

CITY OF BALTIMORE

DEPARTMENT OF PUBLIC WORKS
OFFICE OF ENGINEERING AND CONSTRUCTION

ADDENDUM NO. 2

September 17, 2024

FOR DRAWINGS, SPECIFICATIONS, PROPOSAL, CONTRACT, AND BOND

FOR WATER CONTRACT NO. 1382 – Montebello I Finished Water Reservoir Structural Rehab

FOR THE MAYOR AND CITY COUNCIL OF BALTIMORE

TO BIDDERS: PLEASE ATTACH TO YOUR CONTRACT DOCUMENTS. THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS ON WHICH THE CONTRACT WILL BE BASED, AND IS ISSUED TO MODIFY, EXPLAIN AND/OR CORRECT THE ORIGINAL DRAWINGS AND SPECIFICATIONS. PLEASE ACKNOWLEDGE THIS ADDENDUM ON THE BID PROPOSAL PAGE WHERE INDICATED. IF THIS DOCUMENT HAS BEEN RECEIVED VIA EMAIL, A CONFIRMATION EMAIL REPLY MUST BE SENT BY BIDDER WITHIN 24 HOURS CONFIRMING RECEIPT OF THE ADDENDUM TO DPWCONTRACTADMIN@BALTIMORECITY.GOV. IF EMAIL ACKNOWLEDGMENT IS NOT RECEIVED BY DPW, YOUR BID MAY BE REJECTED.

- SEE RESPONSES TO BIDDERS' QUESTIONS ON THE FOLLOWING PAGE(S).

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RESPONSES TO BIDDERS' QUESTIONS

1. **QUESTION:** FRP Specification 03 01 30.72 section 3.1.2 – Bond Critical Applications calls for substrate to be prepped for bonding of the FRP by means of abrasive blasting. A majority of this FRP will be bond critical and will need surface prep. Bid item 302 – CFRP Strengthening section 2 states pricing should assume no surface preparation is required. Please confirm the CFRP unit price will be for just physical application of the CFRP to the substrate and no abrasive surface prep shall be included in the unit price. Confirm surface/substrate prep for the CFRP will be quantified under bid items 304 and 305.

RESPONSE: FRP should be installed per the provided spec and manufacturer's installation instructions. Surface preparation is required for the proper FRP installation and should therefore be included in the construction costs. The method of surface prep (abrasive blasting, pressure washing, shotblasting, grinding or other approved mechanical means) will vary by concrete condition, but all concrete will likely require some surface prep to fill cracks, even surfaces, and ensure the surface is free of bond-inhibiting materials.

2. **QUESTION:** Are there valves and manholes downstream of the outlet gate house that the contractor can use for ventilation and dewatering purposes?

RESPONSE: The reservoir can be ventilated through the various access points identified on the contract drawings (stairwells, manholes). See sheet 5 for locations of the 24 manholes and sheet 11 for location of the access hatches.

3. **QUESTION:** The conditions for CFRP installation will require a completely dry environment. If cracks have active leaks, will a waterproofing chemical grout be utilized under bid Item 301 in lieu of the epoxy injection or can a separate bid item be provided? Please provide a specification for chemical grout to be used in waterproofing applications.

RESPONSE: This is means and methods. In lieu of epoxy injection, an NSF approved repair mortar for stopping pressure leakage and seepage can be used prior to FRP installation.

4. **QUESTION:** Due to unknown width and depth of cracks the volume of epoxy to be used for bid item 301 is unknown. Can a based line quantity of epoxy in gallons be provided and a unit price per gallon be established for every gallon utilized beyond the base bid quantity?

RESPONSE: The contractor shall estimate the quantity necessary to fill these cracks based on the information provided in the contract documents.

5. **QUESTION:** The tanks will need environmental control equipment to keep conditions per CFRP manufacturer requirements for installation. Can equipment staging locations be made available within 50 feet of the access locations that is unimpeded.

RESPONSE: Equipment loading will need to be checked. This will be handled through contractor submissions of RFIs and shop drawings.

6. **QUESTION:** Due to the unknown size and exact locations of concrete spall repairs can a shoring design and installation allowance item be added to the bid form and be performed on time and material basis?

RESPONSE: Please refer to Section 03 01 30.71 Part 3.2.A.3 of the contract specifications for shoring requirements and payment.

7. **QUESTION:** Will the City please consider pushing back the Bid Date for this bid to allow for further examination of the concrete surfaces?

RESPONSE: This was addressed in addendum 1 whereas the last day of questions is September 20, 2024 at 4:30pm, and bids are due October 2, 2024 at 11:00am.

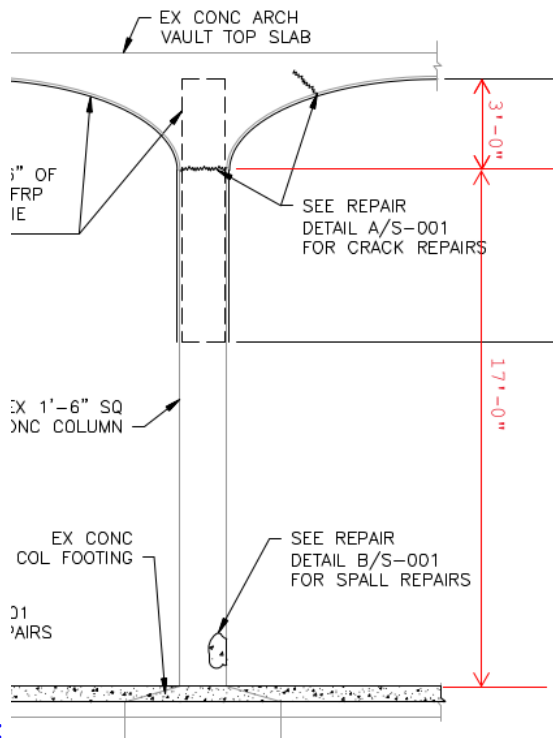
8. **QUESTION:** Is it possible for the City to drain the reservoirs for another site inspection prior to the bid date?

RESPONSE: No, it is an active reservoir. Please rely on all contract documents for existing conditions.

9. **QUESTION:** The project specifications for Fiber-Reinforced Polymer Composite System (Section 03 01 30.72) lists two CFRP products. Will contractors be able to submit bids with the Sika product with the same layout and layer count shown in the project drawings? Considering the V-Wrap product is sold to one installer only, are other installers allowed to bid the project? If so, please clarify in the project drawings if the listed CFRP Sika material listed in the spec should have the same layout as the CSS V-Wrap. Note that the material properties of CSS V-Wrap specified, are higher than what other manufacturers report. If contractors were to bid the project based on "equivalent" fabric, all other manufacturers would be forced to double the layers specified.

RESPONSE: When using an "approved equal" product, the layering and layout used must match the capacity of the specified product and will need to be approved by the design engineer.

10. QUESTION: Please confirm concrete column height, per detail C on S-001 (sheet 3 of 13). Drawing S-005 (sheet 7 of 13) shows North, South, East and West elevations with top of slab to soffit/ceiling height being 20'. Is 20' the correct height of the column? Also need confirmation for detail C on S-001, if we are to measure from top of slab, up column 20' to locate top of column. Additionally, is the baffle wall height the same as the columns? This is to confirm correct location and size of FRP material.



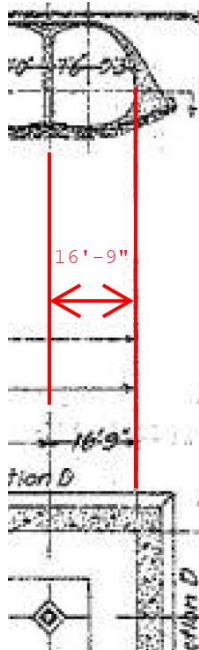
RESPONSE:

Concrete column height = 17'-0" from top of base slab to bottom of arch
 arch height = 3'-0"
 baffle wall height = 17'-0" +/- (spans from t/slab to b/arch).

11. QUESTION: Detail C on S-001 (sheet 3 of 13) shows concrete build-up around the base of column, how thick is the concrete build-up, above top of slab?

RESPONSE: About 6-inches of the column footing is exposed above the second (upper) concrete floor slab layer.

- 12. QUESTION:** Detail D on S-001 (sheet 3 of 13) shows the barrel wall typical strengthening detail. Need a starting and stopping point on the top of slab and the ceiling soffit, including a radius of the barrel to figure the length of the 6" CFRP strengthening strips @ 24" o.c.



RESPONSE:

At columns: The FRP should start at 2/3 the column height (refer to C/S-001) and stop where the barrel wall meets the base slab.

Other: The FRP should start at column centerline and stop where the barrel wall meets the base slab.

The longest distance between the col CL and the barrel wall = 16'-9".

- 13. QUESTION:** Provide typical column size. 12"x12" or 18"x18" or 24"x24", please clarify.

RESPONSE: The existing columns are 18"x18" unreinforced concrete.

- 14. QUESTION:** Will quantities of spall and crack repairs be provided?

RESPONSE: See specification bid item 303.

- 15. QUESTION:** Is the reservoir considered a Confined Space?

RESPONSE: Yes.

- 16. QUESTION:** Has an air quality test been performed?

RESPONSE: Contractor is responsible for Project-Specific Health and Safety Plan, see section 01 35 44 of Specifications.

- 17. QUESTION:** Will there be OSHA, confined space ventilation provided?

RESPONSE: Contractor is responsible for Project-Specific Health and Safety Plan, see section 01 35 44 of Specifications.

- 18. QUESTION:** Will confined space standby personnel be required?
RESPONSE: Contractor is responsible for Project-Specific Health and Safety Plan, see section 01 35 44 of Specifications.
- 19. QUESTION:** Will our work force be required to wear respirators?
RESPONSE: Contractor is responsible for Project-Specific Health and Safety Plan, see section 01 35 44 of Specifications.
- 20. QUESTION:** Will our work force be required to wear supplied air respirator system suits?
RESPONSE: Contractor is responsible for Project-Specific Health and Safety Plan, see section 01 35 44 of Specifications.
- 21. QUESTION:** Are electric scissor lifts allowed in the reservoir?
RESPONSE: Equipment loading will need to be checked. This will be handled through contractor submissions of RFIs and shop drawings.
- 22. QUESTION:** Will there be adequate OSHA lighting and power installed for construction?
RESPONSE: Contractor is responsible for Project-Specific Health and Safety Plan see section 01 35 44 of Specifications. The contractor is responsible for providing power to carry out their operations.
- 23. QUESTION:** Is there any lighting in the reservoirs?
RESPONSE: All lighting to meet safety requirements for workspace shall be supplied by the contractor.
- 24. QUESTION:** Detail E/S-001 shows CFRP strips at the columns, is the CFRP to be on all 4 sides, or 2 sides as indicated?
RESPONSE: FRP strips are to be added to all 4 sides of the columns.
- 25. QUESTION:** Detail F/S-001 calls for 3 layers of 6" CFRP. Is the 3 layers of CFRP to be continuous or 24" OC vertical strips?
RESPONSE: Triple layer of 6" FRP strips are to be applied to each side of the wall only where wall cracks exist.
- 26. QUESTION:** What is the existing finish on the concrete. Sealer, Curing compound, Concrete Treatment?
RESPONSE: The existing finish is unknown.
- 27. QUESTION:** Will the Underground Filtration Reservoir be Humidity controlled for CFRP Installation
RESPONSE: Humidity shall be controlled by the contractor and shall meet requirements of the various materials installed for the project.

28. QUESTION: Will the Concrete & Ambient Temperature within the Filtration Reservoir be Heated to 60 deg+ for CFRP curing?

RESPONSE: The Contractor is responsible for meeting temperature and humidity requirements of the CFRP installation.

29. QUESTION: Per Detail F on Sheet S-001, 3 layers of 6" wide FRP strips are to be applied to the full height of each side of the existing Baffle Walls. Shall all bidders assume that this is required at every location where the baffle walls and columns intersect?

RESPONSE: Yes.

30. QUESTION: Per Detail F on Sheet S-001, "(3) EA SINGLE LAYER 6" OF CSS..." is required to be applied to the (E) arch on each side of the (E) Baffle Wall, but the design only shows two strips detailed. Is the callout intended to say "(2) EA SINGLE LAYER 6" OF..."? Or are each of the two strips shown on the detail meant to represent (3) 6" wide strips of FRP?

RESPONSE: There should be (2) 3-layer strips.

31. QUESTION: Per Note 3. in Detail H on Sheet S-001, the FRP design shall consist of an "X-PATTERN (3) EA SINGLE LAYER OF 6"x26" @ 24" OC..." However, Detail H shows an X-pattern consisting of only (2) strips. Is Note 3. meant to read as "X-PATTERN, (2) STRIPS, EA SINGLE LAYER OF 6"x26" @ 24" OC..."? Or is each leg of the X pattern meant to consist of (3) 6" wide strips of FRP?

RESPONSE: There should be (2) 3-layer strips in an x-pattern.

32. QUESTION: On Detail E on Sheet S-001, the FRP strips are noted as "(3) EA SINGLE LAYER OF 6" @ 8" OC." Is the intent for strips 1-6 to each be composed of (3) 6" wide strips of FRP spaced at 8" OC? Or is the intent for strips 1-6 to each be composed of (1) 6" wide strip of FRP and the spacing between strips to be 8" OC?

RESPONSE: (3) 6" wide strips of FRP installed side by side for a total width of 18" spaced at 8" OC.

33. QUESTION: Specification section 03 01 30.72, Part 2, Section 2.1.b lists Sikawrap Hex 103C as an approved product. Drawing S-001, General Concrete Repair Note 7 says FRP shall have an average cured tensile modulus of 14,000 ksi. The tensile modulus reported on the data sheet for Sikawrap Hex 103C is substantially lower than 14,000 ksi. Will larger FRP strip widths or additional layers of Sikawrap Hex 103C be required to compensate for this based on an Ex A tensile equivalency calculation, where E = tensile modulus and A = cross-sectional area of FRP laminate?

RESPONSE: When using an "approved equal" product, the layering and layout used must match the capacity of the specified product and will need to be approved by the design engineer.

34. QUESTION: in reference to Detail H/S-001 "TYP X-PATTERN FRP REPAIR", For water containing structure it is typical to use full coverage FRP for crack repair in order to provide a watertight barrier. Please consider a detail providing full coverage FRP over the cracks with a system that can provide a watertight barrier up to 25 psi as confirmed by system testing.

RESPONSE: Yes, detail H/S-001 can be revised to use a full coverage FRP for crack repair if an NSF approved cement waterstop is not sufficient in achieving watertightness or if the installer feels it is best practice to do so (with design engineer approval).

- 35. QUESTION:** Drawing S-004 (sheet 6 of 13) shows the reflected ceiling strengthening plan. Do the CFRP strips overlap at the corners of the barrel perimeter wall or do you install a butt-joint where they would intersect?
RESPONSE: Install a buttjoint where they would intersect.
- 36. QUESTION:** Drawing S-001 (sheet 3 of 13) detail E indicates strips of CFRP at the concrete column. Please provide length of strip 1 and 2 including how far CFRP strips fold around corner and extend above.
RESPONSE: The strip fold is 26" with a total strip length of 53" +/-.
- 37. QUESTION:** Per Detail C on Sheet S-001, "(3) EA SINGLE LAYER 6" OF CSS..." is required to be applied to the existing vaulted slab at each column face. Is this callout meant to indicate that at each vaulted slab/column face, three 6" wide strips of the FRP system is to be applied for a total accumulated width of 18"? Or is it meant to indicate that one 6" wide strip of the FRP system is to be applied to the vaulted slab at each column face?
RESPONSE: (3) single-layer 6" wide strips are to be applied side by side resulting in an 18" total width of FRP on each side of the column.
- 38. QUESTION:** On Detail C on Sheet S-001, there is a note that states "see repair detail E for cracked top of column repairs. Note: Double strips at baffle walls." Strips 5 & 6 on Detail E cannot be fully wrapped around the column cross section where obstruction by intersecting baffle wall occurs. Shall strips 5 & 6 be "double" layers & be terminated at the re-entrant corner between the baffle wall & column face?
RESPONSE: Yes.
- 39. QUESTION:** Please refer to the Floor Level New Work Plan on M-102. The PVC 6" wash water piping exits the reservoir and travels underground to the water feed hydrant. The drawings stop and do not show to what extent the piping is to be demolished and replaced. Please advise and/or provide a site yard piping plan showing the location and routing of the hydrant feed piping.
RESPONSE: Refer to demolition notes on sheet M-001 and profile views shown on drawing M-301. All new piping is within the confines of the reservoir.