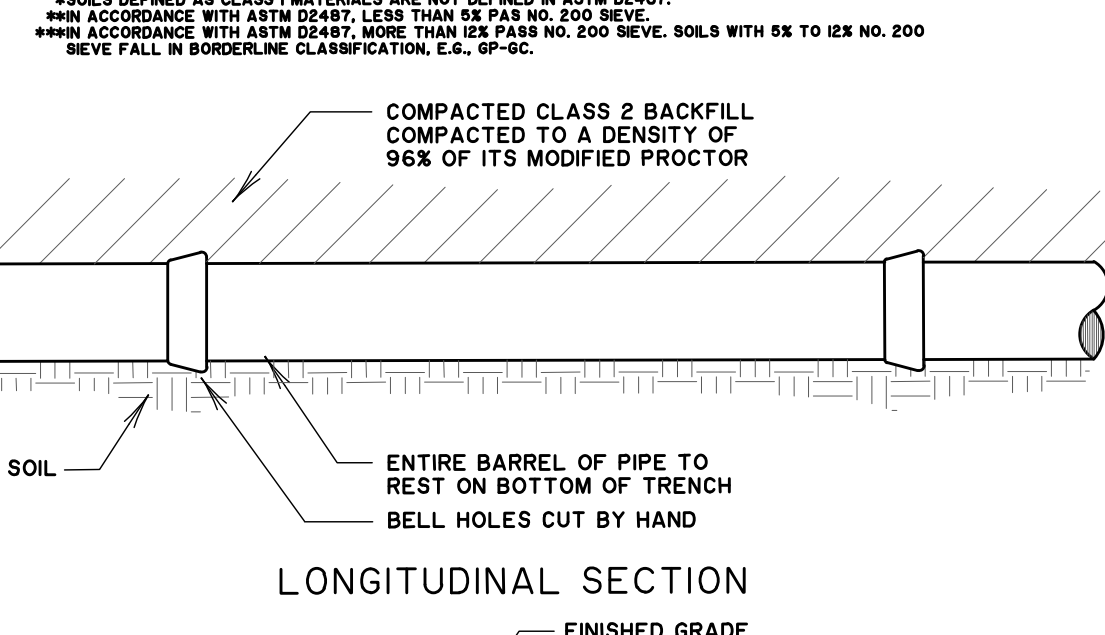
MAXIMUM TRENCH WIDTHS	Bc - PIPE SIZE	WIDTH
	2"	20"
	2 1/2"	22"
	3"	24"
	4"	28"
	6"	30"
	8"	30"
	10"	32"
	12"	34"
	14"	34"
	16"	36"



9 VALVE BOX DETAILS
05-C-11 SCALE: N.T.S.

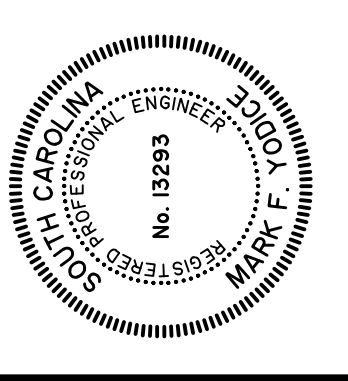
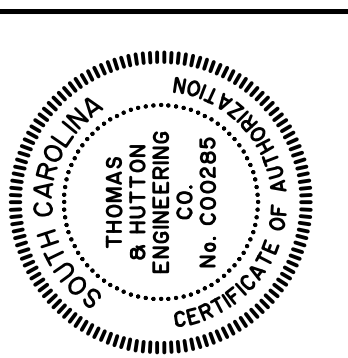
DESCRIPTION OF BACKFILL MATERIAL CLASSIFICATION UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

SOIL CLASS	SOIL TYPE (USCS)	DESCRIPTION OF MATERIAL CLASSIFICATION
CLASS I SOILS	GM, GC	MANUFACTURED ANNUAL GRANULAR MATERIAL, 1/4 TO 1-1/2 INCHES (6 TO 40 MM) SIZE, INCLUDING MATERIALS HAVING REGIONAL SIGNIFICANCE SUCH AS CRUSHED STONE OR ROCK, BROKEN CORAL, CRUSHED SLAG, CRACKERS, OR CRUSHED SHELLS.
CLASS II SOILS	GW	WELL-GRADED GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES, 50% OR MORE RETAINED ON NO. 40 sieve, MORE THAN 95% RETAINED ON NO. 200 sieve, CLEAN.
	GP	POORLY GRADED GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES, 50% OR MORE RETAINED ON NO. 40 sieve, MORE THAN 95% RETAINED ON NO. 200 sieve, CLEAN.
CLASS III SOILS	SW	WELL-GRADED SANDS AND GRAVELLY SANDS, LITTLE OR NO FINES, MORE THAN 50% PASSES NO. 40 sieve, MORE THAN 95% RETAINED ON NO. 200 sieve, CLEAN.
	SP	POORLY GRADED SANDS AND GRAVELLY SANDS, LITTLE OR NO FINES, MORE THAN 50% PASSES NO. 40 sieve, MORE THAN 95% RETAINED ON NO. 200 sieve, CLEAN.
CLASS IV SOILS	GM	SILTY GRAVELS, GRAVEL-SAND MIXTURES, 50% OR MORE RETAINED ON NO. 40 sieve, MORE THAN 50% PASSES NO. 200 sieve.
	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, 50% OR MORE RETAINED ON NO. 40 sieve, MORE THAN 50% PASSES NO. 200 sieve.
	SM	SILTY SANDS, SAND-SILT MIXTURES, MORE THAN 50% PASSES NO. 40 sieve, MORE THAN 50% RETAINED ON NO. 200 sieve.
CLASS V SOILS	SC	CLAYEY SANDS, SAND-CLAY MIXTURES, MORE THAN 50% PASSES NO. 40 sieve, MORE THAN 50% RETAINED ON NO. 200 sieve.
	ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, LIQUID LIMIT 50% OR LESS, 50% OR MORE PASSES NO. 200 sieve.
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS, LIQUID LIMIT 50% OR LESS, 50% OR MORE PASSES NO. 200 sieve.
CLASS VI SOILS	MH	INORGANIC SILTS, MICA-CORDED OR DIATOMACEOUS FINE SANDS OR SILTS, ELASTIC SILTS, LIQUID LIMIT GREATER THAN 50%, 50% OR MORE PASSES NO. 200 sieve.
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS, LIQUID LIMIT GREATER THAN 50%, 50% OR MORE PASSES NO. 200 sieve.
	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY, LIQUID LIMIT 50% OR LESS, 50% OR MORE PASSES NO. 200 sieve.
CLASS VII SOILS	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, LIQUID LIMIT GREATER THAN 50%, 50% OR MORE PASSES NO. 200 sieve.
	PT	PEAT, MUCK AND OTHER HIGHLY ORGANIC SOILS.



10 TYPICAL STORM DRAIN BEDDING DETAIL
05-C-11 SCALE: N.T.S.

11 CROSS SECTION



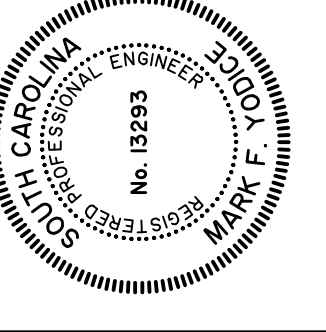
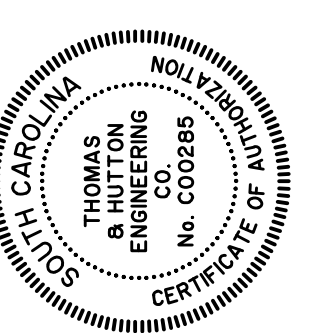
NO.	REVISIONS	DATE	BY
1	BID ADDENDUM NO. 2		

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CHARLESTON COUNTY, SOUTH CAROLINA
KIAWAH RIVER PLANTATION WWTP
CIVIL DETAILS

JOB NO: J-25328.0000
DATE: 12/18/15
DRAWN: DNF
DESIGNED: KEM
REVIEWED: MFY
APPROVED: MFY
SCALE: AS NOTED

05-C-11



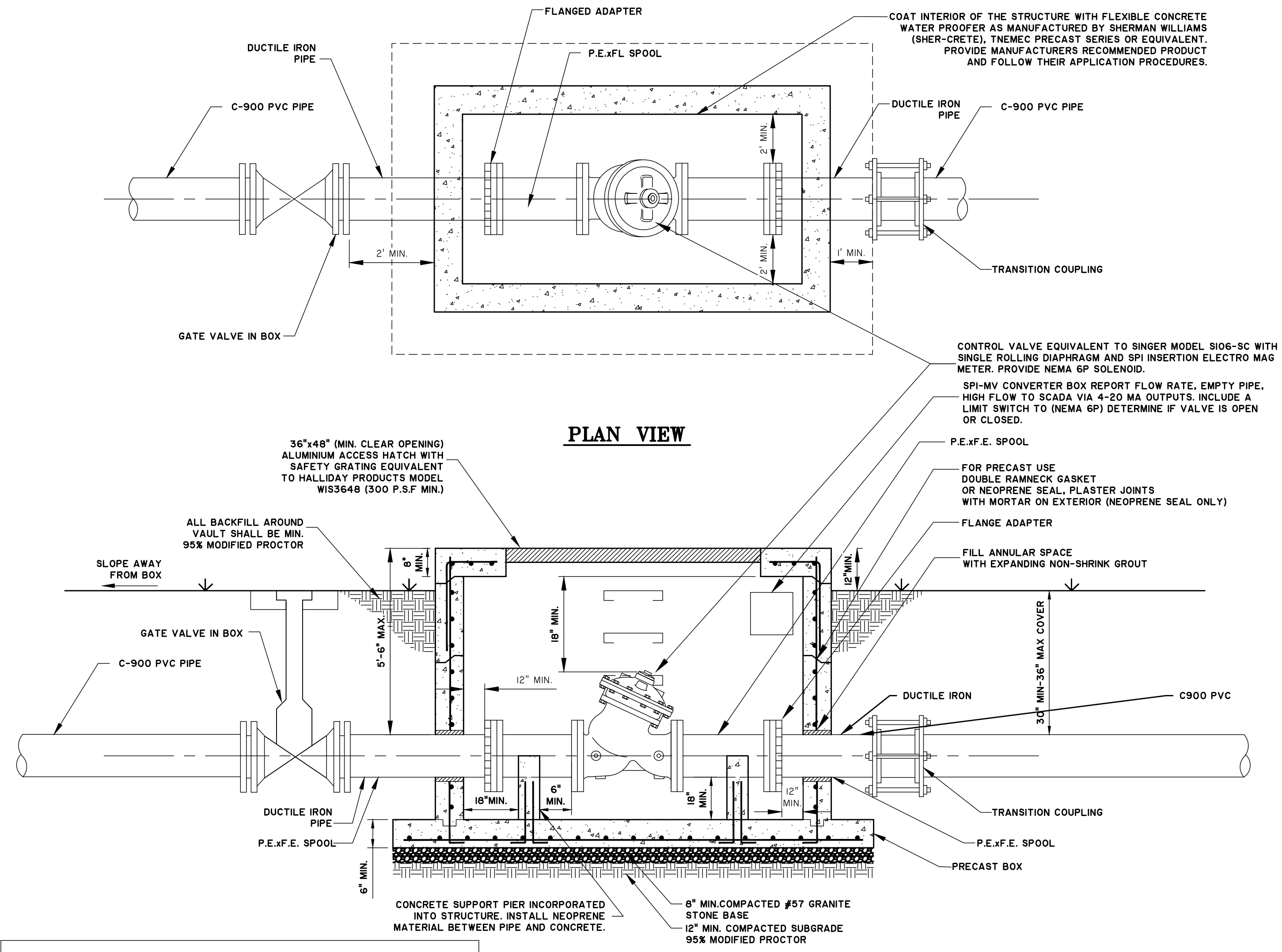
NO.	BID ADDENDUM NO.2	REVISIONS	BY	DATE

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KIAWAH RIVER PLANTATION
 CHARLESTON COUNTY, SOUTH CAROLINA
KIAWAH RIVER PLANTATION WWTP
DETAILS AND SECTIONS

JOB NO:	J-25328.0000
DATE:	12/18/15
DRAWN:	DNF
DESIGNED:	KEM
REVIEWED:	MFY
APPROVED:	AS NOTED

09-C-04

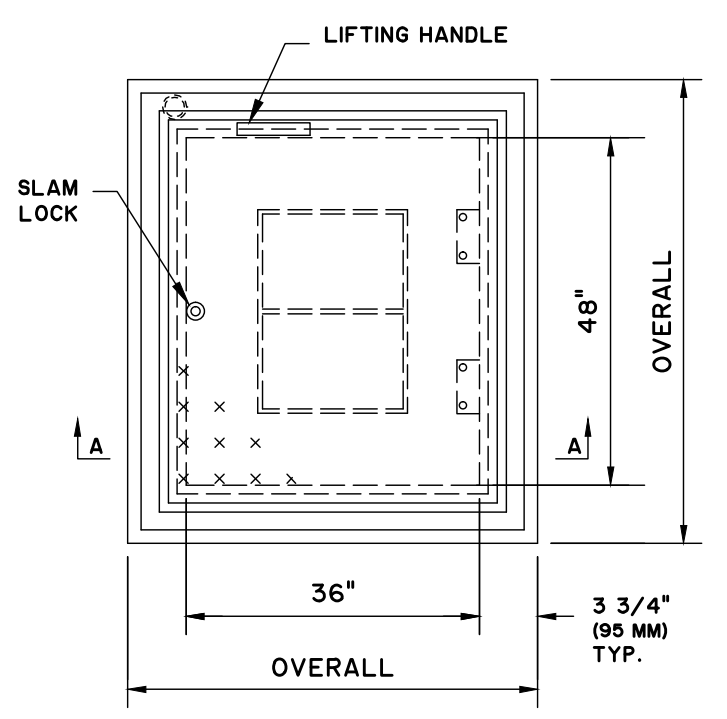


NOTE:
 LAS SYSTEM SUPPLIER SHALL PROVIDE SHOP DRAWINGS CONTAINING AT LEAST:
 1. SYSTEM LAYOUT
 2. PRODUCTS
 3. IRRIGATION SPRAY COVERAGE
 4. FLOW, HEAD LOSS, AND PRESSURE CALCULATIONS

LAS CONTROL VALVE ASSEMBLY
 SCALE: NTS

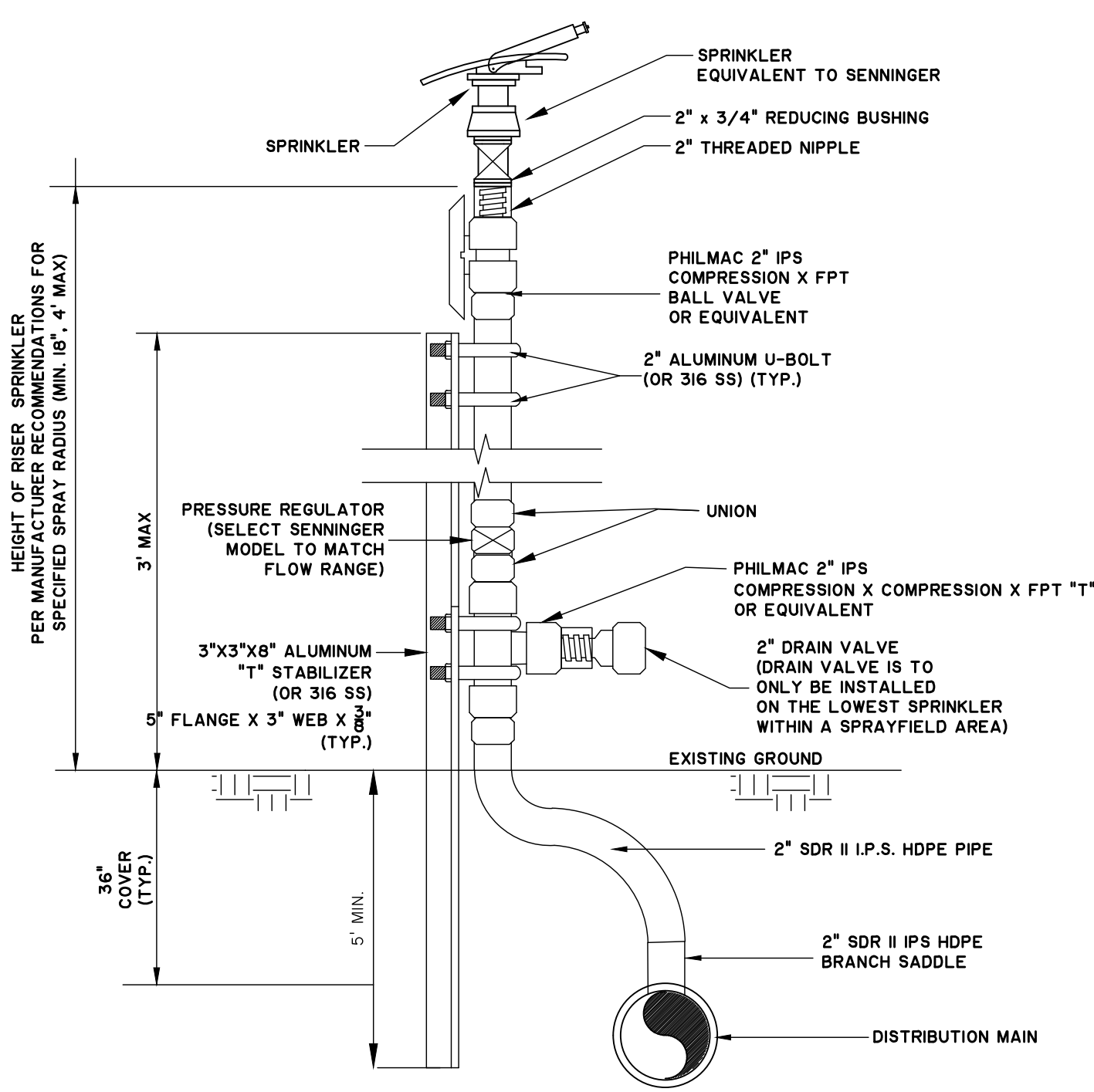
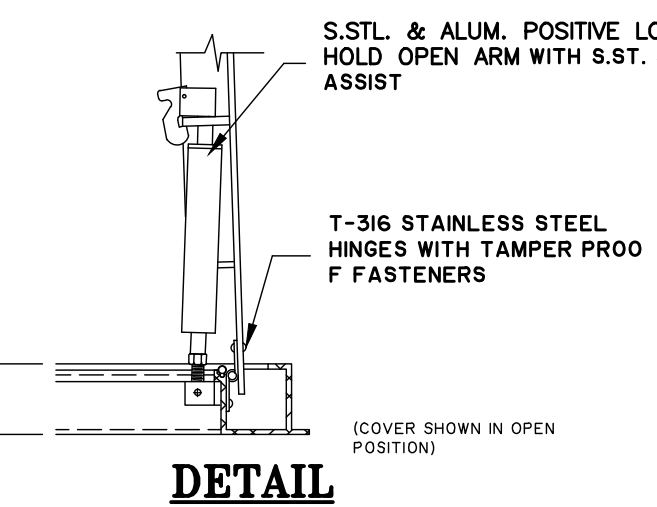
STRUCTURE NOTES:

- 1.00 PRECAST CONCRETE**
- 1.01 PRECAST CONCRETE DESIGN, MANUFACTURE AND ERECTION SHALL CONFORM TO THE FOLLOWING:
 - A. ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", LATEST EDITION.
 - B. PCI MNL-117 "MANUAL FOR QUALITY CONTROL FOR PLANTS AND PRODUCTION OF PRECAST CONCRETE PRODUCTS", LATEST EDITION.
 - C. PCI DESIGN HANDBOOK, LATEST EDITION.
 - 1.02 PRE-CAST CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
 - 1.03 REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60 UNLESS NOTED OTHERWISE.
 - 1.04 PRECAST MANUFACTURER IS RESPONSIBLE FOR THE STRUCTURAL DESIGN OF PRECAST ELEMENTS AND THEIR CONNECTIONS. DESIGN SHALL BE PERFORMED BY A STRUCTURAL ENGINEER REGISTERED IN THE PROJECT STATE. SHOP DRAWINGS AND CALCULATIONS SEALED BY THE ENGINEER SHALL BE SUBMITTED. REVIEW OF CALCULATIONS AND SHOP DRAWINGS SHALL BE FOR GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS AND SHALL NOT RELIEVE CONTRACTOR AND ITS ENGINEER OF THE FULL RESPONSIBILITY FOR DESIGN OF PRECAST AND CONNECTIONS. DO NOT BEGIN FABRICATION UNTIL SHOP DRAWINGS ARE COMPLETED AND REVIEWED.
 - 1.05 DESIGN OF PRECAST MEMBERS AND CONNECTIONS SHALL INCLUDE BUT NOT LIMITED TO THE FOLLOWING:
 - DEAD LOAD = ACTUAL WEIGHT OF STRUCTURE + EQUIPMENT
 - LIVE LOAD = 300 PSF MIN.
 - WIND LOAD = NOT APPLICABLE
 - LATERAL EARTH PRESSURE = 200 PSF MIN.
 - SEISMIC LOADS = 0.086 * W (DETERMINE "W" IN ACCORDANCE WITH ASCE 7-10)
 - 1.06 UNLESS NOTED OTHERWISE ALL EXPOSED STEEL ANCHORS AND PLATES SHALL BE 316 STAINLESS STEEL.
 - 1.07 REPRODUCED COPIES OF ASTM C1433 "STANDARD SPECIFICATION FOR PRECAST REINFORCED CONCRETE MONOLITHIC BOX SECTIONS FOR CULVERTS, STORM DRAINS AND SEWERS" WILL NOT BE ACCEPTED AS A SUBSTITUTE.
 - 1.08 DURING HANDLING, STORAGE, AND TRANSPORTING, LIFT AND SUPPORT MEMBERS ONLY AT THE LIFTING AND SUPPORT POINTS SHOWN ON THE SHOP DRAWINGS. USE PROPER EQUIPMENT AND METHODS OF BRACING DURING TRANSPORTATION TO INSURE MEMBERS WILL ARRIVE AT THE JOB SITE UNDAMAGED. PROVIDE PADDING TO PREVENT CHIPPING OF THE CONCRETE.
 - 1.09 IF CAST-IN LIFTING LOOPS OR INSERTS ARE USED, CUT OFF LOOPS OR INSERTS A MINIMUM OF 1/2" BELOW SURFACE AND FILL RECESS WITH AN EPOXY GROUT ACCEPTED BY THE ENGINEER.
- 2.00 STRUCTURAL FILL AND COMPACTION**
- 2.01 THE SOILS TO BE USED AS STRUCTURAL FILL SHALL BE FREE OF ORGANICS, ROOTS, OR OTHER DELETERIOUS MATERIALS. IT SHALL BE NON-PLASTIC GRANULAR MATERIAL CONTAINING LESS THAN 25 PERCENT FINES PASSING THE NO. 200 SIEVE.
 - 2.02 ALL STRUCTURAL FILLS SHALL BE PLACED IN THIN (EIGHT TO TEN INCHES LOOSE) LIFTS AND COMPACTED TO A MINIMUM OF 95% OF THE SOIL'S MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1557).
 - 2.03 FILL BROUGHT TO THE SITE SHALL BE WITHIN THREE PERCENT (WET OR DRY) OF THE OPTIMUM MOISTURE CONTENT. SOME MANIPULATION OF THE MOISTURE CONTENT (SUCH AS WETTING, DRYING) WILL BE REQUIRED DURING THE FILLING OPERATION TO OBTAIN THE REQUIRED DEGREE OF COMPACTION.
 - 2.04 CONTRACTOR SHALL PROVIDE COMPACTION TEST RESULTS FOR ALL FILL MATERIAL WITHIN AREA OF THE STRUCTURE. A MINIMUM OF ONE (1) TEST SHALL BE PERFORMED AND RESULTS SUBMITTED TO ENGINEER PRIOR TO ACCEPTANCE OF THE STRUCTURE.

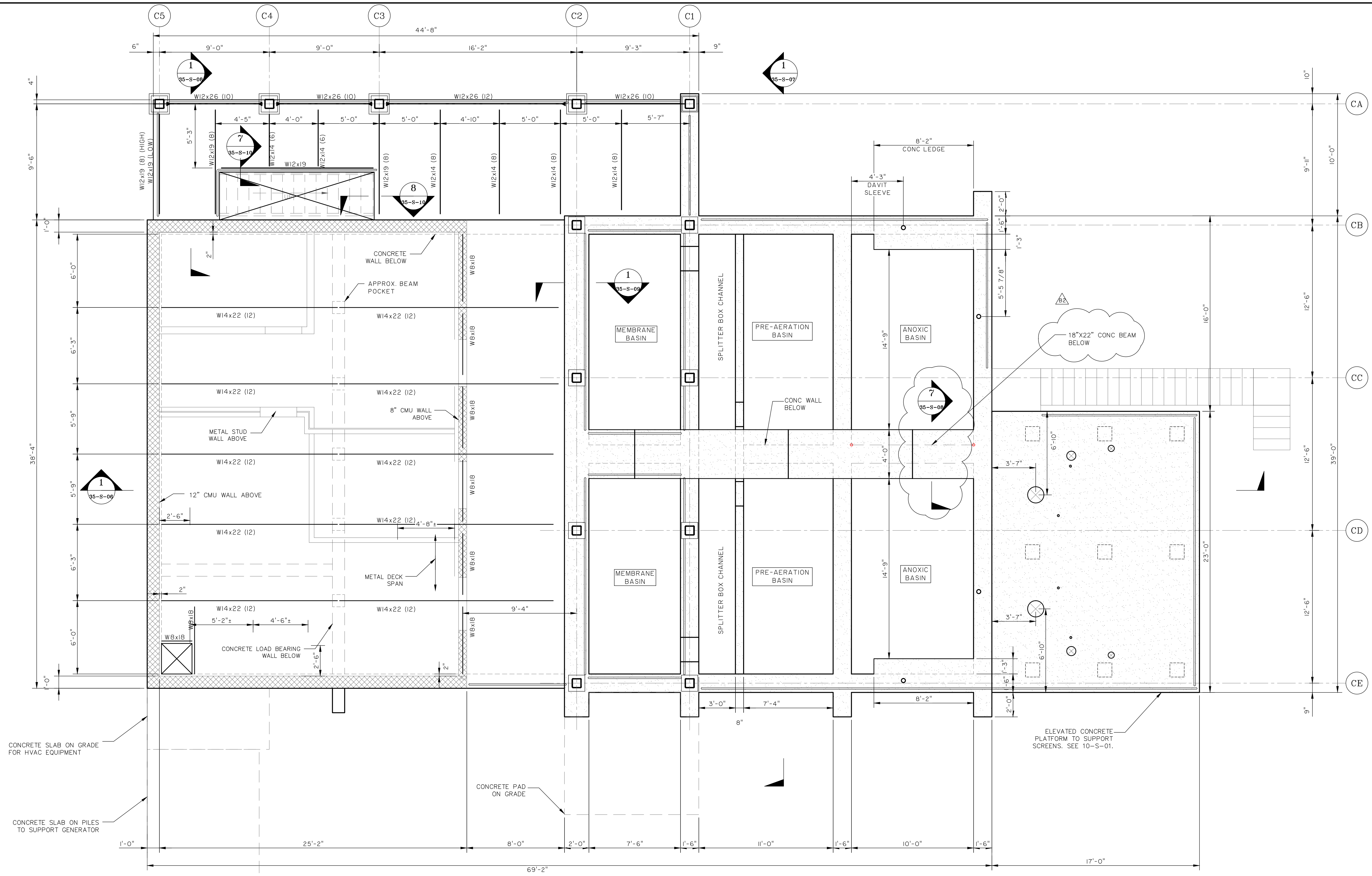


ACCESS DOOR DETAIL
 SCALE: NONE

- NOTE:**
1. ALUMINUM ACCESS HATCH SHALL BE EQUIVALENT TO HALLIDAY PRODUCTS MODEL WIS3648 CHANNEL FRAME COVER w/ 300 P.S.F. MINIMUM LOAD RATING.
 2. THE ALUMINUM ACCESS HATCH SHALL INCLUDE STEEL SAFETY GRATING. STEEL GRATING SHALL CONFORM TO THE LATEST REVISIONS OF OSHA STANDARDS 1910.23 AND 1910.146. GRATING SHALL BE PAINTED SAFETY ORANGE.

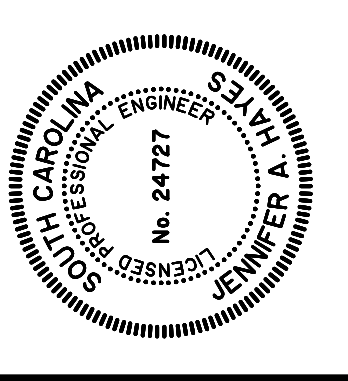
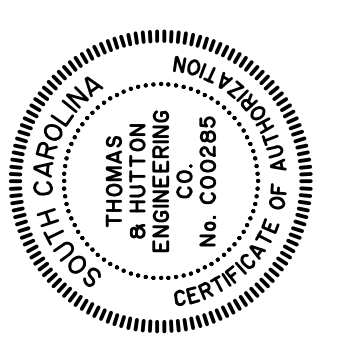


SPRAY RISER DETAIL w/ DRAIN
 SCALE: NONE



1 BASINS & BUILDING UPPER FRAMING PLAN
 SCALE: 1/4" = 1'-0"
 FIN. FLR. ELEV. = 28.0'
 T/STEEL ELEV. = 27.50'

- NOTES:
- FLOOR CONSTRUCTION * BUILDING U.N.O.: 4" CONCRETE ON 2", 20 GA., GALV. COMPOSITE METAL DECK. REINF. W/ 6x6-W21xW21 W.W.R.
 - WATERSTOPS TO BE INSTALLED AT ALL CONSTRUCTION JOINTS IN THE BASIN WALLS AND BASE SLAB, INCLUDING VERTICAL JOINTS. WATERSTOPS SHALL BE GREENSTREAK PVC RIBBED FLAT, STYLE NO. 784 OR APPROVED EQUAL.
 - INTERIOR OF WETWELL WALLS, SLABS AND PIPING SHALL BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
 - COORDINATE SIZE, LOCATION AND INSTALLATION OF OPENINGS W/ CIVIL PLANS AND WITH MANUFACTURERS.
 - ▶ - INDICATES MOMENT CONNECTIONS



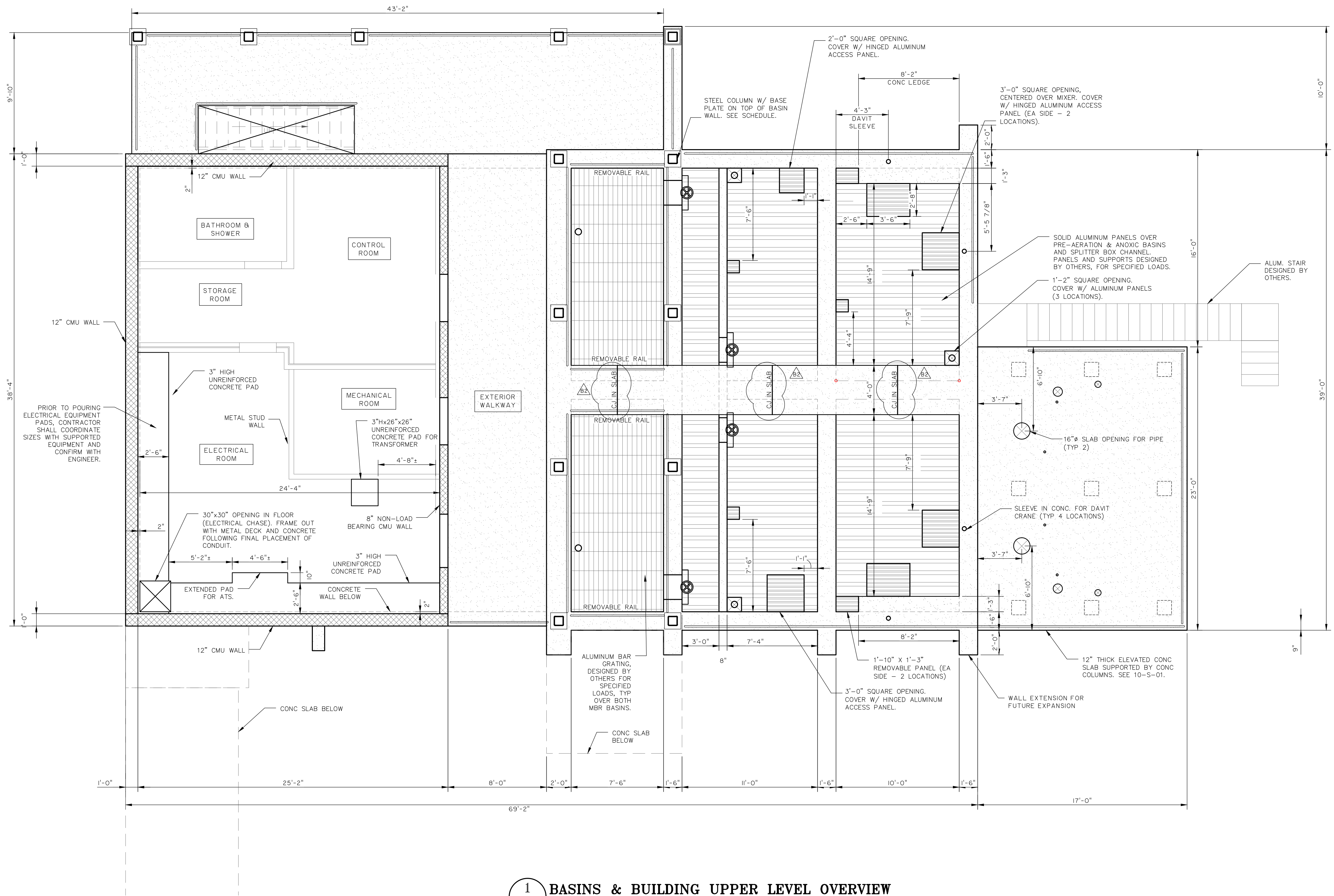
NO.	REVISIONS	DATE	BY
B2	BID ADDENDUM 2		JAH
			3.9.16

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KIAWAH RIVER PLANTATION WWTP
BASINS & BLDG 2ND FLR FRAMING PLAN

JOB NO:	J-25328.0000
DATE:	12/16/15
DESIGNED:	JAH/SHG
REVIEWED:	JAH/SHG
APPROVED:	MFY
SCALE:	AS NOTED

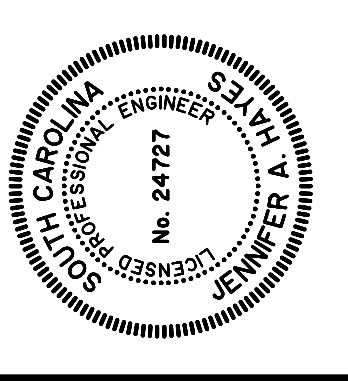
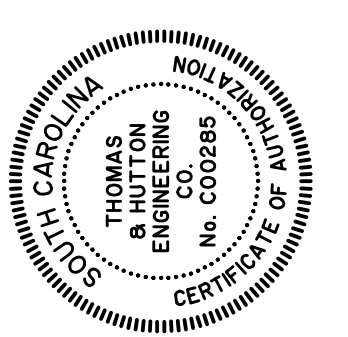
35-S-03



1 BASINS & BUILDING UPPER LEVEL OVERVIEW

35-S-04 SCALE: 1/4" = 1'-0"

NOTES:
 I. CJ IN SLAB IS A 1/4" WIDE X 1/4" DEEP SAW CUT IN CONCRETE WALKWAY SLAB.



NO.	REVISIONS	BY	DATE
B2	BID ADDENDUM 2	JAH	3/19/16
B1	BID ADDENDUM 1	JAH	3/3/16

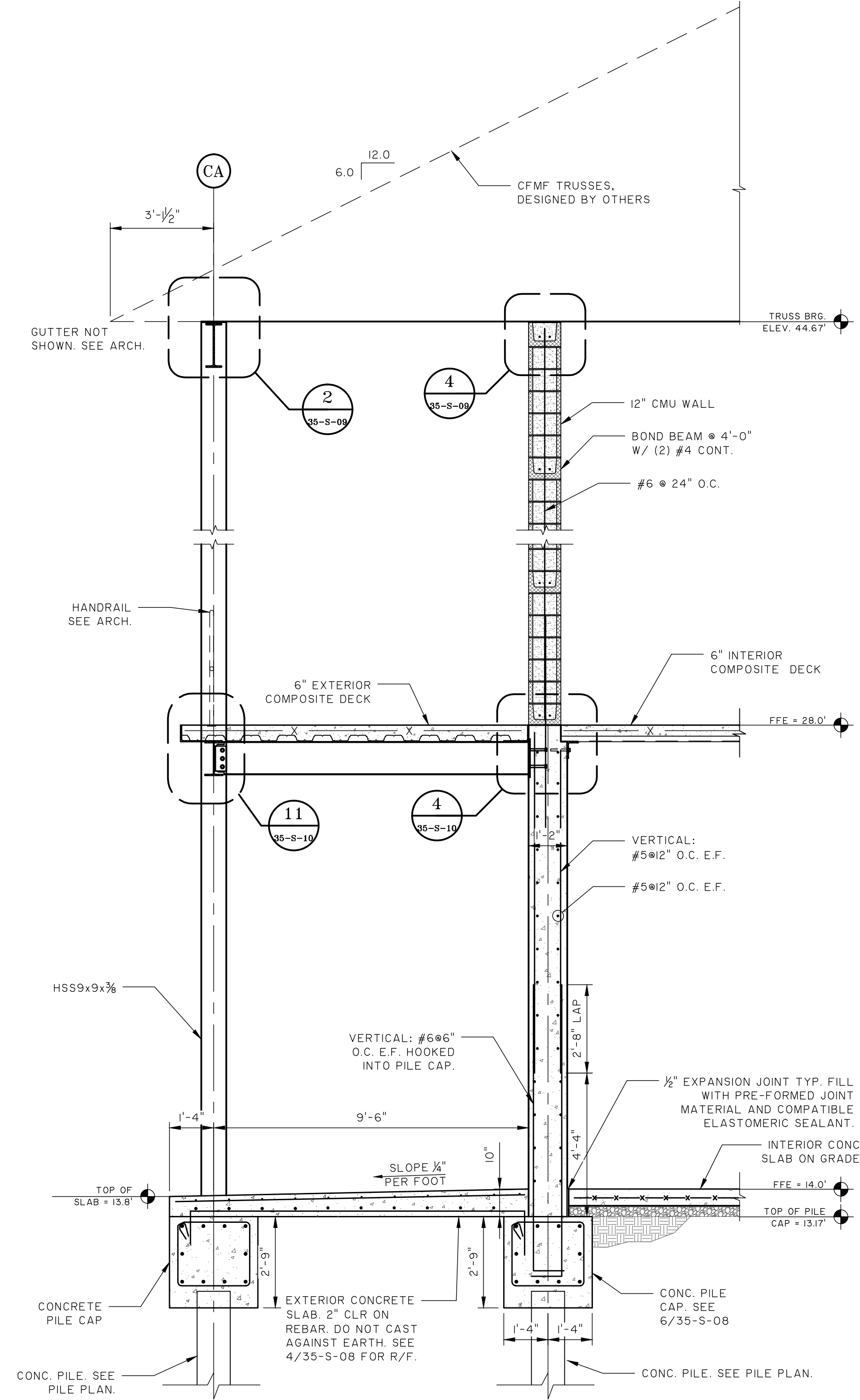
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BASINS & BLDG UPPER LEVEL OVERVIEW

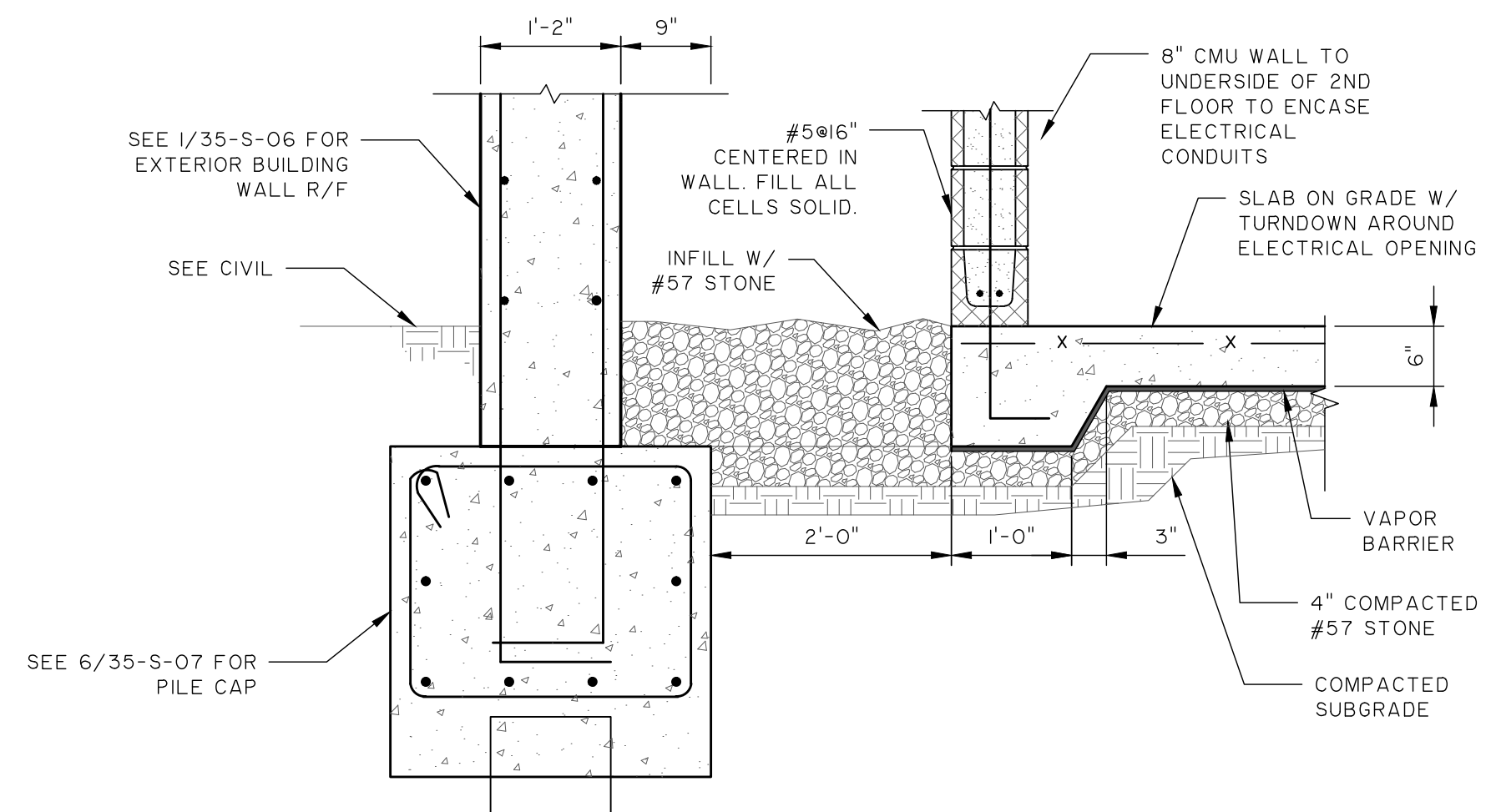
JOB NO: J-25328.0000
 DATE: 12/16/15
 DRAWN: JAH/SHG
 DESIGNED: JAH/EAC
 REVIEWED: JAH/SHG
 APPROVED: MFY
 SCALE: AS NOTED

35-S-04

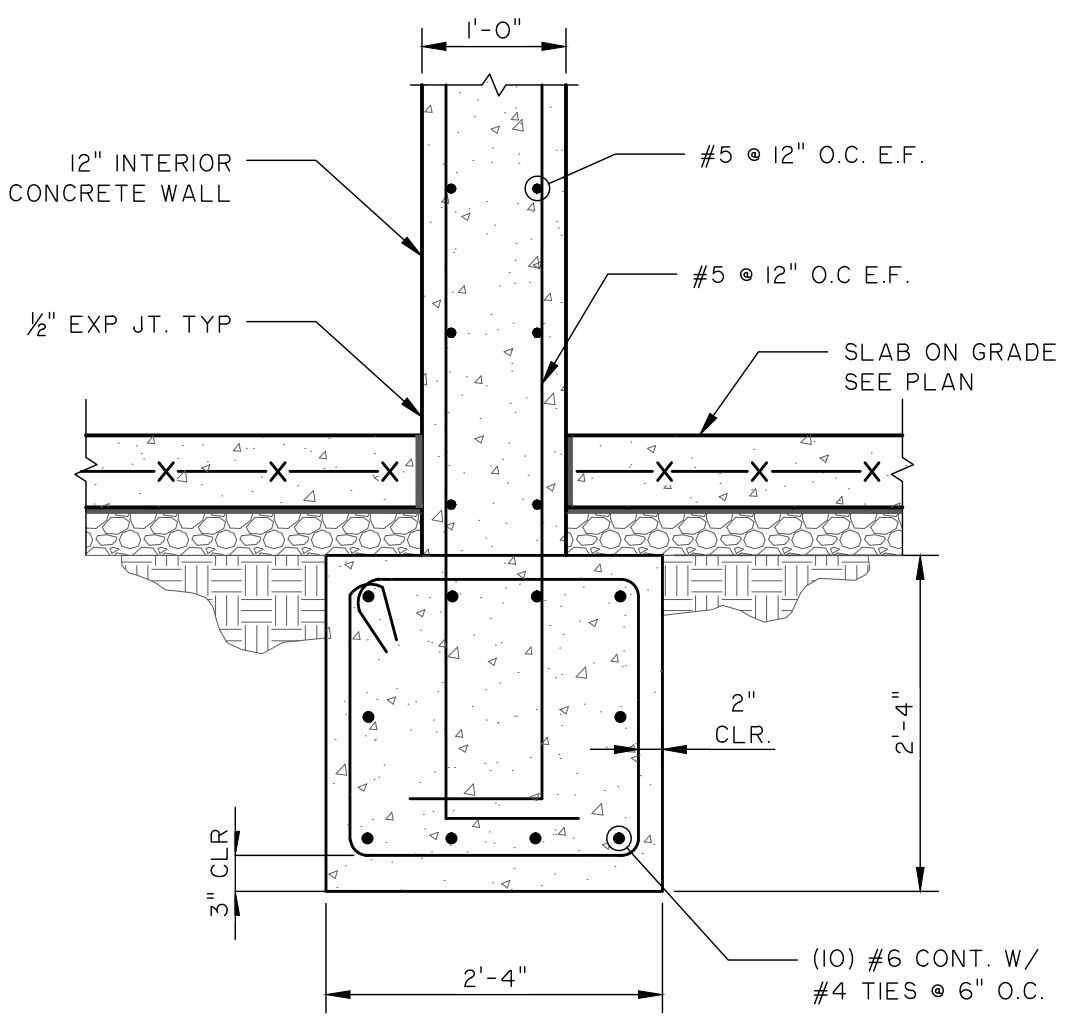
Z:\3528\3528-0000\Engineering\Drawings\Construction\3528-0000 - Structure - Room 104 - Summary.dwg - 12/17/2014 - 5:03:54 PM



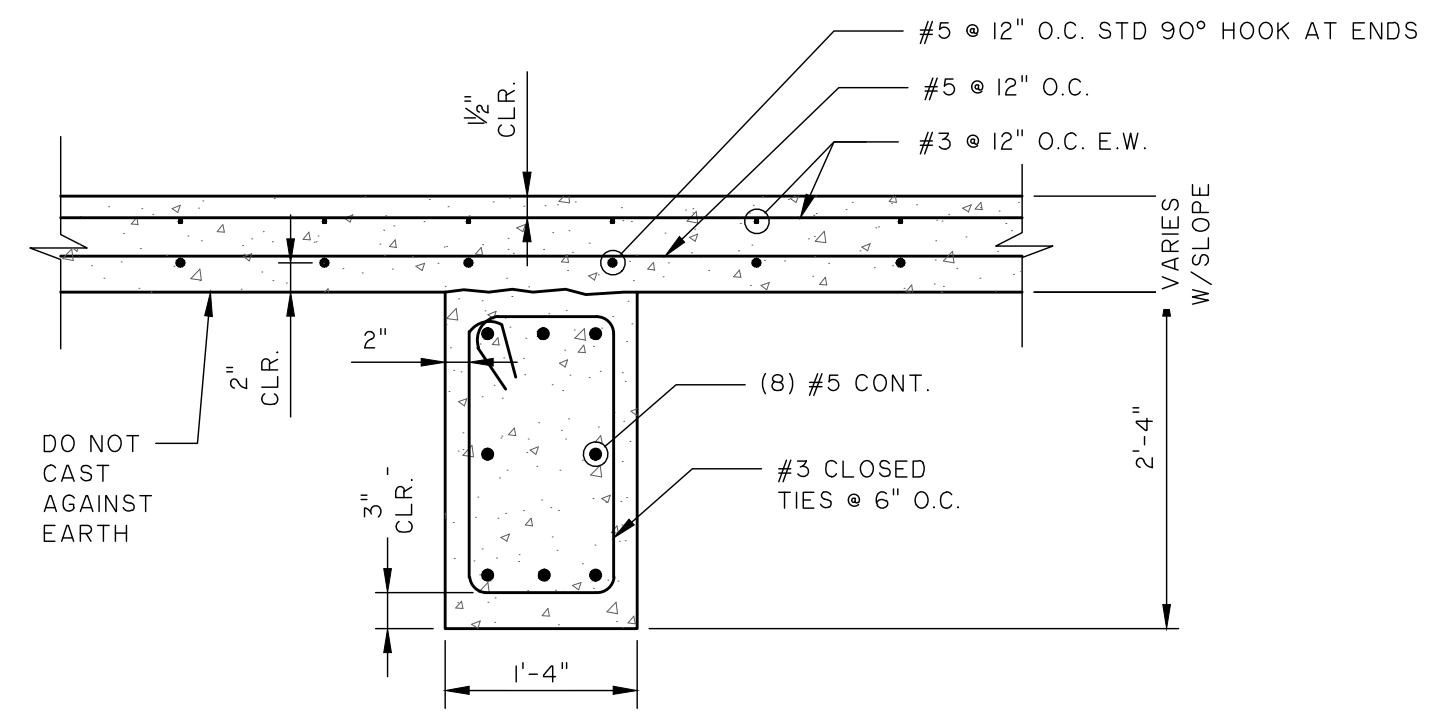
1 SECTION AT STAIR SLAB
 35-S-08 3/8" = 1'-0"



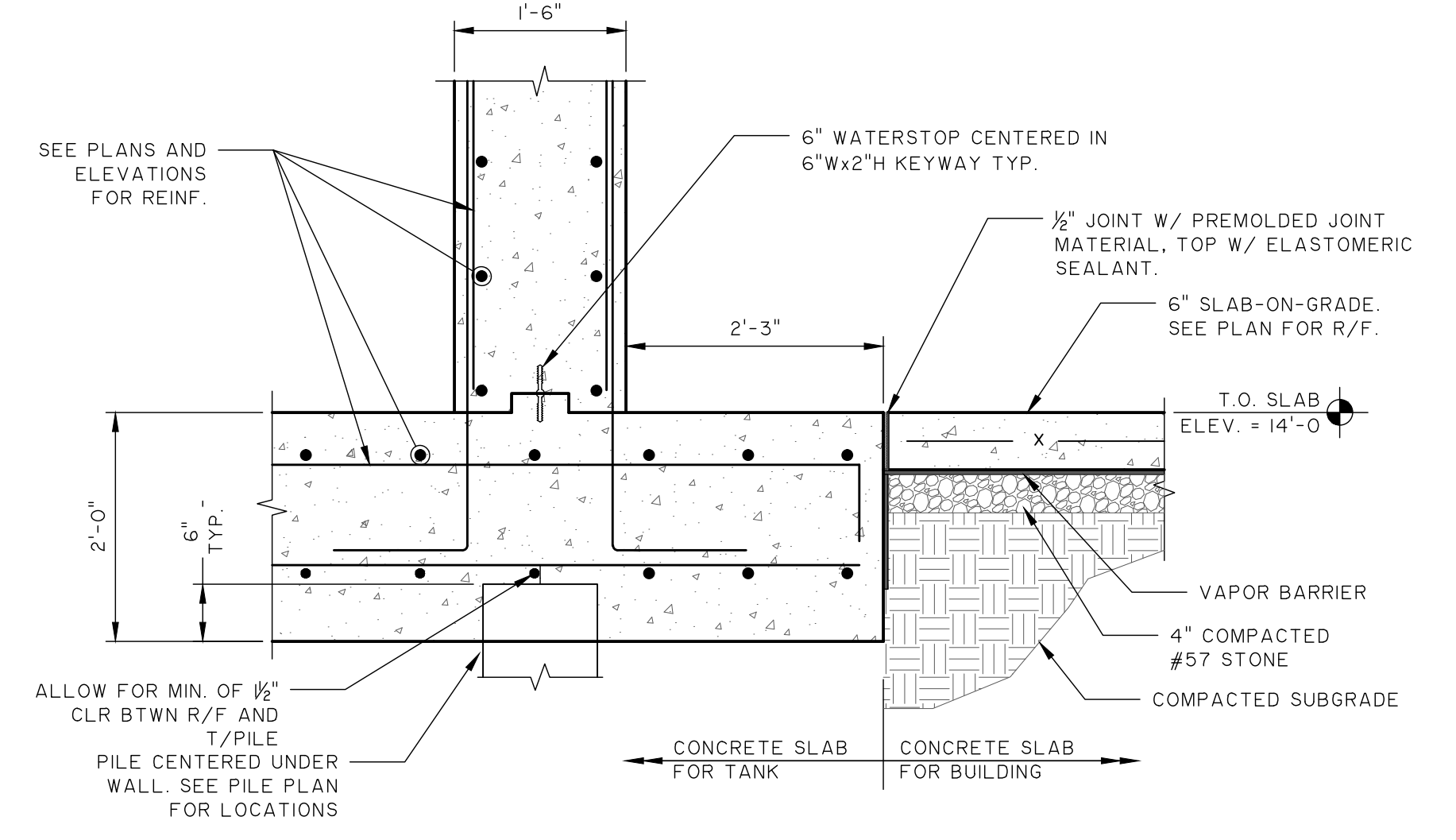
2 SECTION AT ELECTRICAL CHASE
 35-S-08 3/4" = 1'-0"



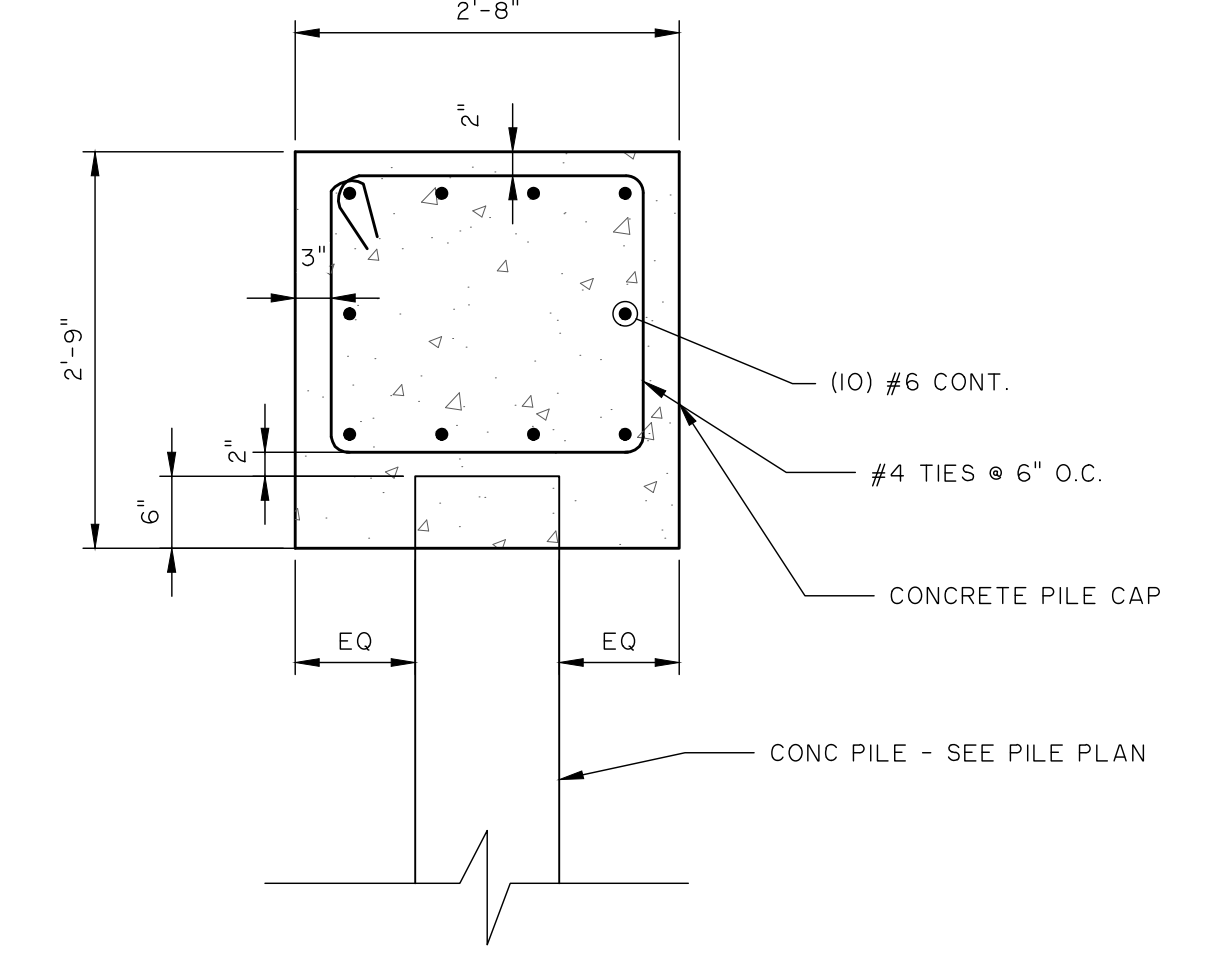
3 FOOTING AT INTERIOR WALL
 35-S-08 3/4" = 1'-0"



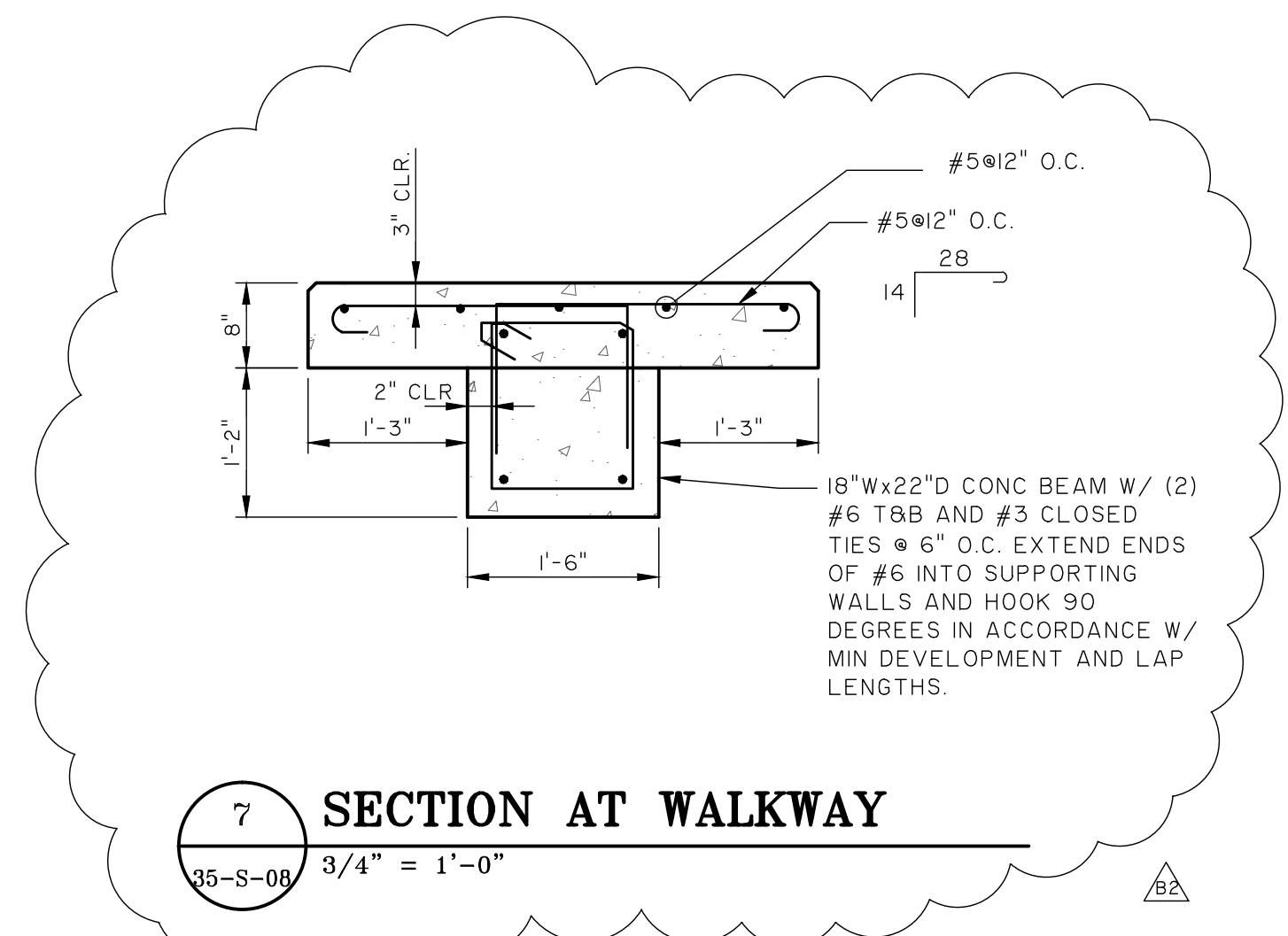
4 SECTION AT GRADE BEAM
 35-S-08 3/4" = 1'-0"



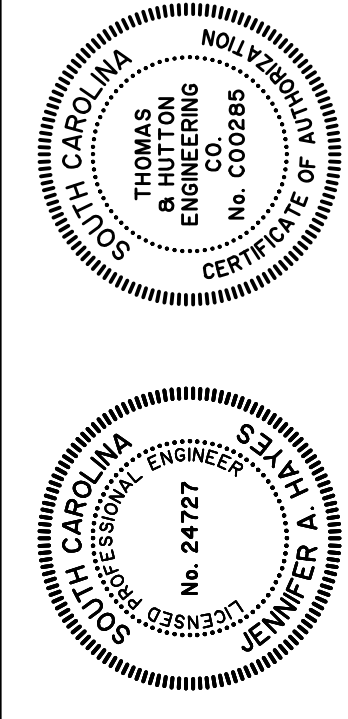
5 FOOTING SECTION
 35-S-08 3/4" = 1'-0"



6 TYPICAL PILE CAP
 35-S-08 3/4" = 1'-0"



7 SECTION AT WALKWAY
 35-S-08 3/4" = 1'-0"



NO.	BY	DATE
B2	JAH	3/16/15
BID ADDENDUM 2		
REVISIONS		

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KIAWAH RIVER PLANTATION
 CHARLESTON COUNTY, SOUTH CAROLINA
KIAWAH RIVER PLANTATION WWTP
BUILDING SECTIONS & DETAILS

JOB NO: J-25328.0000
 DATE: 12/18/15
 DRAWN: JAH/EAC
 DESIGNED: JAH/EAC
 REVIEWED: JAH/SHG
 APPROVED: MFY
 SCALE: AS NOTED

35-S-08