ADDENDUM NO. 3

NOTICE is hereby given to prospective Bidders of the following information, clarifications, and modifications to the Bidding Documents. The Bidding Documents remain unchanged except as indicated below. Bidders must acknowledge receipt of this Addendum in the Bid Form and comply with the requirements for submission of Bids as set forth in the Bidding Documents.

INFORMATION

The deadline to submit General Bids is Tuesday, November 21, 2017, at 2:00 PM at the Town Clerk's Office in Town Hall, 514 Main Street, First Floor, Warren, RI 02885. Bids will then and there be publicly opened and read aloud.

The deadline to submit questions for the General Bid opening is Monday, November 13, 2017, at 12:00 PM (noon). Note: Questions will only be accepted from and information will only be provided to entities registered as a Bidder in accordance with Section 00 11 16, INVITATION TO BID.

REQUEST FOR INFORMATION

The answers below are provided in response to questions and comments submitted by prospective Bidders.

1. *Please review the Operations Building winder call-outs. Several 'W9' windows on the plans appear to be 'W10' windows on the elevations.*

   Answer: Elevation views are correct. The intent is to have operable windows in the Operations Office, Training Room, and Lunch Room.

2. *Please clarify where the 07 10 00 Damp Proofing is required.*

   Answer: Damp proofing is required on new concrete walls below grade only where habitable spaces will be located on the interior. This is limited to Chemical Building next to the New Reactor Tank, and the Sludge Handling Building foundation walls.

3. *Please clarify where the 07 61 03 Fabricated Sheet Metal Roofing is required.*

   Answer: Fabricated Sheet Metal Roofing is not required. See Section 07 61 03 modification from Addendum No. 2 to remove specification.

4. *Drawing S553 Shows 1 FRP Ladder & the Carbon Containment area and 1 FRP Crossover Ladder at the Sodium Hydroxide area, please supply a specification section for these items. Also, for grating shown on S601*

   Answer: Both ladders shown on S-553 shall be cross-over ladders provided per Detail 511 on Drawings S-951. Drawing A-552 shows the correct configuration in plan view. Ladders shall pre-engineered and constructed from pultruded FRP sections and provided with 316 SS hardware. Members shall be constructed of resin with fire retardant additives to meet a flame spread of less than 25 per ASTM E84. Member composition shall consist of a glass fiber polyester or vinyl ester resin

matrix and glass reinforcements. Acceptable level of quality includes ladders and structural shapes by Strongwell or Fibergrate. Per Construction Note 3 on Drawings S-601, FRP Grating shall be 2" deep pultruded grating equal to Type T5020 by Fibergrate. Grating shall be rated for minimum 100 PSF Live Load for 6'-0" span.

5. *Specification section 41 22 13 Portable Davit Crane Assemblies states "Provide complete portable davit crane assemblies for removal of submersible process equipment from tanks and wells as shown on the Drawings." Do to the fact that we do not have lifting weights on any of the submersible equipment we are requesting that a specific model be spec'd. Also there is only 1 davit base shown on the drawings and according to the details it is a flush mount base and the specs are calling for pedestal mount.*

   Answer: Refer to Specifications 43 25 11, 43 24 11, and 46 41 16 for davit crane assemblies. They shall be provided with each piece of equipment by the manufacturer and rated as required to lift the equipment. The davit base shall be as detailed in Detail 308 on Drawing S-930. Locations are shown in plan on Drawings S-511, S-552, S-602, and S-701.

6. *Drawing S-541 Intermediate Pump Station Lower Level Shows HP and LP Elevations for fill concrete in the wet wells. Is this new fill or existing fill? If it is new fill, what is the slab elevation of the wet well?*

   Answer: The fill shown in this area is existing and elevations are provided for information only based on record drawings

7. *Drawing S-201 construction note C5 identifies the walls that get painted under Alternate #11. What are the top of wall elevations for the two walls on the east side of the building?*

   Answer: The top of the east parapet walls are at elevation 15.70, or 4 feet above the roof slab.

8. *Can you please supply us with a few sections of the pumps and piping on M-101 so we can quantify piping connections to the pump?*

   Answer: Refer to Addendum No. 1 reissued Drawing Sheet M-101 for elevations.

9. *The drawings says the 3.5 ton monorail is galvanized. Should the 1 ton be as well?*

   Answer: Both monorails within the sludge handling building shall be galvanized as indicated in Section F on Sheet S-603.

10. *Confirm the hoists are CORROSION RESISTANT ONLY and NOT spark resistant.*

    Answer: Hoist in the thickener room will need to be Corrosion AND Spark resistant as this is a classified space. Hoist in the Mechanical room only need to be Corrosion Resistant.

11. What material is the existing 1.25" gas service piping?

Answer: The Contractor's Work for rerouting of the gas service at the new Generator and Transformer Pad shown on C-024 shall be excavation and backfill of the gas pipe trench. The Gas Company shall install the gas pipe and fittings. A new bid item has been added with an allowance for the Gas Company's Work. Refer to the paragraph below that states "**The following replacement section(s) are reissued herewith in their entirety,…"** for Section 00 41 01, BID FORM and Section 01 20 25, MEASUREMENT AND PAYMENT.

12. On drawing S-531 what is meant by removing existing coating on secondary clarifier floor? (See Spec. 03 30 20)

Answer: When tank is offline an unknown black coating can be observed. This surface will need to be prepared per Specification 03 30 20 Article 3.01.K – Existing Concrete:
1. Where concrete is placed against existing concrete, the following surface preparation shall be required.
2. The existing concrete surface shall be cleaned of all contamination and debris, and roughened by steel shot blasting, abrasive (sand) blasting, or water jetting (hydrodemolition). Use of scabblers, scarifiers, bush hammers, or pneumatic hammers is not permitted.
3. The existing concrete surface shall be water-saturated for a minimum of six hours, after which the excess water shall be removed immediately prior to placement of new concrete.
4. Apply epoxy-bonding compound to prepared concrete surface prior to concrete placement.

13. SECONDARY CLARIFIER GROUTING: Contract drawing M-531 note #3 directs the contractor to grout the floors of the 2ndry collectors as recommended by the manufacturer to a minimum depth of 2". Contract drawing MD-510, the demolition, does not direct the removal of what we would assume to be 2" of existing grout. Specification section 464311 remains silent on the grouting issue. We have left existing grout bottoms in place on several past projects after soundings delamination. Please advise if existing grout is to be removed, and at what depth.

Answer: Per the record drawings, a there is a 2" thick grout layer on Clarifier base slabs. This layer may remain in place as long as the surface is prepared per Specification 03 30 20 Article 3.01.K – Existing Concrete.

14. Drawing S-312 note 8 states that the existing baffles and supports will be remove and replaced with pressure treated lumber and aluminum angle supports. When you look at the lower level plan on the same page is states replace existing wood baffles and steel supports with FRP baffles. These notes are conflicting, please confirm what material will be used for the new baffles.

Answer: Provide FRP baffles and either stainless steel or aluminum angle supports with 316 stainless steel hardware.

15. *The structural drawings note groundwater pressure relief valve replacements in the Existing Aeration Tanks, Secondary Clarifiers and the Chlorine Contract Tanks. The specification referenced 40 05 51 Process valves and strainers and in particular 2.10 C references a thimble that is to be supplied with the valve. Upon review of the structural details there are none referring to the installation of these new valves. Please confirm if the existing valves and thimbles are to be removed and new valves and thimbles supplied because this would mean that the old thimble would have to be cored/chipped out and a new one installed and the wall/rebar cast back in. If so, please provide applicable detail and confirm if all work is be included in the unit price.*

    Answer: Thimbles shall be provided for pressure relief valves provided in new construction. Where existing pressure relief valves are being replaced, new valves shall be provided and mount to existing wall thimbles.

16. *Please provide the diameter of the groundwater pressure relief valves in each area as none are provided in the documents.*

    Answer: Per penetration schedules, new pressure relief valves shall be 4" diameter. Existing valve sizes will need to be verified in the field.

17. *As we do not know the exact elevations for the groundwater pressure relief valves in each structure should we assume that we have to dewater around the tanks in order to replace the valves and include this in the unit pricing?*

    Answer: Replacement of existing valves will reuse existing thimbles and dewatering around existing structures should not be required.

18. *Please confirm if building permit fees are going to be waived by the Town of Warren, RI for this project.*

    Answer: Refer to Addendum No. 1, Pre-bid Clarification #14 on page 1-3.

19. *Will an or equal manufacturers be allowed for precast concrete manholes and catch basins?*

    Answer: Yes, any manufacturer that can meet the requirements of the contract documents will be allowed.

20. *Please provide specification section for roof scuttles as shown on drawings S-311 and S-312*

    Answer: Roof scuttles shall be equal to Bilco Type D Roof Hatches and meet the following requirements:

    Aluminum: Covers and frame are 11 gauge aluminum.

    Covers: Brakeformed, hollow-metal design with 1" (25mm) concealed fiberglass insulation, 3" (76mm) beaded, overlapping flange, fully welded at corners, and internally reinforced for 40 psf (195 kg/m2) live load.

Curb: 12" in height with integral capflashing, 1" fiberboard insulation, fully welded at corners, and 3-1/2" mounting flange with 7/16" holes provided for securing frame to the roof deck. Contractor shall provide aluminum flashing as required to cover fiberboard insulation.
Gasket: Extruded EPDM rubber gasket permanently adhered to cover.
Hinges: Heavy-duty pintle hinges with 3/8" type 316 stainless steel hinge pins.
Latch: Enclosed two point spring latch with interior and exterior turn handles and padlock hasps.
Lift Assistance: Compression spring operators enclosed in telescopic tubes. Automatic hold-open arm with grip handle release.
Aluminum Finish: Mill Finish.
Hardware: Engineered composite compression spring tubes. Type 316 Stainless steel hinges. All other hardware is zinc plated/chromate sealed.

21. *Reference Drawing S-541: Where new hatches are to replace existing hatches please provide detail on how to install new hatches.*

    Answer: Reference keyed note C13 on Drawing S-541 "Hatches: demolish existing hatches by saw-cutting concrete on all sides to remove frames, and replace with new aluminum hatches with stainless steel hardware…" The intent is the perimeter around existing hatches will be saw-cut to a depth slightly greater than the existing or proposed frames and the existing hatch chipped out. The new hatches will be grouted into place with epoxy bonding agent and concrete.

22. *Note 5 on drawing S-606 states that there is to be a specialty H2S lining system for all interior surfaces including floors, sloped fill, and walls (typ. for both gravity thickener launderers and distribution box). Please confirm that the balance of the thickener walls, slab, sloped fill and walls do not get coated and that it is only installed at the Gravity Thickener launders and distribution box.*

    Answer: This interpretation is correct.

23. *Reference Drawing S-311 – There is an aluminum Ladder called out to replace the spiral stairs in the primary valve chambers. Please provide a section through this area so that a proper size can be determined for this ladder. The Standard Ladder details shown on drawing S-951 do not reference ladders in this area.*

    Answer: The ladder will be similar to those shown on Detail 513 on Drawings S-951. Dimension A will need to be verified in the field but shall be less than 12 inches. The actual height of the ladder will need to be field verified by the contractor. Record drawings indicate the change in elevation at these ladders will be approximately 13'-9".

24. *Reference A-601 & A-615 please supply spec for 5/8" PVC Panels*

    Answer: Provide 5/8" PVC paneling equal to Azek Sheets.

25. *Are boring logs delineating stratum available for the B- series above B-105? These may be of use mapping the peaty/organic layer*

    Answer: All B-series boring logs available are provided in the Geotechnical Report by S.W. Cole dated October 27, 2015

26. *Were any slug tests or bail-down-recover test run on the monitoring wells? If so is the data available*

    Answer: These tests were not performed.

27. *Are all structures that are to remain founded on piling or foundations where the peaty/organic layer has been removed? If not which structures that will remain, including any manholes or critical pipe runs have peaty/organic soils under them.*

    Answer: Record drawings indicated all building structure and tank foundations have been over excavated to remove unsuitable materials, and replaced with bankrun gravel compacted to 95% of maximum density. Subsurface conditions below manholes and pipe runs are not known.

28. *The geotechnical report suggests that limited excavations to remove the peaty layer can be done with internal sumping. Will this be allowed if some water remains in the excavation as long as it can be shown that the peaty/organic soils have been removed and the fill replacing it meets compaction standards?*

    Answer: Water shall be controlled to 1-foot below excavation depths to stabilize subgrades during excavations as recommended in Section 4.3 of the Geotechnical Report by S.W. Cole dated October 27, 2015.

29. *Please confirm the allowable loading for the Primary Clarifier suspended slabs over all tanks.*

    Answer: Record drawings indicated design live loads for the Primary Settling Tanks No 1 and 2 at the Primary Sludge Pump Station are 100 pounds per square foot distributed over the entire slab or 1,000 pounds concentrated in any one area. Record drawings for Primary Settling Tanks No. 3, 4, 5, and 6 did not indicate design live loads and they are not known.

30. *In the instructions to bidders it states that the additive alternated can awarded in any order. This could lead to potentially awarding to a preferential contractor based on a certain combinations of additive alternates. To be fair to all contractors taking their time and resources to bid this project please consider having an award structure based on consecutive order of alternates up to a project funding limit.*

    Answer: Refer to Addendum No. 1, Clarification Item #2 on page 1-2.

31. What is the total funding for this project including additive alternates?

Answer: The total funding available for this project, including additive alternates is $17.9M.

32. Where can I find the diameter for the catch basins?

Answer: The following catch basins and diameters are to be proposed:
Pr. Pr. DV-1 - 6' Diameter
Pr. DMH-1 – 4' Diameter
Pr. DMH-2 - 4' Diameter
Pr. DMH-3 - 5' Diameter
Pr. DMH-4 - 4' Diameter
Pr. DMH-5 - 4' Diameter
Pr. DMH-6 - 4' Diameter
Pr. CB-1 - 4' Diameter
Pr. CB-2 - 4' Diameter
Pr. CB-3 - 4' Diameter
Pr. CB-4 - 4' Diameter

33. Should there be more information on drawing M-907. There is only note 1.

Answer: No additional information is intended to be provided on Drawing M-907.

34. There is an allowance for water, electric and tv. Can you add an allowance for the gas service?

Answer: Refer the answer to question 11 and to Addendum No. 1, question #29, on page 1-9 regarding the new gas service to the Proposed Chemical Building

35. There is a 2" drain line called out on M 511 as 2"-ML-DI/2 DRAIN. There are no ductile iron pipe suppliers that make pipe in 2" size. The two named suppliers only make 4" and larger. What do we use for pipe materials for the 2" ML DI/2?

Answer: The 2" ML drain on M-511 shall have a pipe designation of CU/1.

36. Can we get a copy of the remainder of the P series guild borings as shown on the first geotechnical report the M&E record drawing?

Answer: These boring logs can be provided to Contractor after the project is awarded. Please note the majority of these borings were outside of the project area.

37. Please review the Operations Building window call-outs. Several 'W9' windows on the plans appear to be 'W10' windows on the elevations.

Answer: Elevation views are correct. The intent was to have operable windows in the Operations Office, Training Room, and Lunch Room.

38. *The Hazardous Material Report (section 011500.07) mentions the presence of lead paint, but does not identify areas that will need to be remediated. Other than the lead in the sludge storage building that will be demolished, do any other areas require removal?*

    Answer: Anywhere lead paint will be removed or disturbed must be characterized and legally disposed of by the contractor in accordance to all local, state and federal rules and regulations. This may include surface preparation prior to painting: in the Operations Building (A-series); Painting per Note C5 on Drawing S-201; Painting per Notes C6 and C13 and demolition of mixer supports (Note C15) on Drawing S-301; Painting per Note C6 on Drawing S-311; Painting per Note C6 on Drawing S-312; Painting as called out on Notes C6 and C12 of Drawing S-511; Painting per Notes C6 and C12 on Drawing S-541.

39. *Project Schedule – The project has a substantial completion requirement of 16 months. This is an extremely aggressive schedule that will significantly increase the cost of the project. A scheduling constraint of the project is the requirement to maintain flow through one existing aeration tank, while the work is being performed on the other. It will take approximately 14 months to procure the equipment and new electrical gear and then renovate and start up one tank. This will leave 2 months to complete the second tank, which is unreasonable, without incurring significant additional expense. We are respectfully requesting the project schedule be extended to 20 months for substantial completion.*

    Answer: No extension will be provided.

40. *Section 01 15 20 (Maintenance of Operations) paragraph 1.07.H.13 – Requires the contractor to "provide aeration and sufficient mixing equivalent to the existing treatment capacity at all time". We believe this means that we need to augment one tanks existing mixing system, prior to removing the second tank from service. Please clarify how this should be done. The recommendation noted in sub-paragraph (a), to install new blowers and mixers, is not possible; you would need to take the tank off line to do this. The second recommendation, to install floating mixers or aerators is possible, but how many and what size? Also, will the existing electrical service support whatever is installed or do we have to wait for the new electrical service to be installed prior to beginning work on the first tank?*

    Answer: The interpretation, "We believe this means that we need to augment one tanks existing mixing system, prior to removing the second tank from service" is not the design intent. This Addendum includes revisions to paragraph 1.07.H.13 to clarify this.

41. Section 01 20 25 (Measurement & Payment) – Please clarify the following
Item # 4 – Relocation of Utilities:

- *Is the payment based on LF of pipe or accumulative inches of pipe diameter? The payment item is shown as 300 LF – does this mean 300 LF of 12" pipe?*

  Answer: Refer to Section 00 41 01, BID FORM. Pay item #4 is shown as 300 LF-IN DIA. Section 01 20 25, MEASUREMENT AND PAYMENT, defines the measurement as multiplying the inside diameter of the pipeline by the length of the new relocated pipe.

- *There are significant cost differences between relocating a 12" storm line and a 30" flow force main. What system should this be based on?*

  Answer: The difference in cost is intended to be capture in the units of the item dollars per inch diameter per foot. We have revised the item to exclude large diameter pipe. See revision to Section 01 20 25 MEASUREMENT & PAYMENT.

- *Does the LF of pipe replacement include fittings & restraint?*

  Answer: Yes, these are included in this pay item.

- *Should we include removal of existing pipe in the unit price?*

  Answer: Removal of the existing pipe is included in this pay item.

- *There are significant cost differences between specified materials. Which pipe material should we base this on?*

  Answer: The intent of the item is cover various pipe materials. Existing storm drain material is shown on the drawings. Existing buried process piping is cast iron.

Item #5 & #6 – Unsuitable material and select backfill:

- *Is the 150 CY of unsuitable material and backfill for excavation beyond what is shown on various drawings (Drawing S-223 Typical)?*

  Answer: These pay items include over-excavation and removal of unsuitable materials outside the limits specified or indicated on the Drawings.

- *The SW Core geotechnical report recommends over excavation for structures. Are we to follow the excavation limits shown on the drawings and not over-excavate?*

  Answer: The original Geotechnical Report Dated October 27, 2015 provides recommendations assuming no piles or deep foundations would be used. The revised Geotechnical Report dated June 3, 2016 has

recommendations for foundations supported by piles. Where structures are supported by piles, over excavation is not required and limits shown on the drawings are correct. Where new structures are not pile supported, over excavation will be required, and the recommendations in the original geotechnical report are approximated on the drawings.

Bid Item #8 & #9 – Contaminated Soils Disposal:

- *Are the quantities listed for excavation and disposal of only the work identified on the Landscape remediation plan (C-025) or all excavation?*

  Answer: The quantities list for Bid Items 9.A. and 9.B. include excavated materials in the Landscape Remediation Areas shown on C-025 plus any excavated materials outside of the Landscape Remediation Areas that cannot be reused on-site.

- *There is not enough room to stockpile & test the material on site. Is there criteria for in-situ testing that can be followed?*

  Answer: If the Contractor elects to do in-situ testing, at a minimum it shall include the testing shown in Section D of the attached "Addendum 1 of Waste Stream Profile" with one sample taken for every 200 cubic yards of material.

Bid Item 17 – Groundwater PRV's:

- *Please confirm these are for the PRV's shown on the contract drawings, not in addition to.*

  Answer: This item covers valves shown on the Drawings and Specified in the Contract Documents.

Bid Item 18 – Electrical Service Allowance:

- *Please confirm this is for all Electrical Utility Company charges, including the temporary primary relocation.*

  Answer: Refer to Addendum No. 2, question #22 on page 2-6.

42. *Reference: Plan Sheets C-024, PID-09, MD-501, M-501, M-511, M-512, and M-551. With regard to the 24" ATE, also labeled as 24" ML, running from existing Aeration Tanks 1 and 2 to the Secondary Settling Tanks 1 and 2, and the cross connection between the 2:*

- *The P&ID does not appear to match the Piping Plan or the Mechanical Plans*

  Answer: Valve V14-0385 shall be replaced in its existing location as shown on the attached Sketch No. 1.

- *P&ID shows Proposed Valves 24" V14 0385, 24" V14 0387, and 24" V12 0391 which do not seem to appear on the Civil or Mechanical drawings. Please clarify.*

  Answer: Valve V14-0385 shall be replaced in its existing location. Valves V14-0387 and V12-0391 are not to be replaced.

- *The Mechanical Demolition Drawing indicates removal of portions of the existing underground Piping and a Butterfly Valve (notes 3 and 5) and plugging the Existing Wall Penetrations (note 4). This information does not appear to be consistent with the Mechanical plans which seem to indicate total removal and replacement of the 24" ATE and the lateral 24" ATE coming off of a Tee. If the wall penetrations are to be plugged then where are the 24" ATE pipes to be connected? Please clarify.*

  Answer: See modifications to MD-501 below.

43. *Please clarify pay limit on pile lengths. There are none defined.*

    Answer: Per the Geotechnical Report by S.W. Cole with revised date June 3, 2016 piles shall be driven to end bearing on bedrock. It is anticipated pile lengths will be in the range of 10 to 25 feet.

44. *Drawing C-0024 – Please provide an allowance for the Gas Service Company work. This cannot be defined by the bidding Contractors.*

    Answer: Refer to the answer to question 34.

45. *Plan Sheet C-901 Civil Details 2, includes a "Jellyfish JF4". Does this precast structure fall under the specification 33 05 13 Manholes and Structures? Assuming that the answer is yes, Section 2.01 A indicates acceptable manufacturers, none of which are under license with Contech to manufacture the specified unit. Is it acceptable to supply the unit manufactured by Arrow Concrete Products, the licensed manufacturer?*

    Answer: The Jellyfish JF4 Water Quality Unit must be manufactured by Arrow Concrete Products as they are Contech's manufacturer for this area.

46. *Please clarify the following regarding the HVAC Demolition and Re-installation in the Aeration Tank Gallery.*
    - *Plan sheet HD-521 Note 3, "Duct work to Remain". Plan Sheet H-521 indicates, "Replace Duct". Which is correct?*

      Answer: See modifications to Drawing HD-521. Duct work shall be demolished and disposed. Ductwork shall be replaced as shown on drawing H-521.

- *Plan Sheet HD-522 (which is a continuation of 521), Note 1, "Demolish and Dispose Ductwork". H-522 appears to denote replacement. Is this correct?*

  Answer: Yes, duct work should be demolished, disposed as shown on Drawing HD-522 and replaced as shown on Drawing H-522.

- *Plan Sheet HD-541 (which is a continuation of 522), Note 2, "Ductwork to Remain". Plan Sheet H-541 seems to indicate replacement. Which is correct?*

  Answer: See modifications to HD-541. Duct work shall be demolished and disposed. Duct work shall be replaced as shown on Drawing H-541.

47. *Drawing AD-106 – The North, South and East elevations all have notes stating the existing louvers are to remain. Drawings A-108 and A-109 show "L#" (for louvers) on them. Are these louvers existing to remain or being replaced?*

    Answer: Louvers shown on AD-106 to remain shall remain, even if an L # is associated with them on A-108 and A-109.

48. *Drawing A-109 – There is a new wall shown between the Electrical Room 200A and Mechanical Room 201. Please provide what type of wall this is and height to the underside of the existing roof.*

    Answer: (1) Hour Fire Rated, 8" CMU from finish floor to underside of roof deck-Approximately 15'-8". Reinforcing within wall shall be similar to non-bearing walls of the Sludge Handling Building and per Detail 409 on Drawing S-940, with #6 bars doweled in the base and a continuous bond beam along the top. Also include galvanized angles with 3/8" anchors at 4'-0" OC along the top of the wall.

49. *Please answer the following questions about Drawing A-120:*
    - *The operations building finish schedule is missing a lot of existing rooms. Are we to assume no finish work is required in those rooms?*

      Answer: There is no finish work within these spaces.

    - *The screening building finish schedule only calls for the door and frames to be painted. Please confirm the walls and floor do not require any finishing*

      Answer: Correct, interior surfaces of Screening Building shall remain plain concrete or CMU.

    - *The Chemical building finish schedule only calls for door and frames to be painted. Please confirm the walls and floor do not require any finishing.*

      Answer: Correct, interior surfaces of Chemical Building shall remain plain concrete or CMU.

50. Please clarify the following questions regarding the concrete work;

- *Section 03 03 20(Concrete Placement), paragraph 2.07 – Where should floor hardener be applied?*

  Answer: Per Specification 03 30 20 Article 3.08, floor hardener should be applied to any new exposed interior concrete building floor slabs.

- *Section 03 03 20, paragraph 3.05.F.1 – Does "exposed to view" mean the interior of the tank walls, from top of slab, or just above the water level?*

  Answer: "Exposed to view" assumes tanks are online and refers to interior tanks walls above operating water level. To clarify any exterior faces of tanks walls above grade are also "exposed to view".

- *Drawing S-001, paragraph H.1 – Please clarify the intent of this paragraph. Does this mean we cannot begin placing walls at the Reactor tank until 7 days after the final slab placement?*

  Answer: Walls may not be placed until the slab upon which they bear has cured for at least seven days and has achieved 75 percent of the specified 28-day compressive strength.

51. Please answer the following questions about Section 09 96 12 (Secondary Containment Lining System)

- *Paragraph 1.01A.4 states the Sodium Hydroxide Storage Room in the Sludge Pumping station is to be coated, please confirm this is referring to the Chemical Storage room on Sheet A-601.*

  Answer: Paragraph 1.01A.4 should be removed and the drawings should be used to identify which areas contain Secondary Containment Lining Systems. This includes: the Sodium Hydroxide Storage Area of the Chemical Building as shown on S-553; The Sodium Bisulfite Storage Area as shown on S-601.

- *Paragraph 1.01.A.4 states to coat the Permanganate and Polymer Storage areas on the 1st floor of the operations building, please clarify which room this is.*

  Answer: Paragraph 1.01A.4 should be removed and the drawings should be used to identify which areas contain Secondary Containment Lining Systems. This includes: the Sodium Hydroxide Storage Area of the Chemical Building as shown on S-553; The Sodium Bisulfite Storage Area as shown on S-601.

- *Sheet A-601, does the Chemical Storage Garage receive the containment lining system?*

  Answer: No containment will be provided by chemical tote secondary containment pallets as shown on M-601.

- *Sheet S-553 does the Carbon Containment side of the Chemical Building also receive the containment lining system?*

  Answer: No this area does not need a containment lining system.

52. *Section 08 44 15 – Please clarify where this section applies.*

    Answer: Window types W-1, 2, 3, 4, 5, 6, 7, 8, & 11 shall be aluminum curtain wall systems.

53. *Please confirm the use of flanged and plain-end wall pipes for all penetrations through existing concrete structures and not core holes with link seals. i.e. P27 on Reactor Tank Penetration Schedule on drawing S-521.*

    Answer: The penetration schedule on S-521 does not accurately represent where mechanical sleeves may be used. Any penetrations through existing concrete may be cored and sealed using link seals per the "Mechanical Seals – Existing Wall (MS)" detail on drawing S-931.

54. *Drawing PID-03 and M-301 - Please clarify the Type, Class and Grade of existing STL pipe, as shown on for AAER line to Aerated Grit Chamber.*

    Answer: Record drawings show the existing 3" AAER line between the primary pump station and headworks as steel pipe.

55. *Drawing M-512 – Please Clarify class and grade of SS/5 for 24"-ML.*

    Answer: See Drawing Sheet M-512 modification.

56. *Are the Primary Settling Tank Drives to be replaced as part of the base bid?*

    Answer: Yes, all Primary Settling Tank drives are to be replaced as part of the base bid.

57. *What kind of valve are (FCV) & (FV) shown on valves on drawings M-301 and M-512, scum pump and blowers?*

    Answer: FCV refers to flow control valve and FV refers to flow valve with no control (open/close).

58. *Are we to supply the Hydro-Pneumatic Tank shown on drawing M-101? If yes, what size and where is it specified?*

    Answer: Yes, the contractor shall supply the hydro pneumatic tank specified in Section 40 05 16, PROCESS PIPE AND EQUIPMENT SPECIALTIES, paragraph 2.16.

59. *Drawing C-021 notes to remove and dispose fuel tank after generator has been installed and brought to service. Who is responsible for the draining of the fuel tank? What is the size of the existing tank?*

    Answer: Contractor is responsible for draining the fuel tank. The tank is 1,000 gallons.

60. *PRIMARY SLUDGE PUMP STATION: Drawing M-301 is showing the lower plan of the Primary Settling Tanks No – 1 & 2, on the lower right side of the sheet. We are looking at the discharge piping of the Primary Scum Pump. We see the plan view but are trying to determine the vertical piping coming off the pump discharge. The referenced section – 2 on M-302 does not show the Scum Pump or the vertical pipe. It does have the name of the pump written in the space the pump should appear. Please provide a section view of the pump discharge so we can list the discharge pipe and fittings accurately.*

    Answer: Horizontal branch above pump has a centerline elevation of -4.55. See PID Drawings for required valves.

61. *PRIMARY SLUDGE PUMP STATION: Drawing M-301 is showing the lower plan of the Primary Settling Tanks No – 1 & 2, on the lower right side of the sheet. We see the piping at the Scum Pump, the PLS pumps and the Dewatering Pump. We see the suction connections to the pumps having flange concentric reducers. Looking at the PID layout for these pumps on sheet PID – 04, we notice that the pumps are shown to have flexible expansion joints on the suction and discharge connections. The PID sheet does not show reducers at the pumps. We are wondering how adding these flanged expansion joints to the ductile iron piping is going to affect the layout of the piping. Will there be enough space to add these expansion joints. Can the piping layout on sheet M-301 be revised to show the flanged expansion joints? Please review and clarify the flanged expansion joints.*

    Answer: Expansion joints have an approximate length of 6” long and appear to fit in layout.

62. *PRIMARY SCUM WELL – SPRAY NOZZLES: Drawing M-301 is showing the Primary Scum Well on the left side of Primary Settling Tank No-2. We see the 6” and 4” piping in the scum well. There is a key note item # 13. This note describes providing scum mixing nozzle and manifold within the Scum Tank. We do not see any other callout for the nozzles. We searched in specification set volume – 3 and did not find spray nozzles. We did find a detail no – 14 on sheet M-903. Can we use this nozzle detail for the spray nozzles in the Primary Scum Well? Is there a specification description for the spray nozzles that gives the materials? Are they brass or stainless steel? What kind of service saddle is to be used? Please review and clarify.*

Answer: Detail No. 14 on Sheet M-903 shall not be used for the spray nozzles within the primary Scum Well. See Section 43 25 11, HYDRAULIC RECIRCULATION MIXING SYSTEM (HRMS).

63. *BURIED DUCTILE IRON PIPE: Reading specification section – 40 05 13 – Process Pipe and Fittings, 2.23, Mechanical Joint Fittings – Type (DI/2), B, we see that all joints are to be rated for pressure service. Joints shall be restrained rubber gasket mechanical joints and fittings. All joints are to be "Locked Type" and produced by the pipe manufacturer. We are considering this to mean that all of the pipe is to have RJ bells and spigots, such as Lok-Ring. The mechanical joint fittings with MJ bells can be used with restrained wedge type restraints, such as Megalug by Ebaa Iron, Inc. Please review and clarify that megalugs can be used to restrain the buried MJ fittings.*

    Answer: Per Section 40 05 13, PROCESS PIPE & FITTINGS, Part 2.23.C.3: Megalugs by Ebaa Iron, Inc. may be submitted as an "Engineer Approved Equal" for review.

64. *PRIMARY SLUDGE PUMP STATION: Drawing M-301 is showing the lower plan of the Primary Settling Tanks No – 1 & 2, on the lower right side of the sheet. We are looking at the discharge piping of the PSL - Primary Sludge Pumps. We see the plan view but are trying to determine the vertical piping coming off the pump discharge. The referenced section – 2 on M-302 does not show the Sludge Pump or the vertical pipe. It does have the name of the pump written in the space the pump should appear. Please provide a section view of the pump discharge so we can list the discharge pipe and fittings accurately.*

    Answer: See Sketch-01 attached to Addendum No. 2.

65. *PRIMARY SLUDGE PUMP STATION: Drawing M-301 is showing the lower plan of the Primary Settling Tanks No – 1 & 2, on the lower right side of the sheet. We see the piping at the PLS pumps. We see the suction connections to the pumps having flange 45 bend fittings and concentric reducers. Looking at the PID layout for these pumps on sheet PID – 04, we notice that the pumps are shown to have sleeve couplings on the suction connections. The appears to be a tag code under the couplings with (C-XX). The PID sheet is also showing two taps on the pipe. We are wondering how adding these sleeve couplings to the ductile iron piping is going to affect the layout of the piping. Will there be enough space to add these couplings? Can the piping layout on sheet M-301 be revised to show the sleeved couplings and the taps in the pipe? Should there be a number in the (C – XX) tag? Please review and clarify the sleeved couplings.*

    Answer: See Drawing Sheet PID-04 modification.

66. *PRIMARY SLUDGE PUMP STATION: Drawing M-301 is showing the lower plan of the Primary Settling Tanks No – 1 & 2, on the lower right side of the sheet. We see the piping at the PLS pumps. We see the suction connections to the pumps having flange 45 bend fittings and concentric reducers. We are assuming that the two bend fittings are 45 degree bends. The plan view does not indicate what they are. The section view does not show them. Please clarify that the two fittings are 45 degree bends or not.*

Answer: Yes, the two fittings are 45 degree bends.

67. *CERAMIC EPOXY LINING – DUCTILE IRON PIPE: We see the paragraph describing ceramic epoxy lining for the ductile iron pipe. The section states that it is to be provided where specified or indicated on the drawings. We have been scanning over the drawings and have not found any mention of ceramic epoxy. We would like to know where to look for it being designated. Is it on the pipe description or is it in a note on a sheet? Please review and clarify the ceramic lining.*

    Answer: Section 40 05 13, PROCESS PIPE & FITTINGS, see attached.

68. *NS – NIGHT SOIL – PLUG VALVES: Drawing M – 301 is showing the new Dewatering Pump in the lower level plan layout. To the left of the Dewatering Pump we see the new 4" NS line connecting to the existing piping. The connection point of the NS line before the new G – 305 Grinder, is indicating a new 4" plug valve with tag – V40 – 0487. Then above the connection point that is showing the existing and the new piping, we see a second plug valve with this same tag number. This valve is in the 4" NS line coming out of the Night Soil Tank. We were under the impression that the valve numbers did not repeat. Please review and clarify the valve tag numbers.*

    Answer: See Drawing Sheet M-301 modification.

69. *PRIMARY SETTLING TANKS NO – 1 & 2 – VALVE REPLACEMENTS: Drawing M-301, is showing two existing valves being replaced with new valves. These valves have tags – FCV – 302 & 304. Looking on the PID sheet for tanks # 1 & 2, we see the two valves FCV – 302 and V304, but they are indicated with light weight lines. We are not sure if they are to be replaced or not. Are they open close valves or do they modulate? Please review and clarify these two valves.*

    Answer: Valves shown are open-close type. See Drawing Sheet PID-02 modification.

70. *PRIMARY SETTLING TANKS NO – 1 & 2: Drawing M-301, is showing the two new blowers and discharge air piping. We see two FV valves in the air pipe line. Looking at the PID layout on sheet PID – 03, these two valves are drawn in light weight lines, appearing to indicate that they are not new valves. The PID has the two valves tagged as FCV. We do not see a valve type indicated for these valves. Please review and clarify if these valves are new. If they are new, then what type of valve are they?*

    Answer: See Drawing Sheet PID-03 modification.

71. *PRIMARY SETTLING TANKS NO – 1 & 2: Drawing M-301, is showing the two new blowers and discharge air piping. The drawing is showing two 3" AAER lines, one going to the Night Soil Tank and the other out through the wall to the Aerated Grit Chamber. Looking at the demolition sheet MD-301, it appears to be showing the new pipe as well as the existing pipe to be removed. The new piping drawing M-301 also seems to be showing the existing piping. Do we need to provide cored holes in the existing concrete walls for*

the new 3" air lines? Please review and clarify the old and new piping for the blowers.

Answer: Underground piping to remain in service. Interior piping to be replaced. No new cores.

72. *Regarding the primary Eff sampler in section 40-91-19, section 2.03. Spec state that the sample point is 2 inch pipe for Primary Effluent Composite Refrigerated Sampler that is located in the Secondary Gallery:*
    a. *What is the 2 inch pipe material?*

       Answer: PVC

    b. *Min/max flow rate gpm?*

       Answer: 5-15GPM

    c. *Max line pressure?*

       Answer: 15ft @ PHF and 64ft @ dead head conditions.

73. *PRIMARY SETTLING TANKS – EFW LINES: Drawing M302, section – 2, is showing the 2" EFW water lines going into the Primary Settling Basins. We see the valve tag numbers – FCV – 303 and FCV – 304. These appear to be solenoid valves. We also found key note # 6 on M-311, indicating to provide one solenoid valve per PST. We looked on the PID-02 drawing for these valves. They appear to be drawn with lighter weight lines. Are these valves new or existing?*

    Answer: The valves are new.

74. *PRIMARY SETTLING TANKS – EFW LINES: Drawing M302, section – 2, is showing the 2" EFW water lines going into the Primary Settling Basins. We see the valve tag numbers – FCV – 303 and FCV – 304. These appear to be solenoid valves. We looked through the valve specifications but did not find a section describing solenoid valves. Please review and provide a specification description for solenoid valves for the project.*

    Answer: FCV-303, FCV-305, FCV-408, FCV-409, FCV-412 and FCV-414 are solenoid valves. Solenoid valves shall be a 2", 120VAC, brass, 2-way, normally closed slow closing solenoid valve such as the ASCO Series 221 valve.

75. *PRIMARY SETTLING TANKS – EFW LINES: Drawing M302, section – 1, is showing the 2" EFW water lines going into the Primary Settling Basins. The line appears to come into the basin then turn down to the sludge sump. Looking on the PID – 02 drawing, we see the EFW lines coming into the basins, but these appear to be showing some sort of a nozzle on the end of the pipe. Please review and clarify if there is to be a spray nozzle on the end of the EFW lines. If so, please provide a description of the spray nozzle.*

    Answer: No spray nozzles, open pipe ends.

76. *PRIMARY SETTLING TANKS – EFW LINES: Drawing m-301 and M302, section – 2, is showing the 2" EFW water lines going into the Primary Settling Basins. Looking on the PID – 02 drawing, we see the new EFW lines connecting to the existing EFW lines. The PID is showing a CV valve at the connection points. This valve does not appear on the piping drawings. There is no number with the valve. They appear to be drawn with lighter weight lines. Are these valves new or existing? Please clarify these CV valves.*

    Answer: These CV shall be Type V01: Pressure Regulating Valves

77. *PRIMARY SETTLING TANKS – REPLACEMENT VALVES: Drawing PID – 02 is showing a 4" V40 – 0480 valve in the 4" WSL line inside the Primary Sludge Pump Station, at the PST No- 201 & 202. Looking at the piping layout drawing on sheet M-301, we found a 4" WSL line and a new replacement valve where it connects to the 6" line. This valve has a tag number – V40 – 1042. Please review and clarify if these two different tag numbers are for the same valve.*

    Answer: The valves are different valves. See PID-04 for 4"-V40-1042

78. *EXISTING SECONDARY TREATMENT TANK: Drawing M-511 is showing the new work plan partial layout of the Secondary Treatment Tank. We see the two new 24" ML – SS/5, lines going from the Post Aeration Channels over to the effluent outlet box. The pipe appears to go through three interior walls and connect to the outlet box. There is no indication as to how you want the pipe penetrations to be accomplished. We saw the general note – 6, which indicates to see drawing S-931 for details on mechanical sealing pipe penetrations through concrete walls. There is a number of different types of penetrations shown on the sheet in detail - 310. There is one detail designated for existing walls with two sets of mechanical link type seals. We want to make sure that you do not want the existing walls to be broken out and new wall sleeves grouted back into the wall. Also that you do not want the detail 309, Box-Out penetration used. Please review and clarify the 24" ML line wall penetrations.*

    Answer: Note division walls within the existing reactors are new, See S-511. See S-521 where the pipe penetration through the division walls are called out as the boxout detail with plain end pipe passing through the wall with an integral waterstop. On S-521 where detail 309 on S-931 is called out. Note that the pipe passing through from the custom weir to the existing outlet structure doesn't have flanges at each wall.

79. *EXISTING SECONDARY TREATMENT TANK: Drawing M-511 is showing the new work plan partial layout of the Secondary Treatment. We see several locations where new pipe come up to the existing concrete walls and appear to stop. Such as the two 24" ML – SS/5 lines and the 36" – ML – DI/2 line. We want to make sure that there are not existing wall pipe or wall sleeves at these locations. We are not accustomed to not seeing the required wall penetration shown or indicated. We want to be clear on what you are wanting for these penetrations. We want to make sure of where you want "wall sleeves" and where you want wall "pipe". Please review and clarify.*

    Answer: There are not existing wall penetrations at the 24"-ML-SS at the existing aeration tank outlet, 36"-ML-DL/2 at the southern end of the aeration tank or the 24"-ML-DI/1. See Drawing Sheet S-521 modification.

80. *EXISTING SECONDARY TREATMENT TANK: Drawing M-511 is showing the new work plan partial layout of the Secondary Treatment Tank. We see the two new 24" ML – SS/5, lines going from the Post Aeration Channels over to the effluent outlet box. The pipe is shown bolting to the effluent outlet box wall and then at the Post Aeration weir box, see section – 14 / M-513. Looking at the layout on sheet PID – 08, we found the 24" ML pipe, but here it is designated to be DI/1 pipe. It is also showing what appears to be either flexible connectors or sleeve couplings at the ends of the pipe. Including expansion joints or couplings in the pipe will affect the elevations of the pipe run. Please review and clarify what the pipe material should be and if couplings are to be provided at the connection ends.*

    Answer: The 24"-ML-SS line to the effluent outlet box may be routed to the without flanges and pass through the outlet structure wall using detail 310 on S-931. Flanges are required for connection to the custom weir.

81. *EXISTING SECONDARY TREATMENT TANK: Drawing M-512 is showing the new work plan partial layout of the Secondary Treatment Tank. Looking at section – 18 on M515, we see the different AAER lines going up onto the basins. These lines have valves with FCV tag numbers. The tags do not have the valve type "V" number with them. We are assuming they are type V32, metallic air service butterfly valves, with modulating electric actuators. Please review and clarify these air service butterfly valves.*

    Answer: Correct, these are air service butterfly valves.

82. *EXISTING SECONDARY TREATMENT TANK: Drawing M-512 is showing the new work plan partial layout of the Secondary Treatment Tank. Looking at section – 11 on M513, we see the existing 8" & 10" RSL and the 12" PE lines going into the Aeration Basins. The pipe and valves shown in the plan layout and section view are all drawn indicating that they are existing. Looking at the PID – 08 layout, we see the two lines mentioned above but this sheet is showing new valves and pipe going into the Aeration Basins. Section 11 is showing the existing valve as being flanged butterfly valves. The PID sheet is indicating a V12, resilient seated gate valve and a V40 plug valve. Please review and clarify what pipe and valves are to be provided. Also, clarify if the existing piping is fabricated steel pipe so we will know how to install the valves.*

    Answer: 8" & 10" RSL and 12" PE valves shown as existing in Section 11 of M-513 shall remain in service. No replacement of these valves is included in the scope of work.

83. *EXISTING SECONDARY TREATMENT TANK: Drawing M-512 is showing the new work plan partial layout of the Secondary Treatment Tank. We see the FSW lines going out to the submerged aerators. The plan is showing foam spray headers at each unit. There is a callout for "nozzles". We do not see a callout for the type of nozzle that is required or a detail reference for the nozzle. The nozzle configuration appears to be extending out from the FSW header. Please review and clarify the spray nozzle required at the aerators.*

    Answer: See Detail 14 on M-903.

84. *Drawing C-902 calls for Schedule 80 pipe bollards but the specs call for schedule 40 please confirm that the sched 40 in the spec is correct*

    Answer: Schedule 40 pipe bollards shall be provided.

85. *2.02.A.7 – The side water depth is 13.5'. The free board is 1.5'. Thus, the diffuser depth would be 12'. However, the diffuser depth that is listed is 7'. Please clarify what depth the diffuser submergence that is wanted. Please confirm that contractor is to provide pedestals to make up the difference in support height greater than 25".*

    Answer: See attached Record Drawing M-08, Section 2. Note the datum is not the same as the Bidding Documents. Proposed shall match the existing diffuser depth.

86. *2.02.A.8 – The side water depth is 12.25'. The free board is 7.75'. The diffuser depth here is listed to be two different heights; what is needed here? Based on the floor mounted supports the diffuser depth will not change, the SWD will. Please clarify this section and add confirm that contractors will make up the difference in free board and side water depth.*

    Answer: See attached Record Drawing M-10, Section 3. Note the datum is not the same as the Bidding Documents. Proposed shall match the existing diffuser depth.

87. *SECONDARY GALLERY – NEW WORK PLAN: Drawing M-522 is showing the new 4" WSL line going from the Waste Sludge pumps over to the existing WSL pipe. The pipes connect at column line – D. We are trying to determine what the existing WSL pipe material. The pipe to the right of this point appears to be showing the pipe joints as welded. We do not see any flanged joints. Is the existing pipe fabricated steel pipe or is it ductile iron. We need to provide a flange adapter where the new pipe connects to the existing pipe. We want to know which flange adapter to provide.*

    Answer: Provide cast iron.

88. *FLOW METER – RS – REMOVABLLE SPOOL: Drawing PID – 10 is showing the 4" WSL line coming off of the two WAS pumps. The line extends over to the existing WSL pipe. The layout is showing a 4" flow meter FIT – 606. Below the flow meter we see the callout for a "RS", removable spool piece of pipe. Looking at some of the other flow meter locations in the PID sheets, we do not see the callout for a RS. Are we to only provide removable spool pieces where they are specifically called out? Please review and clarify if all flow meter are to have removable spool pieces.*

    Answer: Provide RS for each flow meter size & length.

89. *RETURN SLUDGE PUMP SUCTION PIPING : Drawing M – 522 is showing the three Return Sludge Pumps. Looking at the suction pipe we see an 8" plug valve, flexible connection and a flanged reducing fitting connecting to the pump suction. Section view – 26 / M-524 shows the suction pipe coming up and turning to the pump. Looking at this piping on the PID sheet -10, we see the indication for a sleeve type coupling in the suction line. There is a tag number indicated as "C – XX" Where should the coupling be installed in the piping? Please review and clarify if a sleeve type coupling is to be installed in the RSL pump suction line.*

    Answer: No sleeve coupling required.

90. *PE – PRIMARY EFFLUENT PIPE: Drawing M-522 is showing the new 18" PE line in the Secondary Gallery area. We see where the new pipe is shown tying into the existing 18" PE line with a new flanged tee. We assume that the existing pipe is ductile iron and that 18" Mega-Flanges can be used. The connection point is showing two new 18" CV valves, tagged – CV – 506 & 507. Looking at the PID-05 sheet, we see these two valves but they are drawn with light*

weight lines, as if they are existing valves. We have not been able to find the type "CV" valves in the specifications. Please review and clarify these valves.

Answer: New V-12 with actuators.

91. *O, S & Y – GATE VALVE: The gate valve specification paragraph 2.14, type (V12), indicates OS & Y type gate valves are to be provided where specified or shown on the drawings. We have not seen any requirement for OS & Y gate valves so far on the drawings. We want to make sure that we do not miss this requirement if it is indicated. Can you confirm that no gate valves will have O S & Y operators ?*

    Answer: OS&Y in intermediate pump station as indicated in plans & sections views on M-541 & M-542.

92. *SECONDARY7 SCUM PIPING : Drawing MD – 522, key note – 1, indicates to demolish the existing Secondary Scum suction and discharge piping "to the extent designated on the drawings". The new suction piping shows the pipe going to the existing Scum Well wall. It is not clear if the existing Scum Well pipe penetration is to be removed or not. Is the existing wall pipe or pipe penetration to be removed and replaced with a new wall pipe or cored wall penetration? Please review and clarify the new Scum suction pipe penetration.*

    Answer: Wall pipe to remain.

93. *SECONDARY7 SCUM PIPING : Drawing M – 522 is showing the new 6" SSC suction pipe. This sheet shows the pipe and a 6" V40 plug valve in the line between the scum well and the pump suction. Looking at the PID layout on sheet PID – 09, we see a little more than this. The PID layout has a sleeve coupling, flanged expansion joint and the eccentric reducer. Is there enough space to install these items in the line? Are we to allow for short flanged spool pieces between these items that are not shown on the piping drawing? Please review and clarify.*

    Answer: No sleeve fitting. Include everything else.

94. *SECONDARY7 SCUM PIPING : Drawing M – 522 is showing the new 6" SSC suction pipe. We see the symbol for the sleeve coupling with a mark tag (C-011). Refer to the PID above. Then the flanged expansion joints has the mark tag (C–XX). Looking in the specifications, "C11", is a flanged expansion joint for liquid service. We are assuming this key mark tag refers to the code numbers in the specifications. Please review and clarify these key mark tag numbers.*

    Answer: Flanged expansion joint shall be C11.

95. *SECONDARY7 SCUM PIPING : Drawing M – 522 is showing the new 6" SSC Scum discharge pipe. There is a return branch that comes off of the new three way valve – FCV – 597. Looking at the plan view on this sheet we see the 4" pipe going into the Scum Well and then turning down with a flanged DI, 90 bend fitting. Looking at the PID – 09 sheet for this Scum line, we see the return line connecting to the Scum Well. The PID layout is showing a spray header and spray nozzles inside the Scum Well. Please review and clarify the spray header and nozzles.*

    Answer: Refer to Section 43 22 11, HYDRAULIC RECIRCULATION MIXING SYSTEM (HRMS).

96. *SECONDARY7 SCUM PIPING : Drawing M – 522 is showing the new 6" SSC Scum discharge pipe. There is a return branch that comes off of the new three way valve – FCV – 597. Looking at*

the PID – 09 sheet for this Scum line, we see the three way valve appears to have an electric actuator. We have not been able to find a description of this "FCV", three way valve and actuator. The valve specifications do not include this term. We do see in the paragraph 2.35, for type V40, plug valves, paragraph – I mentions three way plug valves. Please review and clarify the FCV, flow control valve specifications.

Answer: Non-modulating electric actuator.

97. *SECONDARY GALLERY WALL PENETRATIONS: Drawing M- 522 is showing several new pipe at the existing wall where the match line for sheet M-551. The pipe is drawn with flanges at the inside face of the existing wall. Since this is an existing wall, we were under the impression that the new pipe would penetrate the wall with cored holes and link seal sets. Refer to the detail on sheet S – 931, details – 310. The way the pipe are drawn with flanges at the face of the wall we are wondering if you are implying that there should be new wall pipe with tapped flanges at the face of the wall. The pipe on drawing M – 551 are also drawn with flanges at the face of the existing wall. The pipe shown on sheet M-551 are buried pipe and should not have flanges. The exterior buried joints should be MJ. Please review and clarify the pipe penetrations along this existing wall.*

Answer: Correct, refer to detail 310 on Drawing Sheet S-931.

The following replacement section(s) are reissued herewith in their entirety, have an Issue Date of November 2017, contain(s) referend to "ADDENDUM NO. 3" in the footer, and text changes identified by double-underline for additions and ~~Strikeout~~ for deletions.

1. Section 00 41 01, BID FORM, consisting of 10 pages, see attached.

2. Section 01 20 25, MEASUREMENT AND PAYMENT, consisting of 10 pages, see attached.

3. Section 09 90 00, PAINTING AND COATING, consisting of 14 pages, see attached.

The following section(s) are hereby modified and pages reissued herewith in their entirety, have an Issue Date of November 2017, contain(s) referend to "ADDENDUM NO. 2 in the footer, and text changes identified by double-underline for additions and ~~Strikeout~~ for deletions.

1. Section 40 05 13, PROCESS PIPE & FITTINGS, replace pages 40 15 13-11 thru 40 15 13-14, consisting of 4 pages, see attached.

2. Section 01 15 20, MAINTAININ OPERATIONS, replace pages 01 15 20-3 thru 01 15 20-4 and 01 15 20-9 thru 01 15 20-10, consisting of 4 pages, see attached.

Drawings are hereby <u>modified</u> as follows. Replacement pages/sheets are not being issued.

Drawing modifications are identified in the following table. Please note drawing modifications to M-300's, M-500's and M-311 were reference in Addendum No. 2 and not provided.

Drawing No./ Sheet No.	Modifications
PID-02	Revise valves FCV-302 and FCV-304 to be replaced.
PID-03	Revise "FCV-317" and "FCV-318" to "FV-317" and "FV-318", respectively. Also, revise valves to be replaced, Type V-32.
PID-04	Revise all "C-XX" labels to be type "C-11" expansion joints.
PID-09	Show 24" V14-0387 and 24" V12-0391 as existing valves.
MD-501	Delete Keyed Note 4.
M-300's	In the Primary Sludge Pumps Station and Primary Settle Tanks 1 & 2 (M-300 Drawings), 2" EFW shall have a pipe designation of CU/1.
M-301	M-301 – Valve adjacent to G-305 shall be revised from "V40 – 0497" to be a 4" valve labeled "V40-1146".
M-311	Provide one (1) additional 12" plug valve for Primary Settling Tank No. 3, as shown for Primary Settling Tank No. 4 for a total of six (6) 12" plug valves to be replaced for Primary Settling Tanks No. 1 thru 6.
M-500's	In the Secondary Gallery (M-500 Drawings), 2" FSW shall have a pipe designation of CU/1.
M-511	The 2" ML Drain shall have a pipe designation of CU/1.
M-512	The 24" ML line shall have a pipe designation of SS/1.
M-551	Show new 24"V14-0285 as shown on attached Sketch No. 1
HD-521	Show 22"x10" S.A.D. and 16"x18" S.A.D. as demolished.
HD-541	Show 16"x18" S.A.D. as demolished.
S-521	Revise the EXG REACTOR TANK PENETRATION SCHEDULE as follows: P30, P31, P32, P36. P37 & P39 from "FE-FE" to be "PE-PE" P24 & P28 from "FE-PE" to "MJ-PE"

This Addendum is provided to Bidders in a single Portable Document Format (.PDF) posted on Procore and will be available for examination at the Issuing Office. It is each Bidder's responsibility to check the Procore for Addenda per the Instructions to Bidders.

Prepared and Issued by Woodard & Curran (Engineer) on behalf of:
The Town of Warren, Rhode Island

ADDENDUM 1 OF WASTE STREAM PROFILE
Re-use of Contaminated Soils
Pursuant to MADEP Policy # COMM-97-001

A. Client/Customer Information

1. Name: _____ 4. Contact: _____
2. Address: _____ 5. Phone: ( ) _____
3. City: _____ 6. State & ZIP: _____

B. Generator Information

1. Name: _____ 4. Contact: _____
2. Address: _____ 5. Phone: ( ) _____
3. City: _____ 6. State & ZIP: _____

C. QEP/LSP/LEP Information

1. Name: _____ 5. Contact: _____
2. Address: _____ 6. Phone: ( ) _____
3. City: _____ 7. State & ZIP: _____
4. Program Registered Under: _____ 8. LSP/LEP #: _____

D. Laboratory Analysis

Laboratory analyses have been performed on the soil for the parameters indicated below. The required minimum analytical is indicated with asterisks. All laboratory reports accompany the data package.

Constituent	High Concentration Level
VOCs (8260)	
SVOCs (8270)	
TPH	
PCBs (8080)	
RCRA Metals	
As (Arsenic)	
Cd (Cadmium)	
Cr (Chromium)	
Hex Cr (Total Cr greater than 30 ppm)	
Pb (Lead)	
Hg (Mercury)	
Conductivity (if not performed, provide justification)	
Reactivity (cyanide/sulfide), Corrosivity, Ignitability	
TCLP (as required by total data)	
Additional Constituents of Concern***	
Field Screening Data	Type:

*** Please address any constituents of concern that are not on the COMM-97-001 table 1 in a separate letter (Other constituents may require the material to be approved using a BUD or Special Waste Permit)

Site location map & site sketch enclosed? ❑ Yes ❑ No

Is this a MCP Waste? ❑ Yes ❑ No

Is material on ❑ BOL or ❑ MSR?

E. Decharacterized Soils

For Treated Soils:

Has a description of the treatment process and a copy of the WAP (Waste Analysis Plan) been included? ❑ Yes ❑ No

Is the land disposal restriction certification statement pursuant to 40 CFR 268.49(c) and 40 CFR 268.7(b)(4) included? ❑ Yes ❑ No

ADDENDUM 1 OF WASTE STREAM PROFILE
Re-use of Contaminated Soils
Pursuant to MADEP Policy # COMM-97-001

F. Description/Source of Release

Source and Type of Release (describe): _____

Date of Release: _____

Other Contamination Source(s):

Contaminants of Concern: _____

G. Site History

Past Uses:

Current Uses:

If Pesticides are Present: ❑ Yes ❑ No If Yes, please answer the questions below:

Were the Pesticides applied to the soil in a manner that was consistent with the product label and manufacturer's instructions? ❑ Yes ❑ No

Has the concentration of the Chlorinated pesticides been included in the total VOC Level? ❑ Yes ❑ No

Has the concentration of the Chlorinated pesticides been included in the total SVOC Level? ❑ Yes ❑ No

What is the classification Method used:

1. USC ❑
2. Modified Burmister ❑
3. USOA ❑
4. Other: _____

H. Physical Soil Description and Classification

Physical Description of Soils (sand, gravel, urban fill, peat, clay) with percentages, including classification method(s):

I. Check the Following Materials That are Present (Check all that apply)

❑ Construction Debris
❑ Coal
❑ Ash
❑ Organic Matter
❑ Vegetative Matter
Other: _____

J. Soil Sampling Methodology

❑ Grab ❑ Composite ❑ Soil Boring ❑ Test Pit ❑ Headspace Screened

K. Soil Characterization Methodology

❑ Stockpile ❑ In-Situ Other: _____

Frequency of Sampling: _____

Describe other areas (hotspots, other portions of site) that have been identified and that will be managed at other facilities:

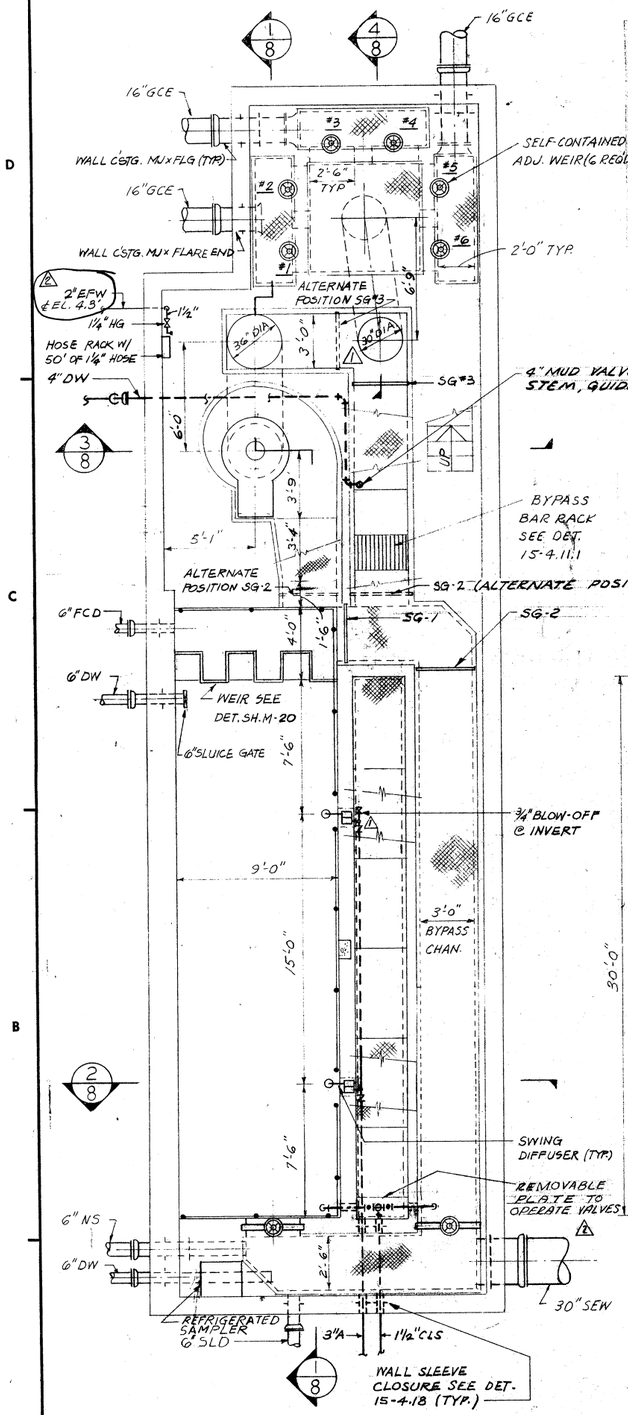
QEP/LSP/LEP Signature: _____ **Date:** _____

LSP CERTIFICATION: I have personally examined and am familiar with the information contained on and submitted with this form. Based on this information, it is my opinion that the testing and assessment actions undertaken were adequate to characterize the waste, and that the facility or location can accept wastes with the characteristics described in this submittal. I am aware that significant penalties including, but not limited to, possible fines and imprisonment may result if I willfully submit information which I know to be false, inaccurate, or materially incomplete.

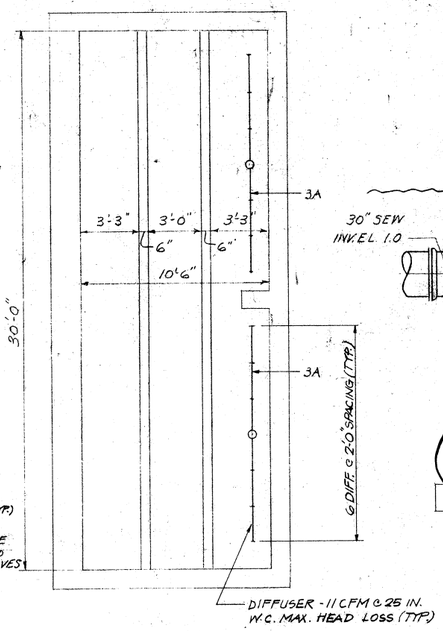
GENERATOR CERTIFICATION: By signing below, the Generator certifies and warrants that, having used due diligence (MADEP Policy HW93-01): (a) all the information contained in this submittal is true, accurate and complete; (b) all information of any releases/spills which may have affected the site, including type of materials released/spilled, has been disclosed; and (c) the materials addressed by this submittal do not contain any contaminants not disclosed in this submittal and are not listed or characteristic hazardous wastes as defined by RCRA.

Generator Signature: _____ **Date:** _____

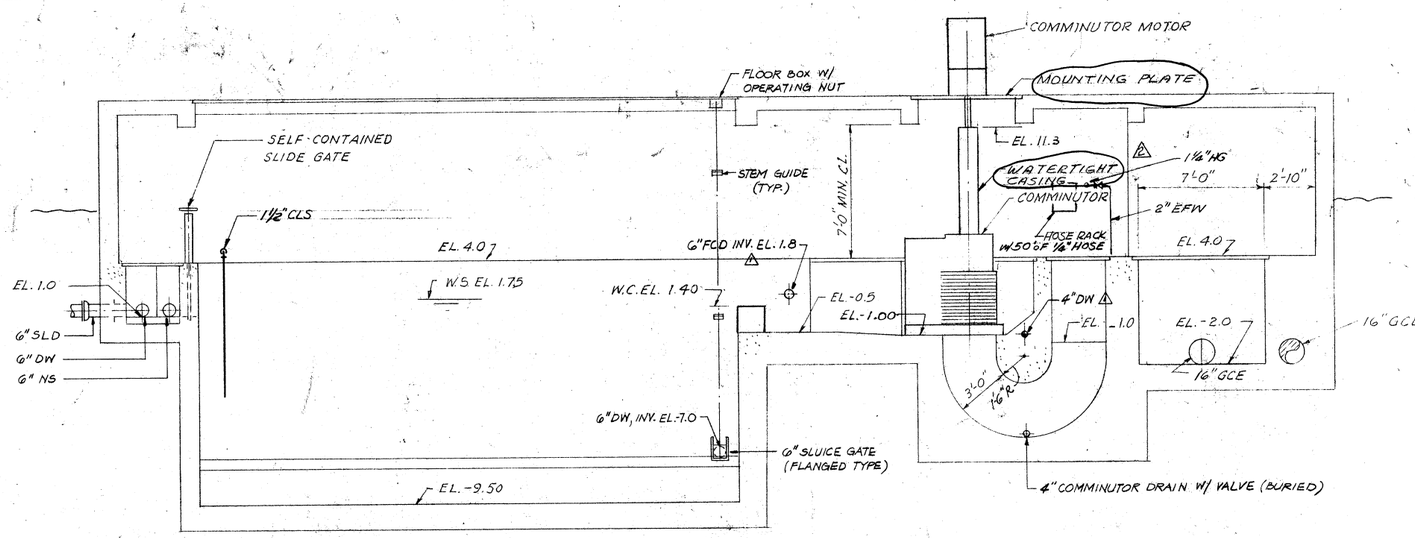
Printed Name: _____ **Company:** _____



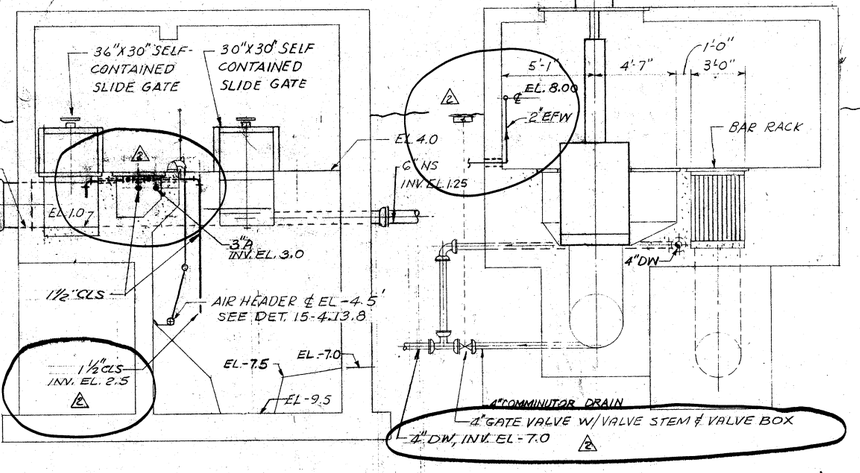
PLAN AT EL. 8.0



PLAN AT EL.-4.0

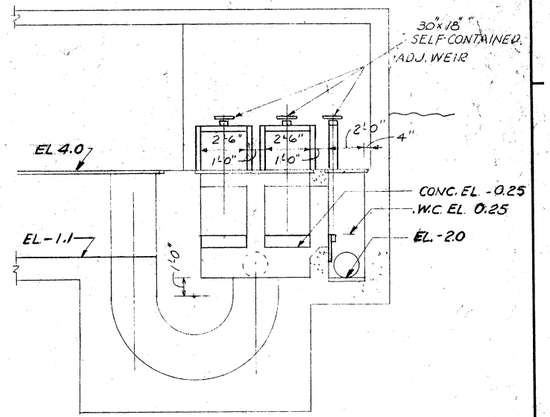


SECTION 1/8



SECTION 2/8

SECTION 3/8



SECTION 4/8

NUMBER	DATE	MADE BY	CHECKED BY	DESCRIPTION
2	9/20/79	GLJ	TMW/Wong Le	REVISED LOCATION 1½CLS, ELEV'S ETC. ADDED EFW
1	4/10/79	DFS	RCKrovian	REVISED LOCATIONS FOR CLS, A, FCD & DW LINES

REVISIONS

DRAWN BY Robinson
DEPT. CHECK P. Nguyen
PROJ. CHECK Robert C. Krovian

ALLEN F. GOULART No. 3304 REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS LAWRENCE ELI TARLOW NO. 6681 REGISTERED PROFESSIONAL ENGINEER

METCALF & EDDY, INC. / ENGINEERS
BOSTON / NEW YORK / PALO ALTO / CHICAGO

Lawrence E. Tarlow — REG. PROF. ENGR. MASS. NO. 6681 — 2/27/78 DATE
Robert C. Krovian — REG. PROF. ENGR. R.I. NO. 3304 — 2/26/78 DATE

SCALE: 0 4 8 12 SCALE IN FEET — SCALE: 1" = 1'-0"

UNLESS OTHERWISE NOTED/OR CHANGED BY REPRODUCTION

TOWN OF WARREN, RHODE ISLAND

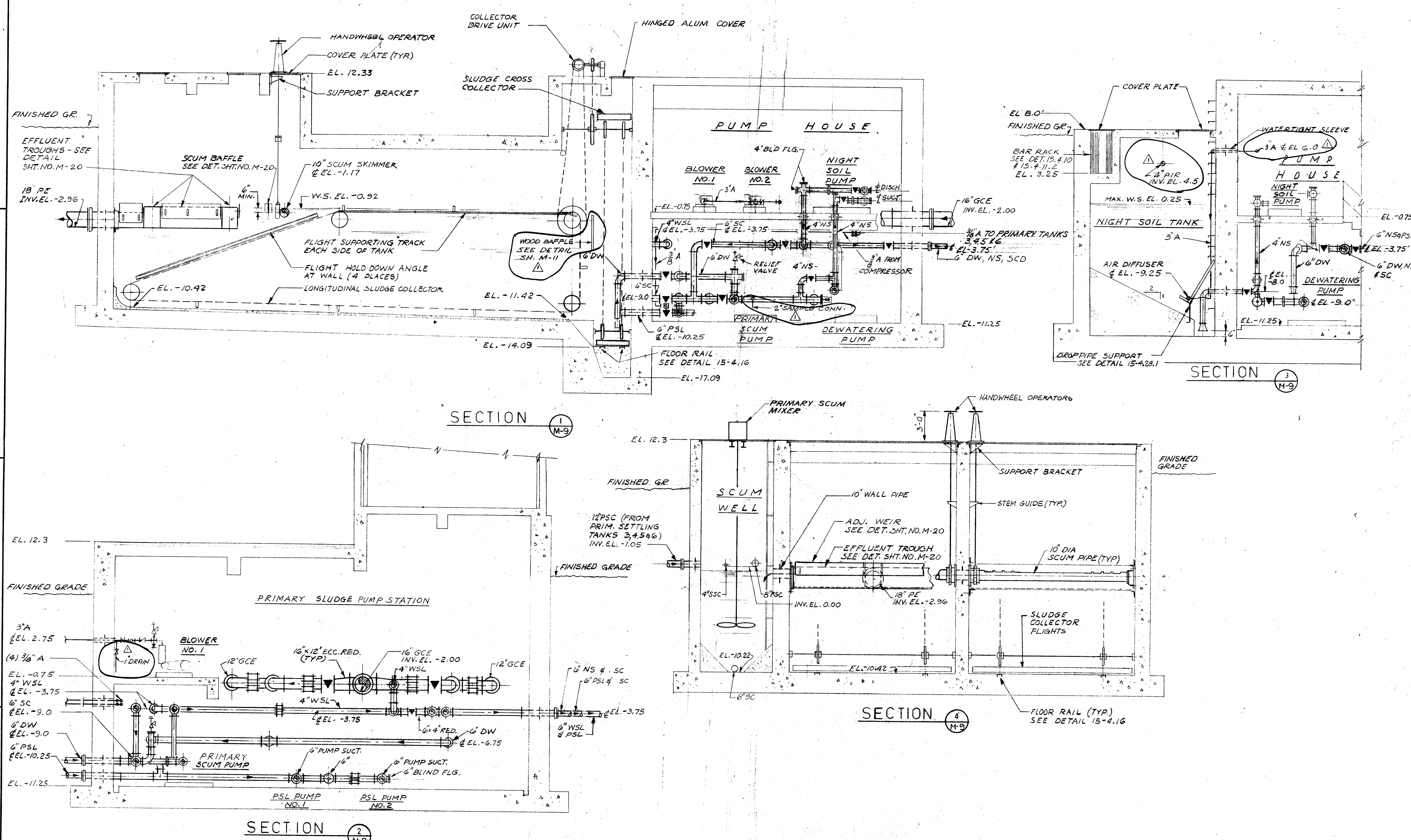
WATER POLLUTION CONTROL PLANT

AERATED GRIT CHAMBER
PLAN AND SECTIONS

MECHANICAL-PROCESS

JOB 5302
FILE NO. H-70684-1
CONTRACT 78-1
SHEET M-8

MAKEPEACE P-2062



NUMBER	DATE	MADE BY	CHECKED BY	DESCRIPTION
1	9/21/79	GLJ	T.McWhaggle	ADDED ELEVS. NOTES, 4" AIR 2" SAMPLE CONN. ETC.

REVISIONS

DRAWN BY J. Dineen
DEPT. CHECK P. Nguyen
PROJ. CHECK Robert C. Korner

ALLEN F. GOULART No. 3304 REGISTERED PROFESSIONAL ENGINEER

METCALF & EDDY, INC. / ENGINEERS
BOSTON / NEW YORK / PALO ALTO / CHICAGO

Lawrence E. Tarlow
REG. PROF. ENGR. MASS. NO. 6681 — DATE 7/7/78
REG. PROF. ENGR. R.I. NO. 3304 — DATE 7/26/78

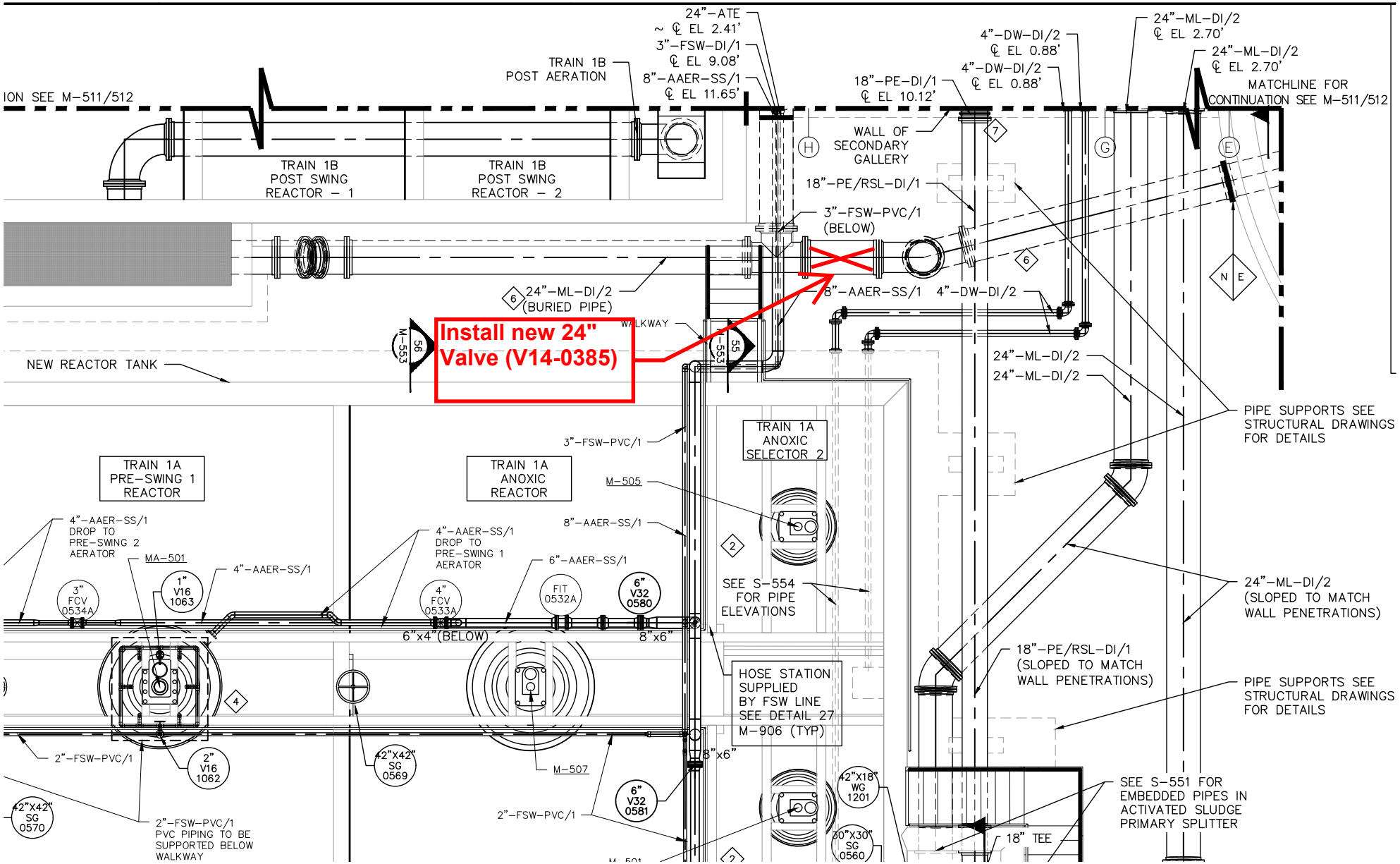
SCALE: 0 4 8 12 SCALE IN FEET
SCALE: 1/4" = 1'-0"
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

TOWN OF WARREN, RHODE ISLAND
WATER POLLUTION CONTROL PLANT
PRIMARY SETTLING TANKS 1 AND 2 AND PRIMARY SLUDGE PUMP STATION - SECTIONS
MECHANICAL-PROCESS

JOB 5302
FILE NO. H-70686-1
CONTRACT 78-1
SHEET M-10

MAKEPEACE P-2062

SKETCH NO. 1


Install new 24" Valve (V14-0385)
ION SEE M-511/512
TRAIN 1B POST AERATION
24"-ATE ~ ℄ EL 2.41'
3"-FSW-DI/1 ℄ EL 9.08'
8"-AAER-SS/1 ℄ EL 11.65'
18"-PE-DI/1 ℄ EL 10.12'
4"-DW-DI/2 ℄ EL 0.88'
4"-DW-DI/2 ℄ EL 0.88'
24"-ML-DI/2 ℄ EL 2.70'
24"-ML-DI/2 ℄ EL 2.70'
MATCHLINE FOR CONTINUATION SEE M-511/512
TRAIN 1B POST SWING REACTOR - 1
TRAIN 1B POST SWING REACTOR - 2
WALL OF SECONDARY GALLERY
18"-PE/RSL-DI/1
3"-FSW-PVC/1 (BELOW)
24"-ML-DI/2 (BURIED PIPE)
8"-AAER-SS/1
4"-DW-DI/2
WALKWAY
NEW REACTOR TANK
24"-ML-DI/2
24"-ML-DI/2
PIPE SUPPORTS SEE STRUCTURAL DRAWINGS FOR DETAILS
3"-FSW-PVC/1
TRAIN 1A ANOXIC SELECTOR 2
TRAIN 1A PRE-SWING 1 REACTOR
TRAIN 1A ANOXIC REACTOR
M-505
8"-AAER-SS/1
4"-AAER-SS/1 DROP TO PRE-SWING 2 AERATOR
MA-501
4"-AAER-SS/1
4"-AAER-SS/1 DROP TO PRE-SWING 1 AERATOR
6"-AAER-SS/1
3" FCV 0534A
1" V16 1063
4" FCV 0533A
FIT 0532A
6" V32 0580
6"x4" (BELOW)
8"x6"
SEE S-554 FOR PIPE ELEVATIONS
24"-ML-DI/2 (SLOPED TO MATCH WALL PENETRATIONS)
18"-PE/RSL-DI/1 (SLOPED TO MATCH WALL PENETRATIONS)
HOSE STATION SUPPLIED BY FSW LINE SEE DETAIL 27 M-906 (TYP)
PIPE SUPPORTS SEE STRUCTURAL DRAWINGS FOR DETAILS
2"-FSW-PVC/1
2" V16 1062
42"X42" SG 0569
M-507
8"x6"
42"X42" SG 0570
2"-FSW-PVC/1 PVC PIPING TO BE SUPPORTED BELOW WALKWAY
6" V32 0581
2"-FSW-PVC/1
42"X18" WG 1201
SEE S-551 FOR EMBEDDED PIPES IN ACTIVATED SLUDGE PRIMARY SPLITTER
30"X30" SG 0560
18" TEE

SECTION 00 41 01

BID FORM

ARTICLE 1 – DEFINED TERMS

1.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions and Supplementary Conditions, if any.

ARTICLE 2 – BID RECIPIENT

2.01 This Bid is submitted to:

Town of Warren, RI
514 Main Street
Warren, RI 02885

2.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 3 – BIDDER'S ACKNOWLEDGEMENTS

3.01 Bidder accepts all of the terms and conditions of the Bidding Documents including, without limitation:

A. those dealing with disposition of Bid security;

B. those included in the Supplementary Instructions to Bidders;

C. insurance and bonding requirements (Payment Bond and Performance Bond each equal to 100% of the total Contract Price) set forth in the General Conditions and Supplementary Conditions, if any;

D. Contract Times as set forth in the Agreement; and

E. provisions for liquidated damages as set forth in the Agreement.

3.02 This Bid will remain subject to acceptance for 90 days after the Bid opening or for such longer period of time that Bidder may agree to in writing upon request of Owner.

3.03 Bidder acknowledges receipt of the following Addenda.

Addendum No.	Addendum Date

3.04 Bidder acknowledges the representations and certifications included in Section 00 45 05 are made a condition of the Bid.

ARTICLE 4 – BASIS OF BID

4.01 Bidder will complete the Work in accordance with the Contract Documents for the following prices. Bidder shall submit Bids for the Base Bid and all Alternates. However, a single Contract, if awarded, will be awarded for the Base Bid, OR Base Bid plus any combination of Additive Bid Alternates at the Owner's option, as determined to be in the best interests of the Project and the public.

Base Bid

ITEM 1	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1	CONSTRUCT WASTEWATER TREATMENT FACILITY IMPROVEMENTS	LS	1		
2	FURNISH DOUBLE DISK PUMPS SPECIFIED IN SECTION 43 23 80	LS	1	$89,085.00	$89,085.00
3	FURNISH HYPERBOLIC MIXERS AND AERATORS SPECIFIED IN SECTION 46 41 41	LS	1	$696,400.00	$696,400.00
4	RELOCATION OF EXISTING UTILITIES AND PROCESS PIPING NOT SHOWN ON THE DRAWINGS	LF-IN DIA	300		
5	EXCAVATION OF UNSUITABLE MATERIALS	CY	150		
6	SELECT BACKFILL	CY	150		
7	ROCK EXCAVATION	CY	150		
8	TEST PITS	EA	10		
9.A.	CONTAMINATED SOILS – ACCEPTABLE FOR LANDFILL BENEFICIAL USE	TON	6,800		
9.B.	CONTAMINATED SOILS – NOT ACCEPTABLE	TON	700		
10	REPAIR TYPE ‘A’ – SHALLOW CONCRETE SPALL	SF	2020		
11	REPAIR TYPE ‘B’ – DEEP CONCRETE SPALL	SF	80		
12	REPAIR TYPE ‘C’ – HORIZONTAL CRACK ROUT & SEAL	LF	900		
13	REPAIR TYPE ‘E’ – JOINT SEALANT	LF	510		
14	REPAIR TYPE ‘F’ – CONCRETE SPOT REPAIR	EA	285		
15	REPAIR TYPE ‘G’ – ELASTOMERIC CONCRETE COATING	SF	10,775		
16	REPAIR TYPE ‘H’ – CRACK INJECTION	LF	1000		
17	FURNISH AND INSTALL NEW GROUNDWATER PRESSURE RELIEF VALVES SPECIFIED IN SECTION 40 05 51	EA	80		
18	ELECTRIC SERVICE ALLOWANCE	AL	1	$5,000.00	$5,000.00
19	WATER SERVICE ALLOWANCE	AL	1	$10,000.00	$10,000.00
20	TELEPHONE, CABLE TV & INTERNET/DATA SERVICE ALLOWANCE	AL	1	$1,000.00	$1,000.00
21	GAS SERVICE ALLOWANCE	AL	1	$3,500.00	$3,500.00

TOTAL BASE BID PRICE (based on Unit Price Schedule above)

_____

_____ Dollars and

$_____

_____ Cents

(Use figures)

(Use words)

4.02 Unit Prices have been computed in accordance with Paragraph 11.03.A of the General Conditions and Supplementary Conditions, if any.

4.03 Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for unit price items will be based on actual quantities determined and based on the unit prices included above, as provided in the General Conditions and Supplementary Conditions, if any.

Additive Bid Alternates

ADDITIVE BID ALTER-NATE ITEMS	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
ADDITIVE BID ALTERNATE 1	Furnish and Install Primary Sludge Pump Station 12" Plug Valves	LS	1		
ADDITIVE BID ALTERNATE 2	Furnish and Install Primary Sludge Pump Station 4" and 6" Plug Valves	LS	1		
ADDITIVE BID ALTERNATE 3	Furnish and Install Headworks Sluice Gates	LS	1		
ADDITIVE BID ALTERNATE 4	Furnish and Install Headworks 36" Gates	LS	1		
ADDITIVE BID ALTERNATE 5	Furnish and Install Intermediate Pump Station Slide Gates	LS	1		
ADDITIVE BID ALTERNATE 6	Furnish and Install Chlorine Contact Tank Slide Gates	LS	1		
ADDITIVE BID ALTERNATE 7	Furnish and Install Aerated Grit Chamber Diffusers	LS	1		
ADDITIVE BID ALTERNATE 8	Furnish and Install Primary Settling Tank Collectors	LS	1		
ADDITIVE BID ALTERNATE 9	Furnish and Install Dewatering Pump	LS	1		
ADDITIVE BID ALTERNATE 10	Repair Type 'D' – Vertical Crack Rout & Seal	LF	610		
ADDITIVE BID ALTERNATE 11	Repainting Exterior Concrete Walls	LS	1		
ADDITIVE BID ALTERNATE 12	Furnish and Install Granite Curbs in Lieu of Concrete Curbs	LS	1		

1. Unit Prices have been computed in accordance with Paragraph 11.03.A of the General Conditions and Supplementary Conditions, if any.

2. Bidder acknowledges that estimated quantities for Bid Alternates are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for unit price items will be based on actual quantities determined and based on the unit prices included above, as provided in the General Conditions and Supplementary Conditions, if any.

ARTICLE 5 – TIME OF COMPLETION

5.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions and

Supplementary Conditions, if any, on or before the dates or within the number of calendar days indicated in the Agreement.

ARTICLE 6 – ATTACHMENTS TO THIS BID

6.01 The following documents are submitted with and made a condition of this Bid:

00 43 13 Bid Bond – Penal Sum Form

Supplements:

00 45 05 Bidder's Representations and Certifications including required submittals

00 45 13 Bidder's Qualifications

00 45 19 Non-collusion Affidavit

ARTICLE 7 – BID SUBMITTAL

7.01 This Bid is submitted by:

A Corporation

Corporation Name: _____

State of incorporation: _____

Type: _____
(*General Business, Professional, Service, other*)

By: _____
(*Signature – attach evidence of authority to sign*)

Name (*typed or printed*): _____

Title: _____

(CORPORATE SEAL)
Attest: _____
(*Signature of Corporate Secretary*)

Business Address: _____

_____

Phone & Facsimile Nos: _____

Email address: _____

Date of qualification to do business as out-of-state corporation: _____

A Limited Liability Company (LLC)

LLC Name: _____

State in which organized: _____

By: _____
(*Signature – attach evidence of authority to sign*)

Name (*typed or printed*): _____

Title: _____

Business Address: _____

_____

Phone & Facsimile Nos: _____

Email address: _____

A Joint Venture

First Joint Venturer Name: _____

By: _____
(*Signature – attach evidence of authority to sign*)

Name (*typed or printed*): _____

Title: _____

Business Address: _____

_____

Phone & Facsimile Nos: _____

Email address: _____

Second Joint Venturer Name: _____

By: _____
(*Signature – attach evidence of authority to sign*)

Name (*typed or printed*): _____

Title: _____

Business Address: _____

_____

Phone & Facsimile Nos: _____

Email address: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, corporation and limited liability company that is a party to the joint venture should be in the manner indicated above.)

A Partnership

Partnership Name: _____(SEAL)

By: _____
(*Signature of general partner – attach evidence of authority to sign*)

Name (*typed or printed*): _____

Business Address: _____

_____

Phone & Facsimile Nos: _____

Email address: _____

An Individual

Name (*typed or printed*): _____

By: _____
(*Individual's signature*)

Doing business as: _____

Business Address: _____

_____

Phone & Facsimile Nos: _____

Email address: _____

SUBMITTED ON:
EIN/FEIN:

Communications concerning this Bid shall be addressed to:

Name: _____

Title: _____

Business Address: _____

_____

Phone & Facsimile Nos: _____

Email address: _____

END OF SECTION

D. The existing treatment facility was designed with capacity to handle a peak hourly flow of 7.1 million gallons per day. The Contractor shall maintain flow capacity throughout the duration of the Contractors work.

E. A description of the existing treatment facility, from the January 1984 Operation and Maintenance Manual (Table 1-1), is included as an attachment at the end of this Section. The Contractor shall maintain the existing treatment capacity as described in the attachment, or as otherwise described herein, throughout the duration of the Contractors work. Changes since the 1984 Manual are indicated in the attachment with hatching and include:

1. The comminutor has been replaced with a grinder (JWC Environmental, Channel Monster Grinder).

2. The chlorine gas system has been replaced with a sodium hypochlorite feed system, located on the first floor of the Operations Building and a sodium bisulfite dichlorination feed system, located in the basement of the Operations Building. The sodium hypochlorite injection location is at the chlorine mixer structure adjacent to the chlorine contact tanks. The sodium bisulfite injection location is the chlorine contact tank influent channel.

3. The vacuum filter sludge dewatering system, including lime and ferric chloride systems, has been abandoned. The current sludge handling system consists of thickening blended primary and secondary waste (WAS) sludge with a rotary drum thickener (RDT). The solids handling operation is entirely manual. Operators pump WAS from the secondary gallery to the sludge storage tank. WAS is allowed to settle and the supernatant is decanted. Primary sludge is pumped directly from the primary settling tanks. Three days per week (on average) operators pump sludge from the WAS storage tank to a blend tank (formerly one of the two Sludge Stabilization Tanks) in the operations building basement. This tank is mixed by a mechanical mixer, and the blended sludge is pumped to a flocculation tank. Polymer is added ahead of the flocculation tank, and the flocculated sludge flows by gravity to the RDT. The RDT thickens the sludge to between 5 and 6 percent solids. Thickened sludge is pumped to a tanker truck and hauled off-site for incineration at the Synagro Facility in Woonsocket. The average solids production is 22,000 lbs per week, with peak week solids production of 57,000 lbs per week. Sludge hauling on average consists of 27,000 gallons per week at an average concentration 5.5 percent.

F. Grit from the aerated grit chamber is removed approximately one time per year by a vacuum truck.

G. The facility receives approximately 8,000 to 10,000 gallons per week of septage on average.

1.06 WORK DURING LOW FLOW CONDITIONS

A. The proposed work sequence described herein shall be accomplished at such times that will be acceptable or agreed to by the Owner. Any construction activity defined herein to be performed during a low flow period shall meet the following criteria. Low influent flow periods are defined as early weekday and weekend mornings (between midnight and 6:00 a.m.), during dry weather periods only. Overtime work by the Contractor to conform to these requirements shall be considered as normal procedure under this Contract, and the Contractor shall make no claim for extra compensation as a result thereof.

1.07 LIMITATIONS AND CONSTRAINTS ON CONSTRUCTION TO PROVIDE FOR EXISTING PLANT OPERATIONS

A. Work shall be sequenced to achieve project objectives, maintain plant operations, and maintain compliance with WWTP discharge permit requirements.

B. All work connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to minimize interference with the operation of the existing facilities and when the demands on the facilities best permit such interference, which may necessitate work outside of normal working hours to meet these requirements.

C. Before starting work which will interfere with the operation of existing facilities, the Contractor shall do all possible preparatory work and shall see that all labor, tools, materials, and equipment are made ready. The Contractor shall also assist in instructing operations and maintenance personnel in any new operating procedures.

D. The Contractor shall provide, maintain, and operate all necessary temporary facilities. ~~The Contractor shall be responsible for cleaning structures to make modifications, including removal and disposal of accumulated sludge, grit, grease, debris and all other materials.~~The Owner shall be responsible for cleaning structures to make modifications, incuding reoval and disposal of accumulated sludge, grit, grease, debris and all other materials.

E. Flow to and through the treatment facility shall not be interrupted without written approval from the Owner. Flow through portions of the plant may only be shut-down to perform work as delineated herein. All shut-downs shall occur only upon written request and with prior written authorization from the Owner. Such authorizations will be limited to times when the hydraulic capacity of units remaining in service shall not be exceeded. When work requires that a portion of the plant be shut down, the Contractor shall be fully prepared to execute the work in the most expeditious manner. The Contractor shall plan the work by taking into consideration all potential problems that may be encountered. Spare pumps, pipe and fittings, and any other equipment appropriate for the work to be done shall be readily available for use in an emergency. The Contractor shall be prepared to work continuously (24 hrs per day, 7 days per week) during the time when any units or pipelines are out of service that affects the treatment process.

18. Provide temporary pumps and piping as required to provide non-potable water for plant water systems throughout construction. This includes, but is not limited to effluent flushing water, foam spray water and, and the chlorine injection water.

19. Throughout construction a minimum of one chlorine contact tank chamber shall remain operational at minimum. Once one unit is taken out of service for the construction Work, the maximum time it can be out of service is (3) three months. While work within the chlorine contact tank flash mix chamber is being completed a temporary means of rapidly mixing the sodium hypochlorite into the secondary settling tank effluent must be provided.

20. The existing sodium bisulfite storage tank and metering pumps shall remain in service until the new sodium bisulfite storage tanks and metering pumps located within the Sludge Handling Building are put into service.

21. Existing sludge thickening equipment and system in the Operations Building shall remain in service until the new gravity thickeners (GT) and rotary drum thickener (RDT), and all supporting equipment such as sludge pumps and polymer systems, are installed, tested, accepted and put into operation.

22. The scope of work includes the complete demolition of the existing Sludge Storage Building. ~~or~~ Contractor shall carefully coordinate demolition of the existing Sludge Storage Building and construction of the new Sludge Handling Facilities to maintain the existing capacity by use of one the following methods;

    a. Temporary facilities for secondary sludge storage. This method shall include the requirement that the Contractor provides a means to convey sludge from the temporary facility to the existing sludge thickening operation in the basement of the Operations Building shall be provided or sludge must be disposed of without thickening. The Contractor shall be responsible for the cost increase to dispose of waste sludge that has not been thickened to 5.5%.

    b. The use of one or more of the existing Primary Settling Tanks for secondary sludge storage. This method shall be coordinated with the Owner such that this operation does not impact the minimum online equipment requirements or generate nuisance odors.

    c. Other Engineer Approved Method.

23. The existing double disc pump within the sludge storage building may be relocated once the temporary secondary sludge storage from the existing secondary sludge storage tank has been established.

24. To perform the Work, the existing primary electrical service for the site shall be relocated by one of the following methods:

    a. Install the new primary electrical service and associated distribution equipment;

    b. Provide a temporary primary feeder to the existing pad mounted transformer located adjacent to the existing emergency generator; or

    c. Other Engineer Approved Method.

25. Emergency power to the treatment plant must be maintained throughout construction. Prior to demolition of the existing emergency generator and the associated fuel tank and supply pumps a new emergency power supply must be connected. Maintenance of emergency power may be provided by:

    a. Installation of the new emergency generator;

    b. Temporary installation of an emergency generator with sufficient fuel supply to maintain operations at the plant for 48-hours; or,

    c. Other Engineer approved method.

26. Construction of the underground electrical duct banks north of the Operations Building from the emergency generator and the secondary side of the site electrical service pad mounted transformer to the automatic transfer switch shall be closely coordinated with the Owner and the Engineer as to minimize interference with access to the gravel parking area and commercial fishing boat launch.

27. Demolition and replacement of motor control centers (MCC):

    a. MCC-1 and MCC-3: The existing MCC-1 and MCC-3 provides power to equipment that is required to maintain plant operation. The Contractor shall provide temporary equipment and materials as required to power the existing equipment fed from the existing MCCs prior to demolition. When making the switch over, the Contractor shall be allowed to have only one of each type of equipment/system (i.e. full aeration to a aeration tank train , RAS pumps, WAS pumps, etc.) out of service at any given time. The Contractor shall coordinate with the Owner and Engineer, have a plan that is approved in writing prior to the Work.

    b. MCC-2: The existing MCC-2 provides power to equipment that required to maintain plant operation. The Contractor shall provide temporary equipment and materials as required to power the existing equipment fed from the existing MCC prior to demolition. When making the switch over, the Contractor shall be allowed to have only one of each type of equipment/system (i.e. primary sludge pump, primary scum pump, primary sludge collector drives, etc.) out of service at any given time. The Contractor shall coordinate with the

SECTION 01 20 25

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section describes the measurement and payment for the Work to be completed under each item in Section 00 41 01, which may also be referred to as a "pay item".

B. Payment procedures are in accordance with the Agreement, Article 15 of the General Conditions, the Supplementary Conditions (if any), and the General Requirements.

C. Measurement: as determined, verified, or approved by Engineer or Owner in accordance with Paragraph 13.03 of the General Conditions and Supplementary Conditions (if any), and the General Requirements, except as otherwise specified.

D. The Work described in each pay item shall be as described in the Specifications and shown on the Drawings and not included in other pay items.

1. Pay item descriptions are general and may not specifically describe all associated Work or elements thereof, do not constitute Specifications, and do not supersede the content of the Specifications and Drawings.

2. Review the Specifications and Drawings for Work associated with each pay item. Claims for being unfamiliar with the content of the Specifications and Drawings will not be considered.

E. The following Work is not specifically described or designated as a pay item, is considered incidental to all pay items, and shall not be measured separately for payment.

1. Division 01 General Requirements EXCEPT those items included in Mobilization/Demobilization and or included as a separate pay item.

2. Materials, equipment, and services necessary to verify existing field conditions and the location, size, type, material, and orientation of existing pipes and utilities shown on the Drawings including test pits. Test pits which are specifically indicated on the Drawings or otherwise directed by the Engineer will be paid as indicated.

3. Restoration of all areas disturbed by the Contractor within the limits of Work, including planting.

4. Traffic Control

F. Payment will not be made for restoration of areas disturbed by the Contractor outside the limits of Work.

G. Payment will only be made for those utility services, including water and fire services, specifically identified for replacement on the Drawings. Relocation or replacement for the Contractor's convenience or due to breakage by the Contractor of any other utility services shown on the Drawings, or at locations which could reasonably be assumed, shall be at no cost to the Owner.

H. Design, installation and removal of excavation support systems, temporary and permanent utility/structure support systems associated with a pay item shall be considered incidental to that pay item.

I. Additional dewatering and erosion control (including installation, operation, maintenance, removal and off Site disposal of erosion control devices) associated with a pay item shall be considered incidental to that pay item.

J. Police details will be direct billed by the police department to Owner. Provide daily detail slips to the Engineer. Police details scheduled and not used by the Contractor will be back-charged to Contractor.

1.02 MEASUREMENT AND PAYMENT BASIS

A. Base Bid Items

ITEM #1: CONSTRUCT WASTEWATER TREATMENT FACILITY IMPROVEMENTS	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum (LS) price based on Schedule of Values
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes excavation, shoring, bracing, dewatering, backfill, concrete forming, cast-in-place concrete, concrete reinforcement, form removal, insulation, erosion control, site work, piping, pipe fittings, valves, electric, controls, structural, architectural, HVAC, plumbing, communications, process equipment, paving, testing, startup and appurtenances. Includes all work not included in other bid items.	

ITEM #2: FURNISH DOUBLE DISK PUMPS	
Measurement	Progress of Work Based on Invoices from Supplier
Payment	Lump Sum (LS)
Schedule of Payment	Monthly – based on progress of Work
The price of the Double Disc Pumps including Manufacturers services, as describe in Section 43 23 80 has been pre-negotiated. The lump sum indicated for Item 2 shall be the final price to furnish the Scope of Work described in the firm price proposal from Penn Valley Pump, Inc. All other Work described in Section 43 23 80, including, but not limited to equipment installation, electrical and instrumentation required to provide a functioning system shall be included in other bid items.	
ITEM #3: HYPERBOLIC MIXERS AND MIXER AERATORS	
Measurement	Progress of Work Based on Invoices from Supplier
Payment	Lump Sum (LS)
Schedule of Payment	Monthly – based on progress of Work
The price of the Hyperbolic Mixers and Mixer Aerators including Manufacturers services, as describe in Section 46 41 41 has been pre-negotiated. The lump sum indicated for Item 3 shall be the final price to furnish the Scope of Work described in the firm price proposal from Invent Environmental Technologies, Inc. All other Work described in Section 46 41 41, including, but not limited to equipment installation, electrical and instrumentation required to provide a functioning system shall be included in other bid items.	
ITEM #4: RELOCATION OF EXISTING UTLITIES AND PROCESS PIPING NOT SHOWN ON THE DRAWINGS	
Measurement	Measurement for the relocation of existing utilities and process piping as encountered and as directed by the Engineer, shall be made by multiplying the inside diameter of the pipeline by the length of the new relocated pipe. The allowable trench width shall be as shown on the drawings.
Payment	Linear Foot – Inch Diameter (LF-In Dia.) unit price as stated in the bid.
Schedule of Payment	Monthly – based on progress of Work
Includes all materials, equipment, and services required to relocate existing utilities (including storm drains) and process pipes (including, but not limited to, piping shown on Drawing C-012) that are 20 inches in diameter or less, which in the Engineer's judgement could not be avoided by the Contractor. This item includes replacement of the pipe in kind in material and dimension for utilities within the allowable trench width only unless otherwise indicated on the Contract Documents, cutting, removing and legal disposal of pavement, pipe, fittings, pipe unloading, stringing, couplings, excavation, bedding, backfill, compaction, shoring/bracing, dewatering, installation of pipe, testing, matching pipe slope, removing and resetting curbs, gravel sub-base, paving and loam and seed and any other required site restoration. Excludes the relocation of any existing piping shown on the Drawings as being required (this Work shall be paid for under other items).	
ITEM #5: EXCAVATION OF UNSUITABLE MATERIALS	
Measurement	As encountered & as directed by the Engineer
Payment	Unit price per Cubic Yard (CY)
Schedule of Payment	Monthly – based on progress of Work

All materials, equipment, services and construction inherent to the Work and as specified in Division 31. Item includes over-excavation and removal of unsuitable materials outside the limits specified or indicated on the Drawings.

ITEM #6: SELECT BACKFILL	
Measurement	As encountered & as directed by the Engineer
Payment	Unit price per Cubic Yard (CY)
Schedule of Payment	Monthly – based on progress of Work
Includes all materials, equipment, services and construction inherent to the Work. Includes suitable backfill material, compaction and testing associated to replace unsuitable materials.	

ITEM #7: ROCK EXCAVATION	
Measurement	As encountered in place prior to excavation within the pay limits as specified and as indicated on the Drawings
Payment	Unit price per Cubic Yard (CY)
Schedule of Payment	Monthly – based on progress of Work
Includes all materials, equipment, services and construction inherent to the Work. Includes transport and disposal of rock and boulders greater than 2 cubic yards each and replacement as necessary with suitable material.	

ITEM #8: TEST PITS	
Measurement	Number of units installed
Payment	Unit price per Each (EA)
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes bedding, backfill, shoring & bracing, compaction, surface restoration, survey of location, size and elevation of existing below grade pipe or structure, and determination of potential conflicts with pipe or structures.	

ITEM #9.A.: CONTAMINATED SOILS – ACCEPTABLE FOR LANDFILL BENEFICIAL USE	
Measurement	As encountered within the pay limits (“Landscape Remediation Areas”) as specified and as indicated on the Drawings
Payment	Unit price per Ton
Schedule of Payment	Monthly – based on progress of Work
Includes all materials, equipment, services and construction inherent to the Work. Includes stock piling, handling, transport and legal disposal of contaminated soils that meet the general acceptance criteria for landfill beneficial use as described in Specification Section 02 81 00. Includes replacement as necessary with suitable material.	

ITEM #9.B.: CONTAMINATED SOILS – NOT ACCEPTABLE	
Measurement	As encountered within the pay limits ("Landscape Remediation Areas") as specified and as indicated on the Drawings
Payment	Unit price per Ton
Schedule of Payment	Monthly – based on progress of Work
Includes all materials, equipment, services and construction inherent to the Work. Includes stock piling, handling, transport and legal disposal of contaminated soils that are not acceptable for landfill beneficial use because they contain contamination levels above the general acceptance criteria for landfill beneficial use as described in Specification Section 02 81 00. Includes replacement as necessary with suitable material.	

ITEM #10: REPAIR TYPE 'A' – SHALLOW CONCRETE SPALL	
Measurement	Number of units installed
Payment	Unit price per Square Foot (SF)
Schedule of Payment	Monthly – based on actual costs incurred
All materials, equipment, services, and construction inherent to the Work. Includes repair as shown on the Drawings and specified in the Contract Documents.	

ITEM #11: REPAIR TYPE 'B' – DEEP CONCRETE SPALL	
Measurement	Number of units installed
Payment	Unit price per Square Foot (SF)
Schedule of Payment	Monthly – based on actual costs incurred
All materials, equipment, services, and construction inherent to the Work. Includes repair as shown on the Drawings and specified in the Contract Documents.	

ITEM #12: REPAIR TYPE 'C' – HORIZONTAL CRACK ROUT & SEAL	
Measurement	Number of units installed
Payment	Unit price per Linear Foot (LF)
Schedule of Payment	Monthly – based on actual costs incurred
All materials, equipment, services, and construction inherent to the Work. Includes repair as shown on the Drawings and specified in the Contract Documents.	

ITEM #13: REPAIR TYPE 'E' – JOINT SEALANT	
Measurement	Number of units installed
Payment	Unit price per Linear Foot (LF)
Schedule of Payment	Monthly – based on actual costs incurred
All materials, equipment, services, and construction inherent to the Work. Includes repair as shown on the Drawings and specified in the Contract Documents.	

ITEM #14: REPAIR TYPE 'F' – CONCRETE SPOT REPAIR	
Measurement	Number of units installed
Payment	Unit price per Each (EA)
Schedule of Payment	Monthly – based on actual costs incurred
All materials, equipment, services, and construction inherent to the Work. Includes repair as shown on the Drawings and specified in the Contract Documents.	

ITEM #15: REPAIR TYPE 'G' – ELASTOMERIC CONCRETE COATING	
Measurement	Number of units installed
Payment	Unit price per Square Foot (SF)
Schedule of Payment	Monthly – based on actual costs incurred
All materials, equipment, services, and construction inherent to the Work. Includes repair as shown on the Drawings and specified in the Contract Documents.	

ITEM #16: REPAIR TYPE 'H' – CRACK INJECTION	
Measurement	Number of units installed
Payment	Unit price per Linear Foot (LF)
Schedule of Payment	Monthly – based on actual costs incurred
All materials, equipment, services, and construction inherent to the Work. Includes repair as shown on the Drawings and specified in the Contract Documents.	

ITEM #17: GROUNDWATER PRESSURE RELIEF VALVE	
Measurement	Number of units installed
Payment	Unit price per Each (EA)
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes removing existing valves, furnishing and installing new valves as shown on the Drawings and Specified in the Contract Documents.	

ITEM #18: ELECTRICAL SERVICE ALLOWANCE	
Measurement	Portion of allowance amount authorized per Paragraph 11.02 of the General Conditions. Submit bills from electric utility company
Payment	Allowance (AL) - Actual costs incurred
Schedule of Payment	Monthly – based on actual costs incurred
Includes fees from electric utility company for new electrical service for the WWTF as shown on the Drawings and Specified in the Contract Documents. Excludes all other Work required for new service.	

ITEM #19: WATER SERVICE ALLOWANCE	
Measurement	Portion of allowance amount authorized per Paragraph 11.02 of the General Conditions. Submit bills from water utility company
Payment	Allowance (AL) - Actual costs incurred
Schedule of Payment	Monthly – based on actual costs incurred
Includes fees from Bristol County Water Authority for new water service for the WWTF as shown on the Drawings and Specified in the Contract Documents. Excludes all other Work required for new service.	

ITEM #20: TELEPHONE, CABLE TV & INTERNET/DATA ALLOWANCE	
Measurement	Portion of allowance amount authorized per Paragraph 11.02 of the General Conditions. Submit bills from cable and telephone vendors.
Payment	Allowance (AL) - Actual costs incurred
Schedule of Payment	Monthly – based on actual costs incurred
Includes fees from utility company for new service for the WWTF as shown on the Drawings and Specified in the Contract Documents. Excludes all other Work required for new service.	

B. Additive Bid Alternate Items

ITEM #21: GAS SERVICE ALLOWANCE	
Measurement	Portion of allowance amount authorized per Paragraph 11.02 of the General Conditions. Submit bills from gas utility company.
Payment	Allowance (AL) - Actual costs incurred
Schedule of Payment	Monthly – based on actual costs incurred
Includes fees from utility company for new service for the WWTF as shown on the Drawings and Specified in the Contract Documents. Excludes all other Work required for new service. The Contractor shall excavate the trench for the gas service to be installed by the utility company from the main to the meter, to include the meter.	

ADDITIVE BID ALTERNATE ITEM #1: PRIMARY SLUDGE PUMP STATION 12" PLUG VALVES	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum (LS) price based on Schedule of Values
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes all Work for replacing 12" plug valves in the Primary Sludge Pump Station as shown on the Drawings and Specified in the Contract Documents.	

ADDITIVE BID ALTERNATE ITEM #2: PRIMARY SLUDGE PUMP STATION 4" and 6" PLUG VALVES	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum (LS) price based on Schedule of Values
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes all Work for replacing 6" plug valves in the Primary Sludge Pump Station as shown on the Drawings and Specified in the Contract Documents.	

ADDITIVE BID ALTERNATE ITEM #3: HEADWORKS SLUICE GATES	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum (LS) price based on Schedule of Values
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes all Work for replacing Headworks Sluice Gates as shown on the Drawings and Specified in the Contract Documents.	

ADDITIVE BID ALTERNATE ITEM #4: HEADWORKS 36" GATES	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum (LS) price based on Schedule of Values
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes all Work for replacing Headworks 36" Gates as shown on the Drawings and Specified in the Contract Documents.	

ADDITIVE BID ALTERNATE ITEM #5: INTERMEDIATE PUMP STATION SLIDE GATES	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum (LS) price based on Schedule of Values
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes all Work for replacing Intermediate Pump Station Slide Gates as shown on the Drawings and Specified in the Contract Documents.	

ADDITIVE BID ALTERNATE ITEM #6: CHLORINE CONTACT TANK SLIDE GATES	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum (LS) price based on Schedule of Values
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes all Work for replacing Chlorine Contact Tank Slide Gates as shown on the Drawings and Specified in the Contract Documents.	

ADDITIVE BID ALTERNATE ITEM #7: AERATED GRIT CHAMBER DIFFUSERS	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum (LS) price based on Schedule of Values
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes all Work for replacing Aerated Grit Chamber Diffusers as shown on the Drawings and Specified in the Contract Documents.	

ADDITIVE BID ALTERNATE ITEM #8: PRIMARY SETTLING TANK COLLECTORS	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum (LS) price based on Schedule of Values
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes all Work for replacing Primary Settling Tank Collectors as shown on the Drawings and Specified in the Contract Documents.	

ADDITIVE BID ALTERNATE ITEM #9: DEWATERING PUMP	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum (LS) price based on Schedule of Values
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes all Work for replacing the Dewatering Pump in the Primary Sludge Pump Station as shown on the Drawings and Specified in the Contract Documents.	

ADDITIVE BID ALTERNATE ITEM #10: REPAIR TYPE 'D' – VERTICAL CRACK ROUT & SEAL	
Measurement	Number of units installed
Payment	Unit price per Linear Foot (LF)
Schedule of Payment	Monthly – based on actual costs incurred
All materials, equipment, services, and construction inherent to the Work. Includes repair as shown on the Drawings and specified in the Contract Documents.	

ADDITIVE BID ALTERNATE ITEM #11: REPAINTING EXTERIOR CONCRETE WALLS	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum (LS) price based on Schedule of Values
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes all Work for repainting exterior concrete walls as shown on the Drawings and Specified in the Contract Documents.	

ADDITIVE BID ALTERNATE ITEM #12: INSTALL GRANITE CURBS IN LIEU OF CONCRETE CURBS	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum (LS) price based on Schedule of Values
Schedule of Payment	Monthly – based on progress of Work
All materials, equipment, services, and construction inherent to the Work. Includes all Work for new granite curbs in lieu of the Concrete Curbs as shown on the Drawings and Specified in the Contract Documents.	

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 09 90 00

PAINTING AND COATINGS

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes surface preparation and field application of paints, and other coatings.

B. Related Sections:
1. Section 05 14 00 – Structural Aluminum Framing: Shop primed items.
2. Section 05 5200 – Metal Railing: Shop primed items.

1.02 PRICING AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03 REFERENCES

A. ASTM International:
1. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.
2. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
3. ASTM E119 – Standard Test Method for Fire Tests of Building Construction and Materials.

B. Green Seal:
1. GC-03 - Anti-Corrosive Paints.
2. GS-11 - Product Specific Environmental Requirements.

C. Painting and Decorating Contractors of America:
1. PDCA - Architectural Painting Specification Manual.

D. Environmental Protection Agency (EPA):
1. EPA Method 24 – Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface coatings.

E. SSPC: The Society for Protective Coatings:
1. SSPC - Steel Structures Painting Manual.

1.04 DEFINITIONS

A. Conform to ASTM D16 for interpretation of terms used in this section.

1.05 SUBMITTALS

A. Submit in accordance with Division 01 General Requirements.

B. Product Data: Submit data on all product characteristics, performance criteria and limitations.

C. Manufacturer's Installation Instructions: Submit special surface preparation procedures, substrate conditions requiring special attention, and installation.

D. Manufacturer’s Certificate: Certify products meet or exceed specified requirements.

1.06 CLOSEOUT SUBMITTALS

A. In accordance with Division 01 General Requirements.

B. Operation and Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.07 QUALITY ASSURANCE

A. Surface Burning Characteristics:
   1. Fire Retardant Finishes: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

B. Maintain one copy of document on site.

1.08 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with a minimum ten years’ experience.

B. Applicator: Company specializing in performing the work of this section with a minimum 3 years documented successful experience in work of similar scope.

C. Manufacturer’s Instructions: Perform painting work in accordance with manufacturer’s written instructions and recommendations.

1.09 MOCKUP

A. In accordance with the Division 01 General Requirements

B. Construct door and frame assembly illustrating paint coating color, texture, and finish.

C. Locate where directed by Architect.

D. Incorporate accepted mockup as part of Work.

1.10 PRE-INSTALLATION MEETINGS

A. In accordance with the Division 01 General Conditions

1.11 DELIVERY, STORAGE, AND HANDLING

A. In accordance with the Division 01 General Requirements

B. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

C. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

D. Paint Materials: Store at minimum ambient temperature of 45 degrees F and maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

E. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 degrees F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.

1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and Work areas are protected from fire and health hazards resulting from handling, mixing, and application.

1.12 ENVIRONMENTAL REQUIREMENTS

A. In accordance with the Division 01 General Conditions

B. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint product manufacturer.

C. Do not apply exterior coatings during rain or snow when relative humidity is outside humidity ranges, or moisture content of surfaces exceed those required by paint product manufacturer.

D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

E. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.

F. Provide lighting level of 80 ft candle measured mid-height at substrate surface.

1.13 **SEQUENCING**

A. Sequence application to the following:
   1. Do not apply finish coats until paintable sealant is applied.
   2. Back prime wood trim before installation of trim.

1.14 **WARRANTY**

A. In accordance with the Division 01 General Requirements.

B. Furnish five year manufacturer warranty for paints and coatings.

1.15 **EXTRA MATERIALS**

A. In accordance with the Division 01 General Conditions

B. Supply 2 gallons of each color, type, and surface texture; store where directed.

C. Label each container with color, type, texture, room locations, in addition to manufacturer's label.

PART 2 – PRODUCTS

2.01 **PAINTS AND COATINGS**

A. Manufacturers: Paint, Primer Sealers, Block Filler.
   1. Tnemec Company Incorporated.
   2. Sherwin Williams.
   3. PPG
   4. Substitutions: per Division 01 General Requirements.

2.02 **PAINT MATERIALS**

A. Provide materials designated by item or area to be painted in Paint Schedules attached and on Drawings. Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers.

B. Provide primers and undercoat paint produced by the same manufacturer as the finish coats.

C. Material Compatibility: Provide block fillers, primers, finish coat materials, and related materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer based on testing and field experience.

D. Material Quality: manufacturer's best-quality trade sale paint material of the various coating types specified. Ensure paint material containers display manufacturer's product identification.

E. Colors: from the manufacturer's full range of standard colors.

2.03 COMPONENTS

A. Coatings: Ready mixed, except field catalyzed coatings. Prepare coatings:
1. To soft paste consistency, capable of being readily and uniformly dispersed to homogeneous coating.
2. For good flow and brushing properties.
3. Capable of drying or curing free of streaks or sags.
4. Interior Flat and Non-Flat Paints: Maximum volatile organic compound content in accordance with GS-11.
5. Interior Anti-Corrosive Paints: Maximum volatile organic compound content in accordance with GC-03.

2.04 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.01 EXAMINATION

A. In accordance with the Division 01 Requirements.

B. Verify substrate conditions are ready to receive Work as instructed by product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report conditions capable of affecting proper application.

D. Test shop applied primer for compatibility with subsequent cover materials.

E. Measure moisture content of surfaces using electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
1. Plaster and Gypsum Wallboard: 12 percent.
2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
3. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
4. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.
5. Concrete Floors: 8 percent.

3.02 PREPARATION

A. Surface Appurtenances: Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

B. Surfaces: Correct defects and clean surfaces capable of affecting work of this section.

C. Marks: Seal with shellac those which may bleed through surface finishes.

D. Impervious Surfaces: Remove mildew by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

E. Aluminum Surfaces Scheduled for Paint Finish: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.

F. Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish: Remove foreign particles to permit adhesion of finishing materials. Apply latex based compatible sealer or primer.

G. Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.

H. Concrete Floors: Remove contaminations, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.

I. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.

J. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

K. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

L. Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by power tool wire brushing or sandblasting; clean by washing with solvent. Apply treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.

M. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.

N. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior paintable caulking compound after prime coat has been applied.

O. Exterior Wood Scheduled to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior caulking compound after sealer has been applied.

P. Metal Doors Scheduled for Painting: Prime metal door top and bottom edge surfaces.

3.03 EXISTING WORK

A. Extend existing paint and coatings installations using materials and methods compatible with existing installations and as specified.

3.04 APPLICATION

A. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

B.

C. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless specified otherwise.

D. Sand metal surfaces lightly between coats to achieve required finish.

E. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

F. Prime concealed surfaces of interior and exterior woodwork with primer paint.

G. Finishing Mechanical And Electrical Equipment:
   1. Refer to Mechanical and Electrical drawing and specifications for information pertaining to paint applications for all equipment, duct work, piping, and conduit.
   2. Paint shop primed equipment.
   3. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
   4. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are shop finished.
   5. Paint exposed conduit and electrical equipment occurring in finished areas.
   6. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
   7. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.05 FIELD QUALITY CONTROL

A. In accordance with the Division 01 General Requirements

B. 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, play for testing, and repaint surfaces previously coated with the non-complying paint.

3.06 CLEANING

A. In accordance with the Division 01 General Requirements

B. Collect waste material which may constitute fire hazard, place in closed metal containers, and remove daily from site.

3.07 PAINT SCHEDULE

Number of coats scheduled is as a minimum. Painting and finishing shall conform to applicable Laws and building code regarding fire hazard classifications and volatile organic content of finish materials. Provide products by the manufacturers named or approved equal.

Refer to "Room Finish Schedule" on the Drawings for building areas to be painted.

Refer to the "Finish Schedule" on the Drawings for additional product and color in formation.

Provide paint and coating systems listed below where the Drawings refer to this Specification section or reference any item to be painted or coated, unless a specific paint or coating system is specified elsewhere.

This list is intended to cover all potential conditions that may require painting and not all paint and coating systems listed below may not be included in the Work.

Interior Galvanized Steel (where listed on Drawings to be field painted)

Galvanizing Repair (If Requierd)	1. Tnemec "Series 90-97 Tneme-Zinc" **or Series 1 Omnithane** 2. S-W "Corothane I Galvapac Zinc Primer" DFT 3-4 mils 3. PPG "Amercoat 68~~HS~~**MCZ**" DFT 2-5 mils
Field Applied Prime Coat	1. Tnemec "Series ~~N69~~ **66HS** Hi-Build Epoxoline" DFT 2-3 mils 2. S-W "Macropoxy 646" DFT 3-5 mils 3. PPG "Amerlock 2" DFT 4-8 mils
Field Applied Finish Coat	1. Tnemec "Series ~~N69~~ **66HS** Hi-Build Epoxoline" DFT 2-3 mils 2. S-W "Macropoxy 646" DFT 3-5 mils 3. PPG "Amerlock 2" DFT 4-8 mils

Exterior Galvanized Steel (where listed on Drawings to be field painted)

Galvanizing Repair (If Required)	1. Tnemec "Series 90-97 Tneme-zinc" **or Series 1 Omnithane** 2. S-W "Corothane I Galvapac Zinc Primer" DFT 3-4 mils 3. PPG "Amercoat 68~~HS~~**MCZ**" DFT 2-5 mils
Field Applied Prime Coat	1. Tnemec "Series 27 Typoxy" DFT 2-3 mils 2. S-W "Macropoxy 646" DFT 3-5 mils 3. PPG "Amercoat 385" DFT 4-8 mils
Field Applied Two Finish Coats	1. Tnemec "Series ~~175~~ **73** Endura-Shield" DFT 2-5 mils/ct 2. S-W "High-Solids Polyurethane" DFT 3-4 mils/ct

Galvanized Repair Paint (Field Welds or Touch Up)

Galvanizing Repair	1. Tnemec "Series 90-97 Tneme-Zinc" **or Series 1 Omnithane** 2. S-W "Corothane I Galvapac 1K Zinc Primer" DFT 3-4 mils 3. PPG "Amercoat 68~~HS~~**MCZ**" DFT 2-5 mils
Field Applied Finish Coat	2. S-W "Fast Clad Urethane" DFT 6-9 mils 3. PPG "Amercoat 450" DFT 2-3 mils

Factory/Shop Primed Steel, Previously Painted surfaces Interior Exposure

Shop Applied Prime Coat	1. Manufacturer's Standard Primer
Field Applied Two Finish Coats	1. Tnemec "Series ~~N69~~ **66HS** Hi-Build Epoxoline" DFT 2-3 mils/ct 2. S-W "Macropoxy 646" DFT 3-5 mils/ct 3. PPG "Amerlock 2" DFT 4-8 mils/ct

Factory/Shop Primed Steel, Previously Painted Surfaces- Exterior Exposure

Shop Applied Prime Coat	1. Manufacturer's Standard Primer
Field Applied Intermediate Coat	1. Tnemec "Series ~~N69~~ **66HS** Hi-Build Epoxoline" DFT 2-3 mils 2. S-W "Macropoxy 646" DFT 3-5 mils 3. PPG "Amerlock 2" DFT 4-8 mils
Field Applied Two Finish Coats	1. Tnemec "Series ~~175~~ **73** Endura-Shield" DFT 2-5 mils/ct 2. S-W "High Solids Polyurethane" DFT 3-4 mils/ct 3. PPG "Amercoat 450H" DFT 2-5 mils/ct

Ferrous metals listed in Section 05 50 00 Metal Fabrications Interior Exposure

Shop Applied Prime Coat	1. Tnemec "Series 27 Typoxy" DFT 2-3 mils 2. S-W "Recoatable Epoxy Primer" DFT 4-6 mils

3. PPG "Amerlock 370" DFT 4-6 mils

Field Applied Two Finish Coats
1. Tnemec "Series 66HS Hi-Build Epoxoline" DFT 2-3 mils/ct
2. S-W "Macropoxy 646" DFT 3-5 mils/ct
3. PPG "Amerlock 2" DFT 4-8 mils/ct

Ferrous metals listed in Section 05 50 00 Metals Fabrication Exterior Exposure

Shop Applied Prime Coat
1. Tnemec "Series 66HS Hi-Build Epoxoline" DFT 2-3 mils
2. S-W "Macropoxy 646" DFT 4-6 mils
3. PPG "Amercoat 385" DFT 4-8 mils

Field Applied Two Finish Coats
1. Tnemec "Series ~~175~~ **73** Endura-Shield" DFT 2-5 mils/ct
2. S-W "High Solids Polyurethane" DFT 3-4 mils/ct
3. PPG "Amercoat 450H" DFT 2-3 mils/ct

Equipment: Exterior Non-Submerged Ferrous Metals:

Factory Applied Primer
1. Tnemec "Series 1 Omnithane" DFT 2.5-3.5 mils
2. S-W "Corothane I Galvapac Zinc Primer" DFT 3-4 mils
3. PPG "Amercoat 68HS" DFT 2-5 mils

Factory Applied Prime Coat
1. Tnemec "Series 66HS Hi-Build Epoxoline" DFT 3-5 mils
2. S-W "Macropoxy 646" DFT 3-5 mils
3. PPG "Amercoat 370" DFT 4-6 mils

Factory Applied Finish Coat
1. Tnemec "Series 73-color Endura-Shield" DFT 2.5-5 mils
2. S-W "Hi-Solids Polyurethane" DFT 3-5 mils
3. PPG "Amercoat 450H Shield" DFT 2-5 mils

Equipment: Interior Non-Submerged Ferrous Metals:

Factory Applied Primer
1. Tnemec "Series 1 Omnithane" DFT 2.5-3.5 mils
2. S-W "Recoatable Epoxy Primer" DFT 4-6 mils
3. PPG "Amerlock2/400" DFT 4-8 mils

Factory Applied Prime Coat
1. Tnemec "Series 66HS Hi-Build Epoxoline" DFT 3-5 mils
2. S-W "Macropoxy 646" DFT 3-4 mils
3. PPG "Amerlock2/400" DFT 4-8 mils

Factory Applied Finish Coat
1. Tnemec "Series 66HS Hi-Build Epoxoline" DFT 3-5 mils
2. S-W – "Macropoxy 646" DFT 3-4 mils
3. PPG – "Amerlock2/400" DFT 4-8 mils

Equipment: Exterior or Interior Submerged Ferrous Metals

Factory Applied Primer
1. Tnemec "Series 1 Omnithane" DFT 2.5-3.5 mils
2. S-W "Dura-Plate 235" DFT 4-6 mils
3. PPG "Amercoat 68HS" DFT 2-5 mils

Factory Applied Prime Coat	1. Tnemec "Series 66HS Hi-Build Epoxoline" DFT 6-8 mils 2. S-W "Dura-Plate 235" DFT 3-4 mils 3. PPG "Amercoat 370" DFT 4-6 mils
Factory Applied Finish Coat	1. Tnemec "Series 66HS Hi-Build Epoxoline" DFT 6-8 mils 2. S-W "Dura-Plate 235" DFT 4-6 mils 3. PPG "Amercoat 450H Shield" DFT 2-5 mils

Ductile, Cast Iron, Copper, Aluminum or PVC - Interior or Exterior Exposure

PVC Surface	Scarify Preparation. Prep surface per paint manufacturer's recommendations.
Field Applied Prime Coat	1. Tnemec "Series 66HS Hi-Build Epoxoline" DFT 2-3 mils 2. S-W "Macropoxy 646" DFT 3-5 mils 3. PPG "Amerlock 2" DFT 4-8 mils
Field Applied Intermediate Coat	1. Tnemec "Series 66HS Hi-Build Epoxoline" DFT 4-6 mils 2. S-W "Macropoxy 646" DFT 3-5 mils 3. PPG "Amerlock 2" DFT 4-8 mils
Field Applied Finish Coat	1. Tnemec Series ~~175~~ **73** Endura-Shield" @ DFT 2-5 mils 2. S-W "Hi-Solids Polyurethane" DFT 3-5 mils 3. PPG "Amercoat 250H 2-3" DFT 4-6 mils

Ductile Iron Pipe - Submerged

Field Applied Prime Coat	1. Tnemec "Series ~~N140~~ **20HS or FC20HS** Pota-Pox-Plus" DFT ~~2-3~~**4-6** mils 2. S-W "Dura-Plate 235" DFT 4-6 mils 3. PPG "Amerlock 2" DFT 4-8 mils
Field Applied Intermediate Coat	1. Tnemec "~~Series 66HS Hi-Build Epoxoline "~~ **20HS or FC20HS** DFT 4-6 mils 2. S-W "Dura-Plate 235" DFT 3-4 mils 3. PPG "Amerlock 2/400" DFT 4-8 mils
Field Applied Finish Coat	1. Tnemec "Series ~~N140 Pota-Pox-Plus"~~ **20HS or FC20HS** DFT 2-3 mils 2. S-W "Dura-Plate 235" DFT 4-6 mils 3. PPG "Amerlock 2/400" DFT 4-8 mils

Insulated Pipe Interior or Exterior Exposure

Field Applied	1. Tnemec "Series 151-1051 Elasto- Grip Primer" DFT 1.0-1.5 mils 2. S-W "DTM Acrylic/Primer" DFT 2.5-4.0 mils 3. PPG "Pitt Tech Plus Primer" DFT 2-4 mils
Field Applied Two Finish Coats	1. Tnemec "Series 1029 Enduratone" DFT 2.0-3.0 mils/ct

2. S-W "Sher-Cryl HPA" DFT 2.5-4.0 mils/ct
3. PPG "Pitt Tech Plus 90-131" DFT 2-4 mils/ct

Interior Gypsum Drywall and Plaster - Operations Building Only

Field Applied Prime Coat (Previously Painted)	1. S-W "ProMar 200 Zero VOC Latex Primer" DFT 1-2 mils
Field Applied Prime Coat (New Installation)	2. S-W "ProMar 200 Zero VOC Latex Primer" DFT 1-2 mils
Field Applied Two Finish Coats	2. S-W "Promar 200 Zero VOC B20-2600" DFT 2.5-3 mils/ct

Interior Gypsum Drywall and Plaster

Field Applied Prime Coat (Previously Painted)	1. Tnemec "Series 151-1051 Elasto- Grip FC" DFT 1-2 mils 2. S-W "ProMar 200 Zero VOC Latex Primer" DFT 1-2 mils 3. PPG "Seal Grip Primer 17-931" DFT 1-2 mils
Field Applied Prime Coat (New Installation)	1. Tnemec "Series 151-1051 Elasto-Grip FC" DFT 1-2 mils 2. S-W "PrepRite ProBlock" DFT 1-2 mils 3. PPG "Seal Grip Primer 17-931" DFT 1-2 mils
Field Applied Two Finish Coats	1. Tnemec "~~Series 113 Tufcoat~~**Series 1029 Enduratone**" DFT 2-3 mils/ct 2. S-W "Waterbased Catalyzed Epoxy" DFT 2.5-3 mils/ct 3. PPG "Aquapon WB Water Base Epoxy" DFT 2-3 mils/ct

Interior Wood

Field Applied Prime Coat (Previously Painted)	1. Tnemec "Series 151-1051 Elasto- Grip FC" DFT 1-2 mils 2. S-W "PrepRite ProBlock" DFT 1.0-2.0 mils 3. PPG "Seal Grip Primer 17-931" DFT 1-2 mils
Field Applied Prime Coat (New Installation)	1. Tnemec "Series 151-1051 Elasto- Grip FC" DFT 1-2 mils 2. S-W "Premium Wall & Wood Primer" DFT 1-2 mils 3. PPG "Seal Grip Primer 17-931" DFT 1-2 mils
Field Applied **Two** Finish Coat**s**	1. Tnemec "~~Series 113 Tufcoat~~**Series 1029 Enduratone** " DFT 2.0.-3.0 mils/ct 2. S-W "Watebased Catalyzed Epoxy" DFT 2.5-3.0 mils/ct 3. PPG "Aquapon WB Water Base Epoxy" DFT 2-3 mils/ct

Interior CMU Walls

Field Applied	1. Tnemec "Series ~~130 Envirofill" 60-80 sf/gal~~**Series 151-1051**

	Elasto-Grip DFT 1-2 mils
Prime Coat (Previously Painted)	2. S-W "Cement-Plex 875" DFT 50-100 sf/gal 3. PPG "Amerlock 400BF" DFT 10-20 mils
Field Applied Prime Coat (New Installation)	1. Tnemec "Series 130 Envirofill" 60-80 sf/gal 2. S-W "Cement-Plex 875" DFT 50-100 sf/gal 3. PPG "Amerlock 400BF" DFT 10-20 mils
Field Applied Two Finish Coats	1. Tnemec "Series ~~113 Tufcoat~~ **Series 1029 Enduratone**" DFT ~~4-6~~ **2-3** mils/ct 2. S-W "Waterbased Catalyzed Epoxy" DFT 2.5-3 mils/ct 3. PPG "Aquapon WB Water Base Epoxy" DFT 2-3 mils/ct

Interior Concrete Ceilings and Walls

Field Applied	1. Tnemec "~~Series 114 Tufcoat gal~~"**Series 151-1051 Elasto-Grip DFT 1-2 mils**" ~~DFT 4-6 mils~~
Prime Coat (Previously Painted)	2. S-W "Waterbased Tile-Clad Epoxy" DFT 2-4 mils 3. PPG "Aquapon WB Water Base Epoxy" DFT 2-3 mils
Field Applied	1. Tnemec "~~Series 114 Tufcoat gal~~"**Series 151-1051 Elasto-Grip DFT 1-2 mils**" ~~DFT 4-6 mils~~
Prime Coat (New Installation)	2. S-W "Waterbased Tile-Clad Epoxy" DFT 2-4 mils 3. PPG "Aquapon WB Water Base Epoxy" DFT 2-3 mils
Field Applied Two Finish Coats	1. Tnemec "Series ~~114 Tufcoat~~ **Series 1029 Enduratone**" DFT ~~4-6~~ **2-3** mils/ct 2. S-W "Waterbased Tile-Clad Epoxy" DFT 2-4 mils/ct 3. PPG "Aquapon WB Water Base Epoxy" DFT 2-3 mils/ct

Interior Concrete Floors

Surface Preparation (Previously Painted)	1. Abrasive blast cleaning per SSPC SP #13 (Reference ICRI 310.2R CSP 3-5). Prep surface per paint manufacturer's recommendations.
Field Applied Prime Coat	1. Tnemec "Series 201 Epoxoprime" DFT 4-6 mils 2. S-W "Armorseal 33 Epoxy Primer/Sealer" DFT 7-9 mils 3. PPG "Megaseal High Solids Epoxy Primer 99-127" DFT 6-10 mils
Field Applied Intermediate Coat	1. Tnemec "Series 237 PowerTread" DFT 15-20 mils 2. S-W "Armorseal 650 SL/RC" DFT 10-30 mils 3. PPG "Megaseal SL" DFT 10-30 mils
Field Applied Grout Coat	1. Tnemec "Series 208 Tneme-Glaze" DFT 8-10 mils
Field Applied Finish Coat	1. Tnemec "Series 297 Enviro-Glaze" DFT 2-3 mils 2. S-W "Waterbased Acrolon 100" DFT 2-4 mils

3. PPG “Megaseal SL” DFT 10-30 mils

Exterior Concrete Walls, Columns and Beams

Surface Preparation	1. Clean surfaces with high-pressure washer (5,000 psi minimum) and 15% bleach solution. Scrub surfaces to remove mold, mildew and other surface contamination. Rinse all cleaning residues from same surfaces. Prep surface per paint manufacturer's recommendations.
~~Field~~ Applied Prime Coat (New Installation)	~~1. Tnemec "Series 130 Envirofill" DFT~~ 2. S-W "Waterbased Tile-Clad Epoxy” DFT 2-4 mils 3. PPG "Aquapon WB Water Base Epoxy” DFT 2-3 mils
Field Applied First Coat	1. Tnemec "Series 156 Enviro-Crete" DFT 6-8 mils 2. S-W "Loxon XP” DFT 6-8 mils 3. PPG "Perma-Crete 4-22” DFT 3.5-4 mils
Field Applied Finish Coat	1. Tnemec "Series 156 Enviro-Crete" DFT 6-8 mils 2. S-W "Loxon XP" DFT 6-8 mils 3. PPG "Perma-Crete 4-22” DFT 3.5-4 mils

END OF SECTION

2.11 PIPE BENDING – TYPE (CU/1)

A. All bending of copper piping shall be in accordance with the recommendations of the pipe Manufacturer. All bends shall be free from damage including but not limited to; holes, cracks or buckles.

2.12 DUCTILE IRON PIPE & FITTINGS - TYPE (DI/1)

A. All "TYPE (DI/1)" Ductile Iron Piping shall be Class 53 flanged pipe and fittings per AWWA C150/A21.50, AWWA C115/A21.15, and AWWA C110/A21.10 standards. Flanges shall conform to the drilling and facing of

B. ASME B16.1/ANSI Class 125/150 unless otherwise noted or as required to connect to valves, tanks, equipment, and other appurtenances. The minimum class thickness for flanged pipe shall be Class 53 for sizes up through 54 inches. All flanged pipe joints shall be assembled using gaskets. All pipe shall be provided and installed in standard lengths whenever possible.

C. All "TYPE (DI/1)" ductile iron pipe of the same type, style, and duty shall be supplied by a single Manufacturer. All Manufacturer's named or otherwise shall comply completely with the Contract Documents. All Class 53 ductile iron piping shall be a product of the following Manufacturer:

1. U.S. Pipe & Foundry Company Inc.
2. American Cast Iron Pipe Company
3. Clow Water System Company
4. Engineer Approved Equal

2.13 FLANGES & CONNECTORS – TYPE (DI/1)

A. All ductile iron flanges shall conform to ANSI/AWWA C115/A21.15 and be flat faced type unless otherwise Specified or indicated on the Drawings. All ductile iron fittings shall conform to ANSI/AWWA C110/A21.10 standards and be pressure rated for 250 psi. As a minimum, all fittings shall be rated equally to the connecting piping.

B. Unless otherwise specified or indicated on the Drawings, all ductile iron piping and fittings shall utilize ANSI standard flanged connections. The use of alternative joining methods, including but not limited to couplings, and flanged adaptors shall be acceptable where specifically indicated and as approved by the Engineer. Grooved connections with "rigid" connectors shall be an acceptable where specified or indicated on the Drawings or as approved by the Engineer.

2.14 GASKETS – TYPE (DI/1)

A. All gaskets to conform to ANSI/AWWA C111/A21.11 standards. The Gaskets shall be provided by pipe Manufacturer unless otherwise noted or approved by the Engineer. For "Interior" and "Exterior" (Below Grade) wastewater service installations, gaskets shall be full face type Nitrile (NBR/Buna-N). For "Exterior" (Above Grade) wastewater service installations, gaskets shall be full face type EPDM. All gaskets shall provide a positive sealing for all flanged joints. All gaskets shall be a minimum of 1/8 inches thick unless otherwise Specified or shown on the Drawings.

2.15 INTERIOR LININGS – TYPE (DI/1)

A. Unless otherwise Specified or shown on the Drawings, all "TYPE (DI/1)" ductile iron piping shall be provided with a cement-mortar lining. The cement-mortar lined piping shall conform to AWWA C104/A21.4 standards except that two (2) times the standard thickness shall be provided. The cement used shall be Type II and be in accordance with ASTM C 150.

B. Ductile iron piping used for high temperature applications such as air piping shall be unlined.

~~2.16 CERAMIC EPOXY LINING – TYPE (DI/1)~~

~~A. Provide a ceramic epoxy lining where specified or indicated on the Drawings. All Ceramic Epoxy Linings shall be in accordance with the following.~~

~~B. The "Ceramic Epoxy Lining" shall be an amine-cured novalac epoxy containing at least 20% by volume of ceramic quartz pigment. The dry film thickness shall be at least 40 mils (minimum thickness for any one test shall be 35 mils). The Lining shall meet the following requirements (provide certified test reports if requested by Engineer):~~

~~1. A permeability rating of 0.00 when tested according to Method A of ASTM E 96/E 96M, Procedure A, with a duration of 30 days.~~

~~2. The following tests shall be run on coupons from factory lined ductile iron pipe:~~

~~a. ASTM B 117 Salt Spray (scribed panel) - Results to equal 0.0 undercutting after two years.~~

~~b. ASTM G 95 Cathodic Disbondment 1.5 volts at 77 deg F. Results to equal no more than 0.5 mm undercutting after 30 days.~~

~~c. Immersion Testing rated using ASTM D &14-87.~~

~~1) 20% Sulfuric Acid - No effect after two years.~~

~~2) 140 deg F 25% Sodium Hydroxide - No effect after two years.~~

~~3. An abrasion resistance of no more than 3 mils loss after one million cycles using European Standard EN 598: 1994 Section 7.8 Abrasion Resistance.~~

2.17 EXTERIOR COATINGS – TYPE (DI/1)

A. An exterior coating shall be provided for all ductile iron pipe, fittings, and flanges. Unless otherwise specified or noted on the Drawings, the prime coat shall be factory applied. The top coat (finished coat) shall be field applied as approved by the Engineer. The top coat (finished coat) shall match the color coding for the material to be handled by the pipe. All prime and finish painting shall be in accordance with Section 09 90 00 PAINTS AND COATINGS. Unless approved in writing by the Engineer the "Finished" coat shall be applied prior to assembly of the pipe in "moist" areas. Stainless steel flange hardware shall not be painted with epoxy paint. Submerged piping shall "NOT" require a urethane finish.

B. The pipe shall not be coated at pipe and fitting ends to allow for Engineer approved installation of joint connections in the field. The pipe Manufacturer shall provide all necessary coating materials for application at factory supplied uncoated piping locations. All field applied coatings shall be a product of the same manufacturer as the factory prime coating to ensure compatibility. All flange bearing surfaces shall be left uncoated.

C. Field repair of damaged pipe coatings shall receive prior written approval by the Engineer. If the Engineer deems the coating damage to be beyond repair, all damaged piping shall be replaced at no additional cost to the Owner or the Engineer.

2.18 FLANGE HARDWARE – TYPE (DI/1)

A. All nuts, bolts, washers and other flange or coupling fastening hardware shall be 304 stainless steel for "Interior" and "Above Grade Exterior" installations. Provide 316 stainless steel flange hardware for submerged and below grade installations. Threads shall be coated with mineral oil or other anti-seize compound. Bolts shall be square headed machine bolts with hexagonal nuts in accordance with ANSI B18.2 standards. All threads shall conform to ANSI B1.1 standards. The bolts shall be of an adequate length such that they protrude through the nut following tightening. The bolt protrusion shall not exceed 1/2 inch.

2.19 PIPE MARKINGS – TYPE (DI/1)

A. All ductile iron pipe and fittings as specified in this section shall be permanently marked with the Manufacturer, Date of Manufacture, Size, Type, Class/Wall Thickness, and Standard Produced to (ASTM, AWWA, ANSI, etc.).

2.20 NON-STANDARD FITTINGS – TYPE (DI/1)

A. Fittings with non-standard dimensions shall only be allowed with prior written approval of the Engineer. Unless approved in writing by the Engineer, all non-standard fittings shall meet the specification requirements for standard fittings and be of the same

thickness and diameter. Laterals or reducing elbows not meeting the requirements of ANSI A21.10 standards shall meet the requirements of ANSI B16.1 - Class 125.

2.21 JOINT BRACING – TYPE (DI/1)

A. Provide joint bracing as shown on the Drawings and as required to prevent piping from being pulled apart when under pressure. If used, all bridles and tie rods shall be a minimum of 3/4 inches in diameter except when they replace flange bolts of a smaller size. If replacing flange bolts of a smaller size, the bridles shall be fitted with a nut on each side of the pair of flanges.

B. All pipe which requires joint bracing shall be provided with Engineer approved lugs/hooks cast integrally for use with pipe clamps, tie rods, or bridles. All pipe clamps, tie rods, and bridles shall be provided with the same coating as the piping system for interior applications. Buried applications shall be provided with a bituminous coating system. If required the coating system shall be applied prior to assembly.

2.22 DUCTILE IRON PIPEAND FITTINGS - TYPE (DI/2)

A. All "TYPE (DI/2)" Ductile Iron Piping shall be of Class 350 mechanical joint pipe and fittings for "Buried" applications as per AWWA C151/A21.51 standards. Pipe shall be supplied in standard lengths whenever possible. The pipe thickness design shall be in accordance with AWWA C150/A21.50 standards, except provide a minimum of Class 350 for all piping 12 inches and smaller. Provide a minimum Class 350 for piping from 14 inches to 24 inches and provide a minimum of Class 250 for piping larger than 24 inches.

B. All "TYPE (DI/2)" ductile iron pipe of the same type, style, and duty shall be supplied by a single Manufacturer. All Manufacturer's named or otherwise shall comply completely with the Contract Documents. All Class 350 ductile iron process piping shall be a product of the following Manufacturer:

1. U.S. Pipe & Foundry Company Inc.

2. American Cast Iron Pipe Company

3. Engineer Approved Equal

2.23 MECHANICAL JOINT FITTINGS – TYPE (DI/2)

A. Mechanical joint compact body fittings shall be ductile iron class 350 and shall be produced in strict accordance with AWWA C153/A21.53 and AWWA C111/A21.11 standards. All pipe and fittings shall be provided with a cement and mortar lining in accordance with AWWA C104/A21.4 standards for sizes 3 inches through 12 inches. Pipe and fittings 14 inches through 24 inches shall be a Manufacturer's standard and produced to the intent of AWWA C153/A21.53. Mechanical joint fittings shall be UL listed and rated at 350 psi.