ADDENDUM No. 5

MBWWTP SOLIDS PROCESS OPTIMIZATION IMPLEMENTATION
PHASE 2 THICKENER UPGRADES
CONTRACT NUMBER W-16-017-201

CITY OF CHATTANOOGA, TENNESSEE

The following changes shall be made to the Contract Documents, Specifications, and Drawings:

1. **Contractor Question:** In review of the Instrumentation specifications, I do not see any pre-approved I&C integrators. Will there be a list of approved integrators for this project?

   Response: System integration of Thickened Sludge Pump Station (TSPS) 1 existing PLC and the owner's new TSPS2 Remote I/O panel will be performed by the Owner's Integrator, RMJ Consulting, LLC. The Contractor is responsible for providing and installing all Local Control Panels, field instruments and landing wires onto the City's terminal blocks, under integrator supervision. These components shall be supplied by a single source instrumentation subcontractor. Specification Section 40 90 00, Part 1.02.B requires minimum qualifications of instrumentation subcontractor to be; "satisfactorily provided a control system for a minimum of five (5) projects of similar magnitude and function."

2. **Contractor Question:** In review of specification 40 72 00, there is no schedule for the level instruments as there is in the other instrument specifications. Please provide level instrument schedule.

   Response: A level instruments schedule will not be provided. The contractor is to review the contract drawings and provide level instruments as shown.

3. **Contractor Question:** Sheet 01E-02 Sludge Thickener Equipment Platform Thickener drive local control panel. Note 10 and 11. Please provide information on what this control panel should include and who provides it. I cannot locate.

   Response: The contractor is responsible to provide the Thickener drive local control panels. The requirements are provided in the Gravity Thickener Specification Section 46 43 23.

4. **Contractor Question:** Please verify what type conduit should be used inside the pumping station. At present time both GRC and GRC PVC coated is being used.

   Response: The contractor shall provide conduit types as listed per specification 26 05 33-3.03. Pump room is considered a "Wet" area.

5. **Contractor Question:** Is VFD cable required for the motor leads to VFD controlled motors?

   Response: No. The contractor is to provide power cables per 26 05 19-3.01.

6. **Contractor Question:** Electrical drawings call for modifying some buckets in Pump Station 1 that is a Siemens MCC. The specs list Square D, GE and Eaton as the replacement options for Pump Station 2 MCC. Can Siemens be an acceptable option for the MCC replacement in Pump Station 2 and the VFD's in Pump Station 1?

Response: Siemens products may be used for existing MCC-410 only. MCC-210 shall be supplied from a listed manufacturer per specification 26 24 19. VFDs shall be supplied from a listed manufacturer per specification 26 29 23.

7. **Contractor Question:** Siemens is approved for the transformers, transfer switch and panelboards. Can Siemens Safety Switches be approved? Can Siemens Motor Control Centers with Fuji VFD drives be approved?

   Response: Safety switches shall be supplied from a listed manufacturer per specification 26 28 16. MCC-210 shall be supplied from a listed manufacturer per specification 26 24 19.

8. **Contractor Question:** Drawing 01D-02 has a note "Recondition FRP Weir and Baffle Plates". Per addendum number 2, Measurement and payment item 2 - 1.06, B. the lump sum portion of measurement and payment item 2 is the following: Removing FRP weirs, cleaning and painting the steel launders, reattaching the existing FRP weirs, and making adjustments to the equipment as necessary to match existing weir elevations and assure proper attachments to the system's structural supports. Is this what the note "Recondition FRP Weir and Baffle Plates" is referring to?

   Response: The “Recondition FRP Weir and Baffle Plates” note on Drawing 01D-02 is revised per this addendum. See Item 7. Pay Item No. 2 is also revised per this addendum.

9. **Replace Contract Drawing 01D-02 with the attached revised version.** Revised version includes a details added for the launder, weirs and baffles. Make the additional changes as detailed in this addendum.

10. **Revise Contract Drawing 01D-02 with the following:**

    Delete the following note: “Recondition FRP Weir and Baffle Plates” and replace with “Remove, clean, and reinstall existing weirs and baffles. Install new stainless steel hardware and mounting brackets and insure no interference with new Algae Brush Cleaning system manufacturer. Replace sections of RFP weir and baffles that are deemed to be deteriorated past useful life. Replacement sections will be determined upon inspection and approval of Engineer. Replacement sections are paid per the associated unit price pay item. See Schedule on this Sheet."

    Delete the following note: “Recondition and paint exist. steel effluent launder” and replace with “Remove, clean, prepare surface and paint existing steel launders and launder supports. Reuse existing launder support anchors and protect from cementitious rehabilitation products. Cut, patch and weld section of the steel launders that are deemed to be deteriorated past useful life. Replacement area will be determined upon inspection and approval of Engineer and paid per the associated unit price pay item for launders and allowance pay item for launder supports. See Schedule on this Sheet.”

    Delete the following note from the top/center of the page: “Paint Exist Drive Unit” and replace with the following “Replace Thickener Drive Motor per 01E-02. Paint Thickener Drive Gear Box.”

    Add “Replace Full Radius Skimmer Blades and Wipers (2 each tank)” at the end of the following note: “Paint Exist. Scum Skimmer.”

    Add the following note 3 under “NOTES” at the right side of the page: “3. All work shown applies to Thickener Tanks 1 & 2.”

    Add the attached “Thickener Tank 1 & 2 Schedule” to the bottom of the Drawing 01D-02.

11. **Contractor Question:** Drawing 01D-07 has a note "Replace existing effluent launders, weirs, baffle plates and skimmer arms, shop paint all ferrous metals". So, I assume that there is NO "Reconditioning of FRP Weirs and Baffle Plates" in sludge thickener tanks 3, 4, and 5. Instead,

tanks 3, 4, and 5 will receive new launders, weirs, baffle plates and skimmer arms and this work will be covered in bid item number 2. Please confirm.

Response: In Tanks 3, 4, and 5 the effluent launders, weirs and baffles are being demolished and replaced with new. The skimmer arms will be painted. Drawing notes on 01D-07 are being revised for clarity.

12. Revise Contract Drawing 01D-06 with the following:

Delete the following note in three places: "Replace exist. effluent launders, weirs, baffle plates, and skimmer arms, shop paint all ferrous metals" and replace in three places with "Remove and dispose of existing launders, launder supports, launder support anchors, weirs and baffles and replace with new steel launders, steel launder supports and anchors, FRP weirs, and FRP baffles. See Schedule on 01D-07."

13. Revise Contract Drawing 01D-07 with the following:

Delete the following note: "Replace exist. effluent launders, weirs, baffle plates, and skimmer arms, shop paint all ferrous metals" and replace in three places with "Remove and dispose of existing launders, launder supports, launder support anchors, weirs and baffles and replace with new steel launders, steel launder supports and anchors, FRP weirs, and FRP baffles. See Schedule on the Sheet. See effluent launder detail on revised sheet 01D-02"

Delete the following note from the top/center of the page: "Paint Exist Drive Unit" and replace with the following "Replace Thickener Drive Motor per 01E-02. Paint Thickener Drive Gear Box."

Add the following note with a leader to the scum skimmer at the right side of the tank near the launder: "Replace Skimmer Blades and Wipers (2 each tank)"

Revise Note 2 on the right side of the page with the following: Delete "09 90 00" and replace with "09 96 00."

Add the following note 3 under "NOTES" at the right side of the page: "3. All work shown applies to Thickener Tanks 3, 4 & 5."

Add the attached "Thickener Tank 3, 4, & 5 Schedule" to the bottom of the page.

14. **Contractor Question:** Section 46 43 23, 1.01 A. 1. a. 2 (Scum Trough) and a. 4 (Drive Motor and Control Panel). Are new scum troughs to be provided and installed? There is a note on drawing 01D-02 to paint the existing scum trough in thickeners 1 and 2. Please verify. Are new Drive Motor and Control panels to be provided and installed for all 5ea sludge thickeners?

Response: Scum troughs for all five (5) thickener tanks are being painted. 46 43 23 is revised below. Thickener drive motors and thickener drive local control panels are being replaced with new on all five (5) thickener tanks per Drawing 01E-02 and per 46 43 23.

15. Revise Specification 46 43 23 with the following:

Part 1.01.A.1:

Delete the entirety of this section and replace with the following: "Design, fabrication, installation and testing requirements for the various Gravity Thickener replacement items."

Part 1.03.A

Delete entire section and replace with the following: "Provide single source coordination responsibility through the manufacturer for the replacement items for the Gravity Thickeners

as described in the Contract Drawings."

Part 2.01.A:

Add "4. Envirodyne."

Part 2.02.K:

Add "1. Launder: Steel, ASTM A36"
Add "2. Weir and Baffle: FRP per Section 06 85 14"

Part 2.05.D.2.e

Delete "Install mounting bracket as shown on the Drawings"
Replace with "Fabricate and install "L" shaped mounting brackets such that brackets do not interfere with new Algae Brush Cleaning system."

Part 2.05.I

Delete "Drive Mechanism" and replace with "Thickener Drive Motor"

Part 2.05.J

Insert "Thickener Drive Local" before "Control Panel."

Part 3.01.B

Delete 3.01.B in its entirety.

16. **Contractor Question:** Reference Specification Section 464323 - states that the scum boxes need to be replaced but the thickener drawings state that the scum boxes need to be repainted. We need clarification on what is actually wanted.

    Response: See answer to item 13 above.

17. **Revise Specification 06 84 14 with the following:**

    Part 2.02.B.1:
    Delete the sentence and replace with "Not used."

18. **Contractor Question:** A search of the plans and specifications for differential pressure sensors (tag TSP1-DP-1, etc.) does not find the acceptable brand(s) or models. If there are similar sensors already used at the site, or known brands/models that are otherwise acceptable, please identify such.

    Response: Specific vendors are not specified for this item. One acceptable manufacturer/model would be Dwyer model 1950G. Select the appropriate pressure range based on the static pressure of the fan being served per Specification 23 09 00.

19. **Contractor Question:** Please specify by Addendum the trough dimensions on all tanks, plus confirmation that the troughs being re-used in tanks 1 & 2 have no internal dowels or other obstructions to the Algae Brush Cleaners (ABCs). The scum baffle brackets being re-used also need to be L-shaped per attached. Please specify whether the existing brackets are L-shaped, or need to be replaced.

    Response: Launder, trough, weir and baffle dimensions are to match the existing. See updated Drawing 01D-02. Contractors are required to field confirm dimensions before construction and

before ordering equipment. See revisions to 01D-02 and 46 43 23 for baffle bracket interference with Algae Brush Cleaning system.

20. **Contractor Question:** Will an interior finish schedule be provided for the pump stations?

    Response: See revisions below to 09 96 00.

21. **Contractor Question:** In review of the specifications as well as discussions with both the sika rep and Tnemec rep along with the product descriptions, data sheets, and product application I am asking clarification for the intentions of the thickener tank coatings after the sika 224. The Tnemec coating that is scheduled requires any new concrete type material (Sika 224) to have a 28 day cure time before the Tnemec can be applied. I bring this up because it now puts 5 months on the project solely for cure time. Please revisit this and provide any feedback that you can.

    Response: See revision below to 09 96 00. Coatings of the thickener tank and flow splitter box sika 224 or shotcrete are not required. The coatings spec is revised below noting as such.

22. Revise Specification 09 96 00 with the following:

Part 3.01.A.1:

Delete the entire section and replace with “Not Used”

Part 3.01.B.2:

Delete the entirety of “a.” and “b.” and replace with “a. Pump Station Nos. 1 & 2 first floor concrete ceiling.”

Part 3.01.B.3:

Delete “:” at the end of “supports” and replace with “.”
Delete the entirety of “a.”

Part 3.01.B.9:

Delete “Interior surfaces of concrete storage tanks” and replace with

“9. Concrete Masonry:

a. Pump Station 2 first floor CMU walls.”

23. **Contractor Question:** Please provide a detail drawing for the launders you are wanting replaced for thickeners 3, 4, & 5? We need this to properly size them.

    Response: See the revised Drawing 01D-02 attached. Contractors are required to field confirm dimensions before construction and before ordering equipment.

24. **Contractor Question:** When was the last time the steel surfaces of the clarifiers were painted (if known)?

    Response: Thickener mechanisms in Tanks 1 & 2 were replaced with new equipment under Contract 28K2 which occurred in approximately 2002. At that time the launders, weirs and baffles were replaced in Tanks 1 & 2. The Seepex pumps in Thickener Pump Station No. 1 were also originally installed at this time, approximately 2002. Construction of Thickener Pump Station No. 2 and Tanks 3, 4 and 5 occurred under Contract 28C in approximately 1980.

25. **Contractor Question:** Has the existing paint on the steel surfaces of the clarifiers been tested for lead?

    Response: No.

26. **Contractor Question:** How long can pump station 2 be without any pumps?

    Response: For Pump Station 1 and 2 at least one pump must be operational at any given time. Momentary lapse in service may be approved by the City within a detailed maintenance of operation plan, but no service interruptions can be approved at this time.

27. **Contractor Question:** Referencing drawing 01S-01 keynote 5 “current waterline”. Please provide a water elevation for splitter boxes for PS 1 & 2.

    Response: See changes shown below to Drawings 01S-01 and 01S-04.

28. Revise Contract Drawing 01S-01 with the following:

Delete Key Note 5 and replace with the following: “Repair the interior splitter box concrete surfaces with Sika Repair 224, minimum ½ inch cover above exposed aggregate. Vertical extents to be from the top of the structure extending 3 feet down from the top of the structure. Do not feather terminations.”

29. Revise Contract Drawing 01S-04

Delete Key Note 9 and replace with the following: “Repair the interior splitter box concrete surfaces with Sika Repair 224, minimum ½ inch cover above exposed aggregate. Vertical extents to be from the top of the structure extending 5 feet down from the top of the structure. Do not feather terminations.”

30. **Contractor Question:** Referencing specification 099600.3.01.A. Please provide the low water level for the thickeners.

    Response: Specification 09 96 00 has been revised to eliminate the coating on top of the Sika Repair 224 on the thickener tanks and splitter boxes. With this revision the reference to the low water level has been removed from the spec.

31. **Contractor Question:** Is there any concrete surface restoration or coatings to the top of the thickener wall or exterior tank walls?

    Response: No.

32. **Contractor Question:** Is “full” containment of the tanks required during blasting/coating, if proper protection to the existing surroundings can be achieved with an alternate method?

    Response: The goal is to protect adjacent areas and contain grit and debris. Alternate methods may be submitted for consideration during construction but without a detailed method we cannot accept now.

33. **Contractor Question:** What is the PH of the water? Is the water being treated with chemicals?

    Response: pH should be approx. 6 to 9 su. Very trace chemicals from upstream treatment processes may be found in the wastewater, but there is no chemical treatment within the thickener tanks, The odor control system will use hydroxyl radicals in the splitter boxes.

34. **Contractor Question:** Can the blasting of the steel use ASTM-D4417 Method B for testing the blasting profile?

    Response: Surface preparation must follow the approved specialized coating manufacturer’s recommendations as stated in 00 96 00. If they approve of this method, it can be considered.

35. **Contractor Question**: Will electronic inspection tools be acceptable for use in inspections to capture data?

    Response: Methods of testing surface preparation must be approved by the specialty coating manufacturer. Electronic mill gauges are acceptable to determine paint thickness.

36. **Contractor Question:** Buried DIP is to be restrained joint pipe. Please confirm.

    Response: All buried pressure pipe (force mains) require restrained joints. See Specification 40 05 19 Part 2.01 A9. which provides a list of acceptable restrained joint providers. See Drawing 01D-11 for a typical restrained joint detail.

37. **Contractor Question:** Buried fittings are also to be restrained joint type fittings in lieu of typical MJ C153 fittings with Megalug type restraints. Please confirm.

    Response: Yes, all buried fittings shall be the restrained joint type. See Specifications 40 05 19 Part 3 for required methods. Buried straight-run pipe can be push-on mechanical (Megalug) joint type or manufacturer restrained joint

38. **Contractor Question:** All pipe and fittings are glass lined. Please confirm.

    Response: No. See changes to 40 05 19 within this addendum.

39. **Contractor Question:** Buried bolts and nuts are the blue-Cor-Ten corrosive resistant type materials. Please confirm.

    Response: Yes, See Specification 40 05 19 Part 2.02.C.1. for buried nuts and bolts requirements.

40. **Contractor Question:** Flanges bolts and nuts are galvanized. Please confirm.

    Response: No. See changes to 40 05 19 within this addendum.

41. **Contractor Question:** Polyethylene encasement on buried piping is required. Please confirm.

    Response: Yes. See Specification 09 05 19 Section 2.2 Part F. All buried piping shall be polyethylene wrapped.

42. Revise Specification 40 05 19 with the following:

Part 2.04. C. Delete the entirety of this section and replace with “All pipe and valve linings shall be ceramic epoxy Protecto 401 by U.S Pipe, installed according to the manufacture’s requirements.”

Delete Section 2.02.C.2 and replace with the following: “Exposed: 304 stainless steel.”

Add the following pipe schedule to 3.02.B.:

“ B. Pipe Schedule

Pipe Description	Type	Joints	Lining	Bolts & Nuts
From north primary sludge pumps	Buried pressure	Restrained	Protecto 401	Cor-Ten Corrosion Resistant
From south primary sludge pumps	Buried pressure	Restrained	Protecto 401	Cor-Ten Corrosion Resistant
Thickened Sludge PS #1 to Gravity Thickeners	Exposed pressure	Mechanical	Protecto 401	304 SS
Thickened Sludge PS #2 to Gravity Thickeners	Exposed pressure	Mechanical	Protecto 401	304 SS
From Gravity Thickeners #1 & #2 to Thickened Sludge PS #1	Exposed gravity	Mechanical	Protecto 401	304 SS
From Gravity Thickeners #3,#4 & #5 to Thickened Sludge PS #2	Exposed gravity	Mechanical	Protecto 401	304 SS

"

43. **Contractor Question:** Reference: p. 00 11 16-2; spec sections 00 41 00-5 (bid items 2 & 10.e), 01 11 00-1.01.A.c, 01 22 00-1.06/1.07.C/1.14.E.2("weir" support repair or "launder" support repair?), 06 85 14-2.02 (FRP launders?), & 46 43 23-2.02.K/2.05.D(metal launders?); and drawings 01D-01/02/06/07 regarding work associated with the existing weirs, baffles, launders, and launder supports in the five (5) Gravity Thickener tanks. The referenced specs and drawings, in different places, talk about "clean", "repaint", "repair", "recondition", and/or "replace" with regard to the existing weirs, baffles, launders, & lander supports – some of this work is "base bid" work, some is "unit price" work, and some is "allowance" work. Also, in different places, the weirs, baffles, & launders are discussed as being "steel" or "FRP". The specs/drawings are inconsistent as to what work is required – this is confusing. Long story short, I am requesting clarification regarding exactly what happens to the existing weirs, baffles, launders, and launder supports in each tank (demo, clean, repaint, recondition, remove/replace (reinstall existing), or repair?) – and, what "new" weirs, baffles, launders, and launder supports (if any) are to be provided in each tank (and what materials they are to be – steel or FRP). Further, please define the term "recondition" with regard to the existing weirs, baffles, launders, and/or launder supports. Additionally, we see no dimensional information regarding the existing (or new) weirs, baffles, launders, or supports – please provide details.

Response:

Several questions were asked pertaining to these items. Changes to the Drawings and Specifications within this addendum have been made for clarity on these issues. See addendum Items 3, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 21, 22, and 23.

The term “recondition” has been removed from the Drawings and Specifications. “Reconditioning” and “painting” are synonymous, therefore reference to “reconditioning” has been removed. Where items are indicated on the drawings to be removed, cleaned, surface prepared, painted and reinstalled the directive on the drawings has been changed to simply “paint” these items. “Paint” shall be defined as the process of cleaning and coating existing metal components such that the surface is clear of rust, flaking existing coating, dust, dirt, oil and debris Where items are specified to be “replaced with new” these items have been described in more detail to provide clarity in comparison with the “paint” and reinstall variety of the work.

In general, the launders, launder supports, launder support anchors, weirs, and baffles are to be “painted” and reinstalled for Thickener Tanks 1 & 2, which is base bid work included in Bid Item No. 1. The launders, launder supports, launder support anchors, weirs, and baffles are to be “replaced with new” for Thickener Tanks 3, 4 and 5, which is base bid work included in Bid Item No. 1.

There are areas where the Contract Documents indicate for the Contractor to “Repair” the item where inspection (and Engineering approval) has identified items that are past their useful life. These “repair” items are indicated for payment based on the various unit price and allowance bid items with the specific labeling for each area of repair needed.

Dimensions of the launders/weirs have been provided in a detail revised on Drawing 01D-02.

44. **Contractor Question:** Reference spec section 01 11 00-1.01.A.b (2nd line) regarding a reference to new “grinders” – we believe this to be in error. Please confirm that there are no new “grinders” for this project.

    Response: No new grinders for this project.

45. Revise Specification Section 01 11 00 with the following:

Part 1.01.A.b, first sentence, delete “and grinders”

Part 1.01.A.c, delete this section in its entirety and replace with the following:

“*Gravity Thickener Tanks 1 & 2* – Cleaning and painting of all ferrous metal elements within the tank; cleaning, repair and painting of effluent launders, launder supports, weirs and baffles plates; replacement of scum skimmer blades and wipers and algae brush cleaning devices; repair of structural elements of the sludge scraper arms, center tower assemblies, and walkways as required to maintain structural integrity; concrete crack repair of the tanks; concrete overlay of tank walls and floors; replacement of the thickener local control panels; replacement of the checker plate walkway surrounding each thickener’s motor; and replacement of the influent pipe.

Add Part 1.01.A.d as the following and update proceeding section headings to “e” and “f”:

“*Gravity Thickener Tanks 3, 4 & 5* – Cleaning and painting of all ferrous metal elements within the tank; replacement of effluent launders, launder supports, weirs and baffles plates with new equipment; replacement of scum skimmer blades and wipers and algae brush cleaning devices; repair of structural elements of the sludge scraper arms, center tower assemblies, and walkways as required to maintain structural integrity; concrete crack repair of the tanks; concrete overlay of tank walls; and replacement of the thickener local control panels.”

46. Revise Specification Section 00 11 00 with the following:

Second Page, delete the first paragraph shown below,

"*Gravity Thickener Tanks* – Cleaning and painting of all ferrous metal elements within the tank; cleaning, repair and painting of effluent launders, weirs and baffles plates (and replacement of FRP weirs and baffle plates in Thickeners 1 and 2 with steel equipment); replacement of scum skimmer arms and launder brush cleaning devices; repair, clean and coat the effluent launder structural supports; repair of structural elements of the sludge scraper arms, center tower assemblies, and walkways as required to maintain structural integrity; concrete crack repair of the tanks; concrete overlay of tank walls and floors; replacement of the local control panels for each thickener; replacement of the checker plate walkway surrounding each thickener's motor; and replacement of the influent pipe in thickeners 1 and 2."

Second Page, replace the first paragraph with the following two paragraphs:

"*Gravity Thickener Tanks 1 & 2* – Cleaning and painting of all ferrous metal elements within the tank; cleaning, repair and painting of effluent launders, launder supports, weirs and baffles plates; replacement of scum skimmer blades and wipers and algae brush cleaning devices; repair of structural elements of the sludge scraper arms, center tower assemblies, and walkways as required to maintain structural integrity; concrete crack repair of the tanks; concrete overlay of tank walls and floors; replacement of the thickener local control panels; replacement of the checker plate walkway surrounding each thickener's motor; and replacement of the influent pipe.

"*Gravity Thickener Tanks 3, 4 & 5* – Cleaning and painting of all ferrous metal elements within the tank; replacement of effluent launders, launder supports, weirs and baffles plates with new equipment; replacement of scum skimmer blades and wipers and algae brush cleaning devices; repair of structural elements of the sludge scraper arms, center tower assemblies, and walkways as required to maintain structural integrity; concrete crack repair of the tanks; concrete overlay of tank walls; and replacement of the thickener local control panels."

47. **Contractor Question:** Reference spec section 01 43 33-1.06.K/L regarding 30-day and 6-month follow up visits for manufacturer's services. Please clarify which pieces of equipment (and how many times – 5 thickeners? 4 pumps? 2 odor control systems?) will require these follow up services.

    Response: Thickener Equipment provider, pump manufacturer, electrical gear (MCC and VFD) provider, and odor control system provider are to visit the site at 30 days and 6 months. Also, at 30 days and 6 months, contractor is to contact plant staff to determine if other equipment vendors need to visit the site to check on equipment provided. Site visits for other vendors required if requested by plant staff during this phone conference.

48. Revise Specification Section 01 44 33 with the following:

Part 1.06.K: First sentence, delete "each piece of equipment" and replace with "the thickener equipment, sludge pumps, electrical gear (MCC and VFD), and odor control"

Part 1.06.L: First sentence, delete "each piece of equipment" and replace with "the thickener equipment, sludge pumps, electrical gear (MCC and VFD), and odor control"

49. **Contractor Question:** Reference spec sections 01 75 16-1.05 and 1.06 regarding "functional" and "operating test" periods. Please confirm that only a "functional" test is required for each thickener/pump before moving on to the retrofit/replacement of the "next" thickener/pump. In other words, please confirm that a 30-day "operating test" period is not required for "each" thickener and/or pump before moving on to the retrofit/replacement of the "next" thickener/pump. If 30-day "operating test" periods are required at each juncture, contract completion time and construction

costs will become a big issue.

Response: Confirmed that functional test is only test required prior to placing thickener back into service. Contractor is responsible for addressing issues that arise with thickeners that are placed back into service and experience operational issues. Repair of in-service thickeners takes precedence over thickener work in tank that is out of service.

50. **Contractor Question:** Reference spec section 46 43 25-1.01.D regarding the total number of cleaning brush assemblies required. It appears that all five (5) Gravity Thickeners utilize a dual skimmer design – but one of the larger Gravity Thickeners only had one (1) assembly installed on it. With that said, per the specs, we think there would be ten (10) assemblies – but to match existing, we think there would only be nine (9) assemblies. Please confirm the number of cleaning brush assemblies that are required for this project.

    Response: Provide ten (10) assemblies.

51. **Replace Specification Section 00 41 00** updated in Addendum 2 with the attached revised version. Revision to the bid form include Items 2, 3 and 4.

52. **Replace Specification Section 01 22 00** updated in Addendum 2 with the attached revised version. Revisions to the Measurement and Payment descriptions include Item 2 and 4.

53. **Contractor Question:** Reference: spec sections 46 43 23-1.01.A.1.a, 1.03, & 2.02.I/J; and drawings 01D-01/02/06/07 regarding "replacement items" for Gravity Thickener Tanks 1-5. We think the drawings and specs match with regard to the following new "replacement items": rake arm squeegees, drive control panels (LCP's), and drive motors for all tanks (1-5) – but the drawings and specs do not match (or are inconsistent) regarding whether or not the following items are to replaced (with "new") on what tanks: scum troughs/boxes, skimmer blades, & full radius scum troughs with supports. Please advise which gravity thickener tanks require new "replacement items", if any, for the scum troughs/boxes, skimmer blades, & full radius scum troughs with supports.

    Response: See revisions to Specification Section 46 43 23 above. See revisions to Drawings 01D-02 and 01D-07 above. Scum troughs/boxes and full radius scum skimmer and supports are to be painted for all five thickener tanks. Skimmer blades and wipers are to be replaced in all five thickener tanks.

54. **Contractor Reference:** Reference spec section 46 43 23-3.01.B and drawings 01S-07 thru 10 regarding the grout overlay of the existing Gravity Thickener floors. Please confirm that only Gravity Thickeners 1 & 2 require the grout overlay. Also, please clarify whether a 1" or 2" grout topping is required (the specs and drawings differ). Further, please confirm that we are to assume that no existing grout topping will require demolition/removal as part of the new grout overlay installation.

    Response: A one (1) inch grout overlay on the tank floor is required per the Structural Drawings for Thickener Tanks 1 & 2. No existing grout overlay has been observed, standard cleaning operations are expected to be sufficient for surface preparation. See revisions to 46 43 23 above to remove the reference to 2" overlay. No grout overlay is required for Thickener Tanks 3, 4, & 5.

55. **Contractor Question:** This project has some Variable Frequency Drives in it. In the specs it list as acceptable manufactures: Dan Foss, General Electric, Fuji. It does not list Square D Company/Schneider-Electric. We have furnished several VFD to City of Chattanooga, Moccasin Bend projects over the last several years without incident. Please issue an addendum that our company is an acceptable manufacture also, I would greatly appreciate it. Normally, on your project if a VFD is located inside a Motor Control Center your specs will state "the VFD's located inside the MCC shall be the same as the MCC Manufacture".

    Response: VFD's shall be provided per the requirements of 26 29 23. No substitutions are

accepted.

56. Revise Specification Section 40 05 59 with the following:

Part 2.01.A: Add the following as acceptable manufacturers.

"4. Waterman Industries.

5. Whipps, Inc.

6. RW Gate Company."

57. **Contractor Question:** Please reference drawings 01D-04 key notes 21 & 27 and 01D-09 keynotes 25 & 26. There are some exposed pipes that require heat trace and insulation. I am unable to find and insulation and jacketing specification. Please clarify requirement.

Response: Insulation for the odor control unit piping shall be installed per revisions to Specification 40 41 13, see revisions within this addendum.

Add item number 57 after QC

Revise Specification 40 41 13 Part 2.02.A.3: with the following:

Delete the entirety of this section and replace with:

"3. Pipe insulation for exposed exterior pipe:

a. Expanded close cell, flexible elastomeric insulation (K = 0.28 at 75 degrees F.) available in 3/4" thick sheet or tube. Insulation shall be one of the following:

1) Armstrong "Standard Armaflex"

2) Johns-Manville "Aerotube"

b. Seal all seams and butt joints with Armstrong #520 or Johns-Manville #57 adhesive and finish with two (2) coats of Armaflex finish.

c. In general, exterior fiberglass insulation will not be allowed. When approved, for piping, it shall be provided with an additional 0.016" aluminum jacket with lock seam longitudinal joint and gasketed bands for butted joints as required for a water-tight insulation."

58. **Contractor Question:** What materials are to be used for the Type 3 – Concrete Crack Repair?

Response: See revisions to Drawing 01S-11 below.

59. Revise Drawing 01S-11, Crack Repair Detail in the top right of the page with the following:

Above the title, delete "(Epoxy Crack Repair Binder)" and replace with "See Note 5"

Above the title, delete "Type 3 – Structural Cracks" and replace with "Type 3 – Structural and Non-Structural Cracks"

Add the following as note 5: "A structural crack is defined as having an offset at the surface, as shown on the detail. Structural crack injection materials shall be epoxy with low viscosity, high modulus and be moisture insensitive.

Add the following as note 6: “A non-structural crack is defined as NOT having an offset at the surface. Non-Structural crack injection material shall be polyurethane chemical grout, low viscosity, high elongation and high adhesion to moist surfaces. “

60. **Contractor Question:** How many areas of the wall or percentage thereof in each thickener will be tested for bond/adhesion (Sika 224/Shotcrete)?

    Response: Six (6) areas should be tested for each tank and two (2) for each pump station influent flow splitter box (so a total of 4 for the splitter boxes).

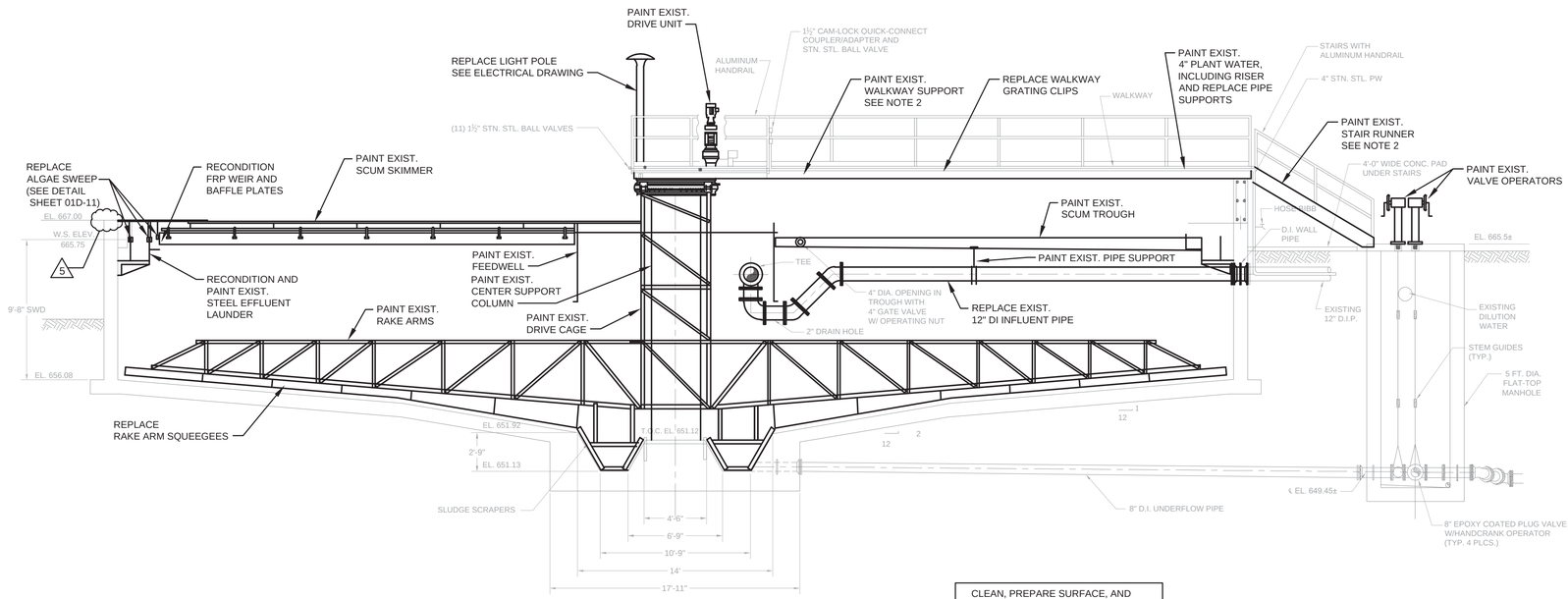
61. **Contractor Question:** Is there any existing coating on the interior concrete walls of the thickeners?

    Response: Tanks 1 and 2: No. Tanks 3, 4 and 5: there appears to be a coating on the top area of the tanks. It’s expected that this material will be removed during the cleaning process with standard cleaning activities.

March 1, 2018

/s/ Justin C. Holland, Administrator
City of Chattanooga
Department of Public Works

THICKENER NO.2



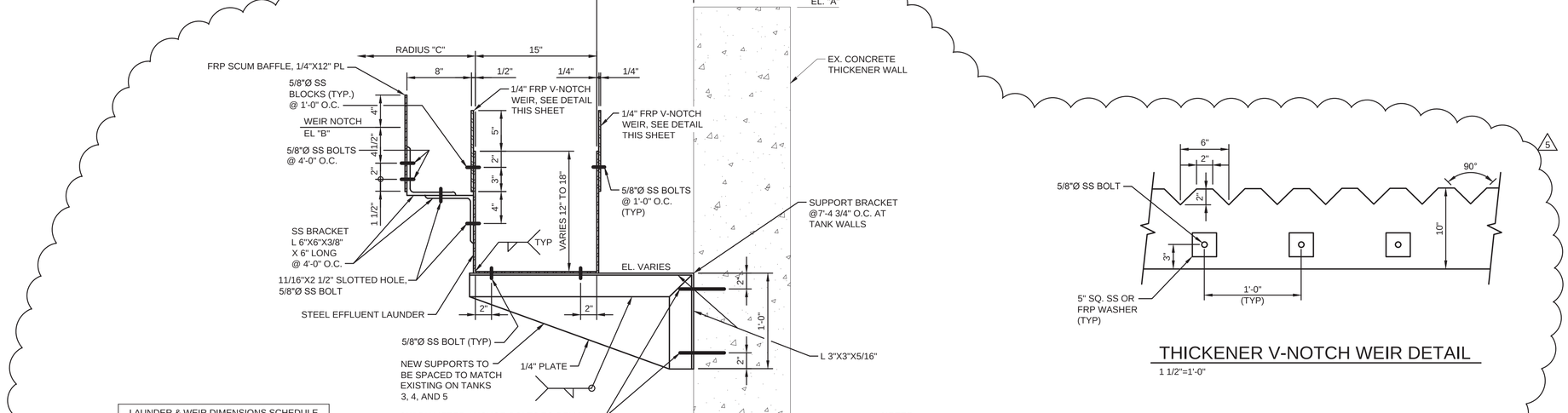
SECTION 1 / 01D01
3/16"=1'-0"

CLEAN, PREPARE SURFACE, AND APPLY SPECIALIZED PROTECTIVE COATING TO ALL FERROUS METAL COMPONENTS INSIDE TANK

NOTES:

1. SEE GENERAL PAINTING NOTES, SHEET 01D-01.
2. CLEAN, PREPARE SURFACE & APPLY SPECIALIZED PROTECTIVE COATING PER SECTION 09 90 00 TO ALL FERROUS METAL; ALUMINUM GRATING SHALL BE PROTECTED DURING THE PAINTING PROCESS.

PIPING NOTE:
ALL EXPOSED DUCTILE IRON PIPING SHALL BE FLANGED JOINT UNLESS NOTED OTHERWISE



LAUNDER & WEIR DIMENSIONS SCHEDULE			
	"A"	"B"	"C"
THICKENER TANKS 1 & 2	667.00	665.75	37'-8 1/2"
THICKENER TANKS 3, 4 & 5	670.00	668.75	42'-8 1/2"

THICKENER EFFLUENT LAUNDER DETAIL

1 1/2"=1'-0"

NOTES:

1. DETAIL SHOWS BOTH THE NEW EFFLUENT LAUNDER ARRANGEMENT AT THICKENERS 3, 4, AND 5 AND THE EXISTING EFFLUENT LAUNDER ARRANGEMENT AT THICKENERS NO. 1 AND 2.
2. REPLACE ALL BOLTS AND FASTENERS SHOWN ABOVE ON THICKENERS NO. 1 AND 2. NEW HARDWARE SHALL BE STAINLESS STEEL AND MATCH DIAMETER OF EXISTING. CONTRACTOR SHALL COORDINATE BOLT LENGTH AND BAFFLE BRACKETS WITH ALGAE SWEEP MANUFACTURER TO ENSURE THERE IS NO INTERFERENCE.

THICKENER V-NOTCH WEIR DETAIL

1 1/2"=1'-0"

NOTES:

1. DETAIL SHOWS BOTH THE NEW WEIR FOR THICKENERS 3, 4, & 5, AND THE EXISTING WEIR FOR THICKENERS 1 AND 2.

HDR
1201 Market St., Suite C
Chattanooga, TN 37402 (423) 414-3551

MBWWTP SOLIDS PROCESS OPTIMIZATION IMPLEMENTATION - PHASE 2 THICKENER UPGRADES
CITY OF CHATTANOOGA, TN
CAPITAL IMPROVEMENT PROGRAM

REV	DATE	REVISION DESCRIPTION
B	2/28/18	REVISED FOR ADDENDUM 5
A	8/31/17	ISSUED FOR BID

THIS LINE IS ONE INCH LONG WHEN PLOTTED FULL SCALE

THIS DRAWING MUST BE USED IN CONJUNCTION WITH THE APPLICABLE OR GOVERNING TECHNICAL SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS.

PROJ #: COC:W-16-017-201 HDR:10052174

DATE: AUGUST 2017

DISC. LEAD:	DESIGNER:	CHECKER:
JT	CP	BD

SHEET TITLE

SLUDGE THICKENERS NO. 1 AND 2 DEMOLITION AND MODIFICATION SECTION

SHEET 01D-02

CREATED: 9/28/2017 LAST SAVED: 3/1/2018 BY: TALEKSIN PLOT DATE: 3/1/2018

Gravity Thickener Schedule. Add to Drawing 01D-02

Thickener Tank No.	Launder	Launder Supports	Launder Support Anchors	Weir	Scum Baffles	Scum Trough/Box	Skimmer Blades & Wiper	Thickener Drive Gear Box	Thickener Drive Motor	Thickener Drive Motor Control Panel	All other ferrous metal items with in the Thickener Tanks and Walkways
1 & 2	Remove, prepare surface for painting, paint per 09 96 00 and reinstall. Repair deteriorated sections as determined by inspection and approval of the Engineer. Repair paid per unit price bid item.	Remove, prepare surface for painting, paint per 09 96 00 and reinstall. Repair deteriorated launder supports as determined by inspection and approval of the Engineer. Repair paid as allowance pay item for Launder and Pipe Support Repair.	Reuse existing, protect from cementitious rehabilitation products.	Remove, clean, and reinstall existing. Replace deteriorated sections as determined by inspection and approval of Engineer. Repair paid per unit price bid item.	Remove, clean, and reinstall existing. Replace deteriorated sections as determined by inspection and approval of Engineer. Repair paid as unit price bid item.	Remove full radius scum trough, prepare surface for painting, paint per 09 96 00 and reinstall.	Replace full radius skimmer blades and wiper with new, two in each tank.	Remove, prepare surface for painting, paint per 09 96 00 and reinstall.	Replace with new per 01E-02.	Replace with new per 01E-02.	Remove, prepare surface for painting, paint per 09 96 00 and reinstall.

Gravity Thickener Schedule: Add to Drawing 01D-07

Thickener Tank No.	Launder	Launder Supports	Launder Support Anchors	Weir	Scum Baffles	Scum Trough/Box	Skimmer Blades & Wiper	Thickener Drive Gear Box	Thickener Drive Motor	Thickener Drive Motor Control Panel	All other ferrous metal items with in the Thickener Tanks and Walkways
3, 4 & 5	Remove, Dispose and Replace with new steel launder	Remove, Dispose and Replace with new steel launder supports	Demolish existing, install new stainless steel anchors	Remove, Dispose and Replace with new FRP weirs	Remove, Dispose and Replace with new FRP baffles	Remove scum box, prepare surface for painting, paint per 09 96 00 and reinstall.	Replace skimmer blade and wiper with new, two in each tank.	Remove, prepare surface for painting, paint per 09 96 00 and reinstall.	Replace with new per 01E-02.	Replace with new per 01E-02.	Remove, prepare surface for painting, paint per 09 96 00 and reinstall.

**MBWWTP SOLIDS PROCESS OPTIMIZATION IMPLEMENTATION,
PHASE 2 THICKENER UPGRADES
CONTRACT NUMBER W-16-017-201**

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

City of Chattanooga, Tennessee
Purchasing Department
101 E. 11th Street, Suite G13
Chattanooga, Tennessee 37402

1.02 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 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for period of time after the Bid opening as stated in the Advertisement for Bids, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged.

Addendum No.	Addendum Date

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in SC-4.02 as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable "technical data."

E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.

F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

J. Where this Bid Form contains the provision for a bid based on a lump sum price, the Bidder shall be responsible for having prepared its own estimate of the quantities necessary for the satisfactory completion of the Work specified in these Contract Documents and for having based the lump sum price bid on its estimate of quantities.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. “corrupt practice” means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;

2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Item No.	Description	Estimated Qty.	Unit	Unit Price	Total Price
1.	Furnishing all products, materials and equipment and performing all labor necessary to complete and put into operation the Moccasin Bend WWTP Solids Process Optimization Implementation, Phase 2 Thickener Upgrades, including all work shown on the Drawings and/or specified and not included in Items 2 through 9 below, for the total amount of:	Lump Sum			$
2.	Launder, Weir and Scum Baffle Plate Repair (Tanks 1 and 2)				
a.	Steel Launder Repair (Cut and Weld Replacement Sections)	200	LF	$	$
b.	FRP V-Notch Weir Repair (Replacement Sections)	400	LF	$	$
c.	FRP Scum Baffle Plate Repair (Replacement Sections)	200	SF	$	$
3.	Thickener Tank Wall Repair				
a.	Sika Repair 224 (see Note 1)	19,500	SF	$	$
b.	3/4″ Shotcrete (see Note1)	19,500	SF	$	$
4.	Pump Station Splitter Box and Thickener Tank Effluent Box Wall Repair with Sika Repair 224	1000	SF	$	$
5.	Type 1 - Concrete Repair, per Drawing 01S-11 Requirements	600	SF	$	$
6.	Type 2 - Concrete Repair, per Drawing 01S-11 Requirements	250	SF	$	$
7.	Type 3 - Concrete Crack Repair, per Drawing 01S-11 Requirements	1000	LF	$	$
8.	Type 4 - Concrete Repair, per Drawing 01S-11 Requirements	200	SF	$	$
9.	Hydroxyl Radical Odor Control System complete in place for Pump Stations No. 1 and 2.	1	LS	$	$
10.	Cash Allowances				
a.	Soils and Concrete Testing	ALLOWANCE			$ 15,000.00
b.	Utility Conflict Resolution	ALLOWANCE			$ 5,000.00
c.	Construction Verification Surveying	ALLOWANCE			$ 5,000.00

d.	Structural Steel Repair in Thickener Tanks	ALLOWANCE	$	30,000.00
e.	Weir Support Repair (all tanks) and Feed Pipe Support Repair (Tanks 1 and 2)	ALLOWANCE	$	70,000.00
f.	Bypass Pumping	ALLOWANCE	$	40,000.00

(Note 1) Items 3a and 3b are alternates for the thickener tank wall concrete repair approach. If choosing the Shotcrete approach complete item 3b, while not completing item 3a. Sika Repair 224 is required for the Pump Station Flow Splitter Box Wall Repair, See Item 4.

BID TOTAL, ITEMS 1 THROUGH 10, INCLUSIVE, THE AMOUNT OF _____

_____

_____ DOLLARS ($_____).

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 6 – TIME OF COMPLETION

6.01 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 on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

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

A. Statement of Bidders Qualifications

B. Affidavit of No Collusion by Prime Bidder

C. Drug-Free Workplace Affidavit

D. Attestation Regarding Personnel Used in Contract Performance

E. Certification By Proposed Prime or Subcontractor Regarding Equal Employment Opportunity

F. Certification Regarding Debarment, Suspension and Other Responsibility Matters

ARTICLE 8 – DEFINED TERMS

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

ARTICLE 9 – BID SUBMITTAL

9.01 This Bid submitted by:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business as: _____

Attest: _____
(Notary)

Name (typed or printed): _____

A Partnership

Partnership Name: _____ (SEAL)

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

Name (typed or printed): _____

Attest: _____
(Signature of another Partner)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature)

Name (typed or printed): _____

Title: _____
(CORPORATE SEAL)

Attest: _____
(Signature of Corporate Secretary)

Name (typed or printed): _____

Date of Qualification to do business in Tennessee is _____

A Joint Venture

Name of Joint Venturer: _____

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of first joint venture partner)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of second joint venture partner)

Name (typed or printed): _____

Title: _____

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

All Bidders shall complete the following:

Bidder's Business address: _____

_____

Phone: _____ Facsimile: _____

Primary Contact: _____

E-mail: _____

Submitted on _____, 201___.

State Contractor License No. _____.

This document was prepared in part from material (EJCDC C-410 Suggested Bid Form for Construction Contracts) which is copyrighted as indicated below:

Part 1 General

1.01 Scope

A. The Bid lists each item of the Project for which payment will be made. No payment will be made for any items other than those listed in the Bid.

B. Required items of work and incidentals necessary for the satisfactory completion of the work which are not specifically listed in the Bid, and which are not specified in this section to be measured or to be included in one of the items listed in the Bid, shall be considered as incidental to the work. All costs thereof, including Contractor's overhead costs and profit, shall be considered as included in the lump sum or unit prices bid for the various Bid items. The Contractor shall prepare the Bid accordingly.

C. Work includes furnishing all plant, labor, equipment, tools and materials, which are not furnished by the Owner and performing all operations required to complete the work satisfactorily, in place, as specified and as indicated on the Drawings and Specifications.

1.02 Descriptions

A. Measurement of an item of work will be by the unit indicated in the Bid Form.

B. Final payment quantities shall be determined from the documented field measurements. The precision of final payment quantities shall match the precision shown for that item in the Bid.

C. Payment will include all necessary and incidental related work not specified to be included in any other item of work listed in the Bid.

D. Unless otherwise stated in individual sections of the Specifications or in the Bid, no separate payment will be made for any item of work, materials, parts, equipment, supplies or related items required to perform and complete the work. The costs for all such items required shall be included in the price bid for item of which it is a part.

E. Payment will be made by extending the provided unit prices multiplied by final approved quantities and then summing the extended prices to reflect actual approved work. Such price and payment shall constitute full compensation to the Contractor for furnishing all plant, labor, equipment, tools and materials not furnished by the Owner and for performing all operations required to provide to the Owner the entire Project, complete in place, as specified and as indicated on the Drawings.

F. “Products” shall mean materials or equipment permanently incorporated into the work.

1.03 General

A. No separate payment shall be made for clearing and constructing access roads.

B. The cost of moving and reestablishing landscape features, including labor and materials, shall be included in the unit price bid for the item to which it pertains.

C. No separate payment shall be made for the cost incurred to repair damaged property. This includes concrete or asphalt driveways and parking areas within the plant.

D. Construction Along Plant Roadways: No separate payment shall be made for traffic control or maintaining plant roadways and driveways.

E. No additional payment will be made for replacement of defective materials.

F. All costs related to the implementation of the easement and permit stipulations shall be included in the unit price bid for the item to which it pertains.

G. No separate payment will be made for clean-up and testing. Any cost for labor, materials and equipment required for clean-up shall be included in the unit price bid for the item to which it pertains.

H. No separate or additional payment will be made for any special or unique method, means, techniques or equipment necessary for the Contractor's compliance with these Specifications, regulatory requirements, permits, laws or regulations which govern this Project.

I. No separate payment will be made for by-pass pumping, see cash allowance.

1.04 Erosion and Sedimentation Control

A. No separate payment shall be made for temporary and/or permanent erosion and sedimentation controls or replacement of landscaping disturbed by inspection, replacement or rehabilitation activities. All temporary and/or permanent erosion and sedimentation control costs shall be included in the unit price bid for the item to which it pertains.

B. No payment will be made for any portion of the Work that needs to be repaired or re-performed due to temporary erosion and sedimentation controls not being properly maintained by the Contractor.

1.05 Item 1 – Work of the Contract Documents

A. This item consists of furnishing all products, materials and equipment and performing all labor necessary to complete and put into operation the Moccasin Bend WWTP Solids Process Optimization Implementation, Phase 2 Thickener Upgrades, including all work shown on the Drawings and/or specified and not included in items 2 through 9 of the Bid Form (Section 00 41 00). Payment will be made in accordance with the approved Schedule of Values (Section 01 29 73).

1.06 Item 2 – Launder, Weir and Scum Baffle Plate Repair (Tanks 1 and 2)

A. Payment will be made based on the linear foot unit prices listed in the Bid Form and the total measurements of repair length first approved by the Engineer, performed by the Contractor, and confirmed by the Engineer.

B. The work consists of any labor, equipment, materials and incidentals used as necessary to complete the work of repairing the rehabilitated effluent launders in Thickener Tanks 1 and 2 by having to remove and replace launder, weir or scum baffle plate material that has been damaged to the point of not being able to clean, paint, or recondition as approved by the Engineer and the Owner. This same equipment is being replaced with new equipment in Thickener Tanks 3, 4 and 5 therefore this bid item does not pertain to those tanks.

C. This item includes coordination with scum equipment and algae sweep equipment installation to confirm that both systems function as specified without interference.

D. Item 2a - Steel Launder Repair: Work consists of “cut and weld patch” type repairs on the existing steel launders that are determined to be past their useful life as approved by the Engineer upon inspection after cleaning. The linear foot replacement consists of up to 100% of the steel launder cross section at any given area around the thickener tanks.

E. Item 2b - FRP V-Notch Weir Repair: Work consists of removing and replacing with new sections of FRP V-Notch weir that are determined to be past their useful life as approved by the Engineer upon inspection after cleaning. The linear foot pay item includes either the inner or outer v-notch weirs. If both weirs are replaced in the same area then both lengths of weir are paid separately within the quantity of this pay item.

F. Item 2c – FRP Scum Baffle Plate Repair: This item consists of removing and replacing with new sections of FRP scum baffle plates that are determined to be past their useful life as approved by the Engineer upon inspection after cleaning. The linear foot pay item includes new replacement sections of the FRP scum baffle plates.

G. The following work is excluded from this pay item and shall be paid under Item 1 - Work of the Contract Documents: removing an cleaning the steel launders, FRP weirs, FRP scum baffles plates, surface preparation and painting the steel launders, reattaching the existing equipment, and making adjustments to the equipment as necessary to match existing elevations and assure proper attachments to the system’s structural supports.

1.07 Item 3 – Thickener Tank Wall Repair

A. Payment will be made based on the square foot unit prices listed in the Bid Form and

the total measurements of approved wall area covered by the repair product. The original (bid) intent is to cover the entirety of each wall with the chosen repair product(s) subject to final quantity directives after inspections by Owner and Engineer.

B. The work consists of any labor, equipment, materials and incidentals used as necessary to complete the work of rehabilitating the entirety of the vertical wall surfaces of thickener tanks 1, 2, 3, 4 and 5 as described in the Contract Documents.

C. This work will be coordinated with the work of repairing and painting the launder supports in the thickener tanks such that wall repair will be performed while the supports are removed for repair and/or painting and with the supports being replaced over the newly-repaired wall.

D. Item 3a: This repair option is to be performed using SikaRepair 224 as specified in Section 03 35 00 and as supplemented by Contract Drawing 01S-12. If the Contractor proposes the SikaRepair 224 method do not complete Item 3b.

E. Item 3b: If the Contractor chooses to bid the alternate Shotcrete for tank wall repairs the unit cost and total cost for shotcrete is to be provided in Item 3b while not providing a cost for Item 3a.

1.08 Item 4 – Pump Station Splitter Box and Thickener Effluent Box Wall Repair

A. Payment will be made based on the square foot unit prices listed in the Bid Form and the total measurements of approved wall area covered by the repair product as specified in the Contract Documents.

B. The work consists of any labor, equipment, materials and incidentals used as necessary to complete the work of repairing (coating) the vertical wall surfaces of inner walls of the influent flow splitter boxes for each pump station and the inner walls of the thickener tank effluent box on all five thickener tanks with Sika 224 as described in the Contract Documents.

1.09 Item 5 – Type 1 - Concrete Repair, per Drawing 01S-11 Requirements

A. Payment will be made based on the square foot unit prices listed in the Bid Form and will be based on measurements of the concrete repair approved by the Engineer, performed by the Contractor and confirmed by the Engineer.

B. The work consists of any labor, equipment, materials and incidentals used as necessary to complete Concrete Patch / Spot Repair, as described on Drawing 01S-11. Repair shall be quantified by the square foot of wall coverage for the type of repair that is used – Type 1 is ½-inch average thickness. This item is to be used for patching of existing wall defects, with the intent to feather the repair to match the existing concrete surface. In some cases, Sika Repair 224 or Shotcrete may be

installed over top of this repair, however locations within the pump station buildings would be standalone repairs.

C. Final pay quantity may not be 100% of the quantity in the bid. Final quantities executed are dependent on inspection by the Engineer of all Thickener Tanks when drained and approval of Engineer to execute the repair.

1.10 Item 6 – Type 2 - Concrete Repair, per Drawing 01S-11 Requirements

A. Payment will be made based on the square foot unit prices listed in the Bid Form and will be based on measurements of the concrete repair approved by the Engineer, performed by the Contractor and confirmed by the Engineer.

B. The work consists of any labor, equipment, materials and incidentals used as necessary to complete Concrete Patch / Spot Repair, as described on Drawing 01S-11. Repair shall be quantified by the square foot of wall coverage for the type of repair that is used – Type 1 is 1-inch average thickness. This item is to be used for patching of existing wall defects, with the intent to feather the repair to match the existing concrete surface. In some cases, Sika Repair 224 or Shotcrete may be installed over top of this repair, however locations within the pump station buildings would be standalone repairs.

C. Final pay quantity may not be 100% of the quantity in the bid. Final quantities executed are dependent on inspection by the Engineer of all Thickener Tanks when drained and approval of Engineer to execute the repair.

1.11 Item 7 – Type 3 - Concrete Crack Repair

A. Payment will be made based on the linear foot unit prices listed in the Bid Form and will be based on measurements of crack length, regardless of the crack width, performed by the Contractor and confirmed by the Engineer.

B. The work consists of any labor, equipment, materials and incidentals used as necessary to complete crack repair work as defined in specification section 03 35 00 and shown on Drawing 01S-11. This includes the work of preparing the crack to receive repair compound, addition of reinforcing material (rebar or mesh) if required, and application of a surface protective coat if required. The work may be performed on thickener tank concrete or pump station concrete (interior walls, interior and exterior stairs, and flow splitter box repair at a minimum, and at other locations where concrete cracking within the Gravity Thickener Facility requires repair).

1.12 Item 8 – Type 4 - Concrete Repair, per Drawing 01S-11 Requirements

A. Payment will be made based on the square foot unit prices listed in the Bid Form and will be based on measurements of the concrete repair approved by the Engineer,

performed by the Contractor and confirmed by the Engineer.

D. The work consists of any labor, equipment, materials and incidentals used as necessary to complete Concrete Patch / Spot Repair, as described on Drawing 01S-11. Repair shall be quantified by the square foot of wall coverage for the type of repair that is used – Type 4 is 3-inch average thickness. This item is to be used for patching of existing wall defects, with the intent to feather the repair to match the existing concrete surface. In some cases, Sika Repair 224 or Shotcrete may be installed over top of this repair, however locations within the pump station buildings would be standalone repairs.

E. Final pay quantity may not be 100% of the quantity in the bid. Final quantities executed are dependent on inspection by the Engineer of all Thickener Tanks when drained and approval of Engineer to execute the repair.

1.13 Item 9 – Hydroxyl Radical Odor Control System

A. Payment will be made on a lump sum basis for the Hydroxyl Radical Odor Control System, including the following items:
   a. One Vapex Environmental Technologies (1) Nano and One (1) Micro hydroxyl radical based odor control unit or approved equal, with all appurtenances as specified in Section 46 24 25.
   b. Hotbox enclosures
   c. Concrete pads
   d. FRP plate installed over the splitter boxes
   e. Modifications made to the splitter boxes to accommodate the FRP plates
   f. Potable water supply to the odor control units
   g. Power supply to the odor control units.

B. This item consists of furnishing all products, materials and equipment and performing all labor necessary to complete and put into operation the Moccasin Bend WWTP hydroxyl radical odor control improvements, including all work shown on the Drawings and/or specified and not included in items 1 through 5 of the Bid Form (Section 00 41 00). Payment will be made in accordance with the approved Schedule of Values (Section 01 29 73).

1.14 Item 10 - Cash Allowances

A. General

1. The Contractor shall include in the Bid Total all allowances stated in the Bid Form. There are two types of allowances, as described below.

   a. Allowances for Services provided by Owner-Selected Firms. These allowances shall cover the net cost of the services provided by a firm selected by the Owner. The Contractor's handling costs, labor, overhead, profit and other expenses contemplated for the original allowance shall be included in the items to which they pertain and not in allowances.

b. *Contractor-Performed Services Allowances.* These allowances are for items that cannot be quantified in the sludge thickener tanks prior to the Contract start. The Contractor will perform this work and bill the task the same as any other construction task, but will have to provide more detailed documentation on what work was performed and will have to coordinate more closely with site inspectors while performing the work. Further information is provided in the Schedule of Cash Allowances.

2. No payment will be made for nonproductive time on the part of testing personnel due to the Contractor's failure to properly coordinate testing activities with the work schedule or the Contractor's problems with maintaining equipment in good working condition. The Contractor shall make all necessary excavations and shall supply any samples of materials necessary for conducting compaction, density tests, concrete tests and any other samples required for testing.

3. No payment shall be provided for services that fail to verify required results.

B. Should the net cost be more or less than the specified amount of the allowance, the Contract will be adjusted accordingly by change order. The amount of change order will not recognize any changes in handling costs at the site, labor, overhead, profit and other expenses caused by the adjustment to the allowance.

C. Documentation

1. Submit copies of the invoices with each periodic payment request from the firm providing the services.

2. Submit results of services provided which verify required results.

D. Schedule of Cash Allowances for Services Provided by Owner-Selected Firms

1. Item 10a - Soil and Concrete Testing: Allow the amount provided in the Bid Form for the services of soils and concrete testing laboratories to verify soils conditions and for the testing of concrete cylinders for poured in place concrete.

2. Item 10b – Utility Conflict Resolution: Allow the amount provided in the Bid Form for the services of outside utility companies in the event that there is a utility conflict uncovered during construction that requires consultation from an outside utility company to obtain conflict resolution. Physical work performed by contractor, under guidance of the outside utility company, may be included in this allowance if approved by the Engineer and Owner.

3. Item 10c - Construction Verification Surveying

a. Allow the amount provided in the Bid for construction surveying by an independent surveying firm, selected by the Owner, to perform horizontal and vertical alignment checks at the discretion of the Engineer.

Contractor's reference points, and work performed. The presence of this cash allowance in no way relieves the Contractor of the responsibility of installing reference points, temporary bench marks or verifying that the work (in particular but not limited to weir elevations in all five tanks) has been performed accurately.

E. Schedule of Cash Allowances for Contractor Performed Services

1. Item 10d – Structural and Miscellaneous Steel Repair to Thickener Tank Center Columns, Bridges/Walkways, and Rake Arms: any labor, equipment, materials and incidentals used as necessary to complete repair work on structural steel within the thickener tanks. Work will be identified by an initial inspection of each tank by Contractor and Engineer after tank is drained and cleaned. Contractor will prepare an estimate to perform the entire repair work within the tank and submit to Engineer for review. Contractor will not begin repair work until written authorization is provided by the Engineer. The following work is excluded from this pay item and shall be paid under Item 1 - Work of the Contract Documents: painting of the repaired steel.

2. Item 10e – Weir and Pipe Support Repair in Thickener Tanks: any labor, equipment, materials and incidentals used as necessary to complete repair work on the weir supports for all thickener tanks (1 through 5) or the influent feed pipe support in thickener tanks 1 and 2. Work will be identified by an inspection of components in each tank after the tank is drained. Contractor will prepare an estimate to perform the entire repair work within the tank and submit to Engineer for review. Contractor will not begin repair work until written authorization is provided by the engineer. Contractor's estimate will include all necessary coordination with the work of thickener tank wall repair (item 4 of this section). The following work is excluded from this pay item and shall be paid for under Item 1 – Work of the Contract Documents: Painting of the repaired steel.

3. Item 10f, Allowance for Bypass Pumping: any labor, equipment, materials and incidentals used as necessary to provide bypass pumping when (1) working on the influent sludge line valve vault relocations; (2) working on the flow splitter boxes, either as part of weir gate replacement or repair and coating of the splitter box concrete surfaces; (3) other work as proposed by the Contractor. If the Contractor proposes to implement bypass pumping, Contractor will disclose this at the preconstruction meeting. Contractor will prepare a work plan, with cost estimate based on costs for task mobilization, demobilization, and hourly usage rate, to perform the bypass pumping work within the tank and submit to Engineer for review. Work plan will be submitted to the City a minimum of 30 days prior to the start of the work activity. Contractor will not begin work of this task until written authorization is provided by the Engineer; said authorization will acknowledge that work plan has been reviewed by the City and the Engineer and that the City and Engineer are in general agreement with the means and methods proposed by the Contractor.

END OF SECTION