KNOXVILLE UTILITIES BOARD

Addendum No. 2

Project: **Fourth Creek WWTP Electrical Upgrades – Phase II**

Control No: **311**

Issued: **To all listed Plan holders**

Date: **October 12, 2016**

This addendum forms a part of the Contract described above. The original Contract Documents and any prior addenda remain in full force and effect except as modified by the following which shall take precedence over any contrary provisions in prior documents.

See attached sheet for specifics of this addendum.

Each Bidder shall acknowledge receipt of this addendum by affixing his signature below, by noting this addendum on his Bid Form, and by attaching this addendum to his Bid. **Failure to acknowledge this addendum could be cause for bid rejection.**

ACKNOWLEDGMENT

The undersigned acknowledges receipt of this addendum and the Bid submitted is in accordance with information, instructions and stipulations set forth here in.

BIDDER _____

AUTHORIZED SIGNATURE_____

DATE _____

ADDENDUM 2 – Fourth Creek WWTP Electrical Upgrades – Phase II

Control No: 311

Clarifications to Questions

Question 1: Sheet E-21 Bar Screen Room "See Note 5"; Note 5 is not shown on this plan.
Answer 1: Sheeet E-21 should call out Note 4, not Note 5.

Question 2: Sheet E-30 purposed route for conduit/conduits from the primary gates 1-8 to the RIO-Main located in the Main Bldg., will this be a ductbank?
Answer 2: These are not intended to be concrete encased.

Question 3: Please provide/confirm the invert elevation of the existing 42-inch line adjacent to the proposed building.
Answer 3: According to record drawings, the invert of the 42-inch sewer line at the manhole that is located just off the SE corner of the Phase II building is 803.53.

Question 4: On Sheet S-3, section 2/S-2, a note states "LIMITS OF OVEREXCAVATION (BEYOND)"; we interpret this note and section to direct us to over excavate to the bottom of the adjacent building footer and leave the existing foundation material (under the footer elevation) intact from the footer to 2 feet laterally from the footer. We don't see a need for shoring between the two structures. Please confirm.
Answer 4: The interpretation is correct. However, it should be noted that the adjacent building footing foundation material shall be left in place a minimum of 2 feet beyond the bottom exterior edge of the foundation then down and away at a 1 Horizontal to 1 Vertical (1H:1V) slope to native subgrade materials per Section 1 Note 1 on Drawing S-3.

Clarifications to Specifications

1. Replace specification Section 09671, "Resinous Flooring", in its entirety.

END OF ADDENDUM 10/16

SECTION 09671
RESINOUS FLOORING

PART 1 GENERAL

1.01 SCOPE OF WORK

A. Furnish all labor, materials, equipment and incidentals required and install resinous flooring complete as shown on the Drawings and as specified herein.

B. Sections include resinous flooring systems with epoxy body coat.

1.02 RELATED WORK

A. Sealants installed at joints in resinous flooring systems are included in Section 07920.

1.03 SUBMITTALS

A. Submit, in accordance with Section 01300, detailed information on materials proposed and installation methods.

B. Product Data: For each type of product indicated. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.

C. Samples for Initial Selection: For each type of exposed finish required.

D. Samples for Verification: For each resinous flooring system required, 6 inches square, applied to a rigid backing by Installer for this Project.

E. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.

F. Material Test Reports: For each resinous flooring component.

G. Material Certificates: For each resinous flooring component, signed by manufacturer.

H. Maintenance Data: For resinous flooring to include in maintenance manuals.

1.04 REFERENCES

A. American Concrete Institute (ACI):

1. ACI 503R - Use of Epoxy Compounds with Concrete

B. ASTM International (ASTM)

1. ASTM C267 - Standard Test Methods for Chemical Resistance of Mortars, Grouts, and Monolithic Surfacings and Polymer Concretes

2. ASTM C307 - Standard Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacings

3. ASTM C413 - Standard Test Method for Absorption of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes

4. ASTM C531 - Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes

5. ASTM C811 - Standard Practice for Surface Preparation of Concrete for Application of Chemical-Resistant Resin Monolithic Surfacings

6. ASTM D543 - Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents

7. ASTM C579 - Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes

8. ASTM C580 - Standard Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes

9. ASTM D635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position

10. ASTM D1308 - Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes

11. ASTM D2240 - Standard Test Method for Rubber Property-Durometer Hardness

12. ASTM D4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser

13. ASTM D4263 - Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method

14. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

C. Department of Agriculture (USDA)

D. Military Standard (MIL)

1. MIL-D-3134 - Deck Covering Materials

E. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Engage an installer (applicator) who is experienced in applying resinous flooring systems similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance, and who is acceptable to resinous flooring manufacturer.

1. Engage an installer who employs only persons trained and approved by resinous flooring manufacturer for applying resinous flooring systems indicated.

2. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.

B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, through one source from a single manufacturer. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.

B. Store materials to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects.

1.07 PROJECT CONDITIONS

A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.

B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.

C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application, unless manufacturer recommends a longer period.

PART 2 PRODUCTS

2.01 RESINOUS FLOORING

A. One component 100% solids, high performance, epoxy hybrid lining system.

1. Basis-of Design Product: “Stonechem 502” by Stonhard, Inc.

2. System Characteristics:
   a. Color: As selected from manufacturers’ full range of colors.
   b. Wearing Surface: Smooth or textured, for slip resistance per Owner selection from manufacturer’s full range.
   c. Integral Cove Base: 4 inches high with 1 inch radius.
   d. Overall System Thickness: 40mils

B. System Components: Manufacturer's standard components which are compatible with each other and as follows with a total system minimum thickness: 40mils

1. Primer: Type recommended by manufacturer for substrate and body coat(s) indicated.

a. Basis of Design Product: “HT Primer” by Stonhard, Inc.

2. Mortar Coat:
   a. Basis of Design Product: “Stonechem 500 Series Mortarcoat” by Stonhard, Inc.
   b. Resin: 100% solids Epoxy
   c. Application Method: Squeegee/ Backroll with medium nap roller
   d. Minimum installed thickness: 30mils

3. Top Coat
   a. Basis of Design Product: “Stonechem 500 Series Topcoat” by Stonhard, IncResin: 100% solids Epoxy
   b. Application Method: Squeegee/ Backroll with medium nap roller
   c. Type: Pigmented to match surfacer
   d. Finish: Matt

2.02 ACCESSORY MATERIALS

A. Patching and Fill Material: Resinous product of resinous flooring manufacturer.

B. Joint Sealant: Type produced by resinous flooring manufacturer for type of service and joint condition indicated.

PART 3 EXECUTION

3.01 PREPARATION

A. General: Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry, and neutral Ph substrate for resinous flooring application.

B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.

1. Roughen concrete substrates as follows:
   a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
   b. Comply with ASTM C 811 requirements, unless manufacturer's written instructions are more stringent.

2. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written recommendations.

3. Verify that concrete substrates are dry. See “Testing of Floor Slabs” below.

C. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.

D. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.

E. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written recommendations.

3.02 APPLICATION

A. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.

1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.

2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.

3. At substrate expansion and isolation joints, provide joint in resinous flooring to comply with resinous flooring manufacturer's written recommendations.
   a. Apply joint sealant to comply with manufacturer's written recommendations.

B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.

C. Apply waterproofing membrane, where indicated, in manufacturer's recommended thickness.

1. Apply waterproofing membrane to integral cove base substrates.

D. Apply body coat(s) in thickness indicated for flooring system.

E. Apply grout coat, of type recommended by resinous flooring manufacturer to fill voids in surface of final body coat and to produce wearing surface indicated.

F. Apply top coat(s) in number of coats indicated for flooring system and at spreading rates recommended in writing by manufacturer.

G. Apply slip resistant texture approved by Owner.

3.03 FIELD QUALITY CONTROL

A. Testing and Monitoring Equipment Calibrations: Owner’s Testing Agency shall test and demonstrate to the Engineer/Architect, Installer and Owner’s Representative that calibrations on all testing and monitoring equipment are providing accurate readings.

B. Manufacturer’s Field Service

1. Manufacturer's Technical Service Representative: Manufacturer will send qualified technical representative to the Project site for the following purposes:
   a. Coordinate schedule, environmental requirements, and pre-installation work with other trades.
   b. Advise Installer’s personnel of procedures and precautions for use of flooring materials.
   c. Attend moisture testing and all other testing procedures with the Engineer/Architect, the Owner’s Representative and the Installer in attendance.

d. Observe field mock-ups with the Engineer/Architect, the Owner's Representative and the Installer in attendance.
e. Make periodic site visits and include record of observations by manufacturer's technical representative in the applicators project documentation log.
f. Ascertain that each component of flooring system is being installed in accordance with manufacturer's instructions.
g. Maintain a log of environmental conditions, work procedures, testing procedures, and protection measures to be included in job site file submittal.

C. Testing of Floor Slabs

1. Before installation of flooring, it is MANDATORY that Owner's Testing Agency test floor slabs for containment of moisture and moisture vapor emission, pH, and alkalinity levels that would be detrimental to adhesion of resinous flooring materials. ALL TESTS NOTED BELOW MUST BE COMPLETED.

2. Owner's Testing Agency to complete the following moisture tests as described below and as documented in ASTM E 1907.
   a. Testing of floor slabs for containment of moisture and moisture vapor emission shall be by calcium chloride test method in accordance with ASTM F 1869.
      1) For slabs on grade one test kit shall be placed for every 1000.sq. ft. of concrete slab area
      2) Maximum transmission emission level for slabs on grade shall be 3 lbs of water per every 1000 sq ft. of floor slab area in 24 hour period.
      3) Maximum transmission emission level for elevated slabs shall be 3 lbs. of water per 5000 sq. ft. of floor slab area in 24 hour period.
      4) Protect against rewetting of concrete after testing.
      5) Coordinate environmental controls in advance and continuing for duration of flooring installation.
   b. Owner's Testing Agency to perform plastic sheet tests per ASTM D 4263.
   c. Owner's Testing Agency to perform relative humidity tests using probes per ASTM F 2170.

3. Owner's Testing Agency to perform pH tests per ASTM F 710.

4. Owner's Testing Agency to also perform additional moisture tests recommended by manufacturer with Owner's approval.

5. Verify that concrete substrates have neutral Ph and that resinous flooring will adhere to them. IT IS MANDATORY THAT Installer proceed with application only after substrates SUCCESSFULLY pass testing listed above.

D. Testing Agency Activities During Resinous Flooring Application

1. Core Sampling: At the direction of Owner's Representative and at locations designated by Owner's Representative, Owner's Testing Agency shall take 1 core sample per 100 sq. ft. resinous flooring, or portion of, to verify thickness. For each sample that fails to comply with requirements, take two additional samples. Installer to repair damage caused by coring and correct deficiencies.

2. Material Sampling: Owner's Representative may at any time and any number of times during resinous flooring application require the Owner's Testing Agency to collect material samples for testing for compliance with requirements.
   a. Material samples will be taken, identified, sealed, and certified in presence of Installer.
   b. Testing agency will test samples for compliance with requirements, using applicable referenced testing procedures in addition to testing procedures listed in manufacturer's product data.

3. Adhesion Test: Conduct "pull-off" tests on installed flooring in accordance with ASTM D 4501. Certify to the Engineer/Architect that results conform to the manufacturer's published maximum for adhesive strength before failure.

4. If test results show applied materials do not comply with specified requirements, Installer to pay for testing, remove non-complying materials, prepare surfaces coated with unacceptable materials, and reapply flooring materials in compliance with requirements.

3.04 CLEANING AND PROTECTING

A. Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent their contamination during stages of application and prior to completion of curing process.

B. Remove excess resinous flooring material from surfaces it was not intended for and refinish those surfaces to original appearance as determined by the Engineer/Architect.

C. Protect resinous flooring from damage and wear during construction operation. Where temporary covering is required for this purpose comply with manufacturer's recommendations for protective materials and method of their application. Remove temporary covering just prior to cleaning for final inspection.

D. Clean resinous flooring just prior to final inspection. Use materials and procedures recommended by resinous flooring manufacturer.

END OF SECTION