



City of Austin

PUBLIC WORKS DEPARTMENT

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PROJECT: Walnut Creek WWTP Tertiary Filter Rehabilitation

CIP ID: 3023.025

IFB#: CLMC 587

SUBJECT: Answers to Bidders Questions as of the date of this letter, per 00100-IFB Article 1.(3)(C).

The following are answers to Bidders received on the above project. These answers do not modify the Contract. Any modifications to the Contract will be through Addenda

Q-1: The gravel is specified with specific gravity of 3.80. That would be a garnet product and garnet does not come as coarse as 3/8 x 3/16. The gravel specific gravity for silica gravel should be 2.5. Silica gravel can come in the specified size. Please ask the Engineer if the bottom 3 inch layer is to be silica gravel or a garnet product.

A-1: This item will be addressed in Addendum No. 1.

Q-2: From Plan Sheets M-01, E-64 and E-65, the dimensions for Filter Cells No. 1 – 4 are 36' wide (East to West) x 30' long (North to South) with the troughs running the 30' direction. Filters 5 – 10, each consist of two-bay Filter Cells for a total of 12 Filter Cells 17' wide (East to West) x 32' long (North to South) with the troughs running the 17' direction. We had this information during the budgetary phase, but I do not see a confirmation on Cell sizing. Please confirm these are the Filter Cell sizes.

A-2: The stated dimensions are correct as indicated on Drawing M-01, E-64 and E-65, however Contractor to verify as indicated in the Background Information Note on Drawing M-01, and General Note on Drawings E-64 and E-65. Stated orientation of filter troughs is correct.

Q-3: Reference Bid Form Section 00300L, Section 01010, Part 1.2, 1. and 2., Section 01030, Part 3.1, Section 11465-Appendix A, Part 3-4.01.03, j. and Section 13220 are in conflict with each other. Section 11465-Appendix A, Part 3-4.01.03, j. describes a backwash procedure that has air and water combined in between the drain down level after air scour only steps (5-8) to a point at the bottom of the backwash troughs (9-13), then water only backwash from that point on to end of backwash cycle. This type of backwash would not require media retention baffles. Spec 13220, Part 2-3 says all troughs shall be supplied with media retention baffling. The Bid Form Section 00300L and Section 01030, Part 3.1 Alternate No. 1 has media retention baffles for Filters 5-10 as an ADD. Section 01010, Part 1.2, 1. and 2., list the Base Bid as troughs with trough baffles in all Filters. Media retention baffles would be used when the backwash procedure uses a combined air/water sustained while overflowing the troughs. In this design, you lower the water level to the trough elevation, then start the combined air/water cycle while overflowing the backwash troughs. I have attached our Bulletin to assist in describing and showing our MULTIWASH Process descriptions. I would think, if the backwash design is as called out in Section 11465-Appendix A, Part 3-4.01.03, j., then the Base Bid would have just straight troughs, no media retention baffles for all Filters. But if they want to have an Alternate No. 1 that has media retention baffles for All Filters, there would be an ADD Option so they could backwash with the MULTIWASH Process. Please present this to the Engineer and ask for clarification.

A-3: Trough baffles shall be supplied for Filters 1-4 as shown on the Drawings M-01 and M-09 and as indicated in the Specification Sections 01010 and 13220. Trough baffles may be supplied as an Alternate for Filters 5-10. This item will be addressed in Addendum No. 1.

Q-4: With respect to the media retention baffles, there is no specified design performance. Without a specified performance criteria, any sort of baffle can be added to a trough and it can be called "media retaining". In

order that the City of Austin get a baffle design that is actually effective we recommend that the Engineer add in a media loss prevention guarantee. This will ensure that the baffles are truly effective at retaining media in the cell, especially during concurrent air/water backwash. We recommend the following language:

1. "PERFORMANCE"

- a. The provisions of a backwash system that maintains the filter media in a clean condition and minimizes mud ball formation and surface cracking is essential to maintaining a high quality effluent. Additionally, the backwash system must be designed so that filter media is not lost during the backwash cycle to the extent continued media replacement will be required.
- b. The contractor shall guarantee that the filter media loss shall not exceed 2" per year. Filter media loss shall be determined by measuring average media bed depth at two points in time - one after at least 30 days of operation and the second within 120 days of start - up and expressing the difference in inches of media loss per equivalent year of operation.
- c. The filtration system provided by the contractor shall be capable of cleaning the filter media so that no more than 3.0 mg of foreign or contaminating solids/gram of filter media shall be observed during an abrasion test run on a core sample of filter media taken immediately following backwashing. The ABRASION TEST PROCEDURE shall be as follows:

- 1) *Backwash the filter using the procedure described by these specifications.*
- 2) *During the last one or two minutes of the backwash operation, collect samples of the media in a vertical core throughout the full bed depth at up to three points located one to two feet inside and near the midpoint of a cell wall.*
- 3) *Let water drain from the core sample for one to two minutes without additional disturbance.*
- 4) *Place the media from all core samples obtained in Step 2 above into a large container and mix the media gently to provide a homogeneous mixture.*
- 5) *Place 0.25 to 0.5 liter of the mixture of core samples into a one-liter plastic or glass bottle.*
- 6) *Fill the bottle to within one inch of the top with clean water.*
- 7) *Place the cap on the bottle and agitate by shaking the bottle for two minutes using about 2 to 3 forward and backward motions per second.*
- 8) *Let the media settle in the bottle for one minute and decant the supernatant liquid into a clean container.*
- 9) *Repeat Steps 6, 7 and 8 two more times, or until the media is clean.*
- 10) *Measure the volume of decanted liquid and measure its suspended solids (SS) concentration by the glass fiber filter method as described in Standard Methods for the Examination of Water and Wastewater, Latest Edition.*
- 11) *Dry all the media from Step 5 at 103 to 110 degrees centigrade to a constant weight.*
- 12) *Calculate solids retention in the filter as follows:*
 - A = (mg/l SS, dry weight, in supernatant liquid) x (liters volume of supernatant liquid obtained in Steps 6-9).
 - B = grams, dry weight, of media in bottle in Step 5.
 - A/B = mg solids/gram media

A-4: This item will be addressed in Addendum No. 1.

Q-5: Section 01010, Part 1.2, 2. For Filters 5-10 says to provide addition of anthracite media to bring in the desired level of 48". Please ask if we are to be Proposing 48" of new anthracite media or if we are to propose some lesser amount to add to existing media at some level.

A-5: Refer to note on Section 1, Drawing M-09 that states “ADD ANTHRACITE MEDIA TO ACHIEVE A TOTAL MEDIA DEPTH OF 4’-0”, TYP.”

Q-6: As mentioned during the Budgetary Phase and my comments (in black), Gerry’s email (in blue) stated “comments on the specifications Section 05990 associated with stainless steel troughs.

- The specifications associated with the troughs should be combined into one section for the troughs in general or a separate section (as they did for the FRP troughs – Section 06600). In its current location in Section 05990, it is confusing since it is mixed in with all other metal components. It appears the specifications as currently written are set up the FRP troughs, with the stainless steel troughs being somewhat irrelevant; i.e. Section 05990 is called MISCELLANEOUS METALS.
- Under 1-1, recommend further clarification of number of troughs, specifically regarding Filter 5 – 10. The information we have for Filters 5 – 10 is that there is two cells per filter. Therefore, since they call out 8 troughs per filter, this is 4 troughs per filter cell. In total, Filters 5 – 10 would have 48 troughs and Filters 1 – 4 would have 24 troughs.
- Under 2-3. 13, Also call out weir plates. Our ESSD troughs design doesn’t use weir plates.
- Under 2-3.14, it says media retention baffles shall be of 1/4 inch thick material, top edge of 1/32 inch. Our media retention baffles are of an engineering design that uses 12 ga. stainless steel. Our design does not require the use of 1/4 inch thick material. Please refer to the attached ESSD Spec with regard to design for top edge deflection.
- Some parts talk about coatings with regard to section (722S). This section is not in the Bidding Specifications. Part 2-4.05 for stainless steel does not reference this section (722S). It only mentions pickling. Please note that our standard would be to chemically clean all welds rather than full dip pickling and passivation. Would this be acceptable in lieu of full dip pickling and passivation? Please confirm what Section 09940, Part 3-1.09 and 3-8.01 Pickled and passivated stainless steel means, is there a paint coating? Section 15064 for the stainless steel air piping does not require a paint coating of the air piping. Please confirm there is no painting of the stainless steel troughs.

Again, we feel that all trough options should be in their own specification section, so they are not confused with other equipment.

For reference, attached is WesTech’s specifications for the ESSD wash troughs for both Filters 1 – 4 & Filters 5 – 10.”

A-6: Bullet 1: A stand alone specification section for troughs will not be provided. Refer to Specification Section 05990 for stainless steel troughs and Specification Section 06600 for FRP troughs.

Bullet 2: Number of troughs per filter provided in bullet 2 above is correct, refer to Drawings M-01 and M-09.

Bullet 3: This item will be addressed via Addendum No. 1.

Bullet 4: This item will be addressed via Addendum No. 1.

Bullet 5: Coating of stainless steel troughs shall be per Specification Section 09940, paragraph 3-9.
Refer to Specification Section 15064, paragraph 2-4 for coating of filter air scour piping.
Reference to Specification Section 722S will be addressed via Addendum No. 1.

Q-7: Section 11610-17, paragraph 2-9.04 states that no OIU shall be used. However, PID-16, Note 8 states that an OIU with equivalent functionality is acceptable. These states are contradictory. Please advise if an OIU is acceptable.

A-7: This item will be addressed in Addendum No. 1.

Q-8: Section 11610-21 calls for a NEMA 4 stainless steel enclosure. Most NEMA 4 enclosures are painted steel. Significant savings can be realized if a NEMA 4 painted steel design is acceptable. Please clarify.

A-8: Blower control panels shall be NEMA 4 stainless steel enclosures.

Q-9: Section 11610-14 Item 2-6.07 indicates a requirement for RTD transmitters. There is limited space to install a connection head with a transmitter on the blower bearing housings. There will not be enough space to mount a Rosemount transmitter. Our standard approach is to take all RTD signals directly to the PLC without use of

transmitters. Please advise if this is acceptable.

A-9: Per specification, RTD shall use transmitters and shall not be wired directly to the PLC.

Q-10: Referring to PID-016, please confirm that all items located in the dashed box to include BB-PLC-201-I, BB-LCP-001-I, and BL-001-LCP are all contained in the blower local control panel. The only interface to the SCADA will be through two ethernet connections as shown on I-011.

A-10: Correct, the blower local control panel and PLC shall be contained in one enclosure. Each blower shall have an independent blower control panel.

Q-11: Section 11610-18 Item 2-9.04.02, it is not clear why relay contacts for each light must be wired back to the PLC as an input. We would propose to wire all instruments, such as RTDs, vibration transmitters, amps signals, valve signals directly to the PLC. The PLC will monitor these signals and provide local indication of alarm and shutdown conditions via an HMI. These signals as well as any alarms will also be provided the SCADA via communications. This method of monitoring provides far more detailed information for the operator and to SCADA than relay contacts can provide. This approach for blower monitoring is the typical approach by all blower manufacturers. We would propose to reduce hardware by incorporating the valve control within the PLC instead of using a separate monitor.

A-11: Instrument devices shall be installed per specifications.

Q-12: Section 11610-20, our standard vibration detection solution utilizes vibration sensors that are mounted on the bearing housing and provide a 4-20 mA signal back to the PLC in the blower control panel. This provides improved functionality over switches with remote mounted probes. Please advise if this is acceptable.

A-12: This item will be addressed in Addendum No. 1.

Q-13: Referring to PID16, is FE/FIT-100 existing? If it is not existing, who is responsible for supplying the flowmeter? There appears to be a note or comment about the flowmeter that is missing from the drawing. Please advise. Additionally the signal from the flowmeter is shown as wired to only one of the blower control panels (PLC-201). Does this signal need to be conveyed to the second blower control panel and if so, how should this be accomplished— perhaps via communications from SCADA? Similarly, will the UPS signals only be required as inputs to PLC-201 and not to PLC-002 (the panel for the second blower).

A-13: This item will be addressed in Addendum No. 1. Additionally, the UPS signals will remain as shown on PID-16 connecting only to PLC-201.

Q-14: The PLC manufacturer has advised us that the Unity Pro S software will handle the specified centrifugal blower control design at a far more economical than the Unity Pro XL identified in 11610-23, Item 2-10.04. Please advise if this software can be supplied instead.

A-14: This item will be addressed in Addendum No. 1.

Q-15: Will the Bid Date be delayed?

A-15: Yes. It is anticipated that the bid date will be delayed one week. This will be addressed in Addendum No. 1.

 10/19/2016

Steve Parks
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City of Austin