THRASHER

ARCHITECTURE
ENGINEERING
FIELD SERVICES

COWEN PUBLIC SERVICE DISTRICT
WEBSTER COUNTY, WEST VIRGINIA

CONTRACT #2 – PHASE II: WATER TANK REHABILITATION

ADDENDUM #3

JANUARY 26, 2021

THRASHER PROJECT # 010-0856

TO WHOM IT MAY CONCERN:

The following are clarifications and responses to questions posed by contractors for the above reference project.

A. GENERAL

1. Bid Opening for Contract #2 has been rescheduled to **2:00 p.m. on Tuesday, FEBRUARY 2, 2021.**
2. Bids will be received by the Cowen Public Service District, located at 7017 Webster Road, Cowen, West Virginia 26206. Bids shall be mailed, or hand delivered by **2:00 p.m. on Tuesday, February 2, 2021.** Social distancing guidelines will be followed. Conference call information is as follows: Call in number 1-646-558-8656; Meeting ID: 854-8803-2955; Passcode: 773709; and at the following address:

   https://us02web.zoom.us/j/85488032955?pwd=SXBDZ0VicC8xV2J1dElqRytqOExCZz09

B. SPECIFICATIONS

1. **REPLACE** Section 264200 – Cathodic Protection included with this Addendum #3.
2. Section 011000 – Summary: Part 1 General, Section 1.3 Work Covered by Contract Documents, A.1: **CHANGE: a. 200,000-gallon Cowen Welded Steel, Water Storage Tank, b. 105,000-gallon Nursing Home Welded Steel, Water Storage Tank.**

C. DRAWINGS

1. N/A

D. QUESTIONS AND RESPONSES

1. **QUESTION**

   Is there an Engineer's Estimate available for this contract?

   RESPONSE

   The Engineer's estimated cost of construction is $300,000.

2. **QUESTION**

   Is there lead paint or containment involved?

   RESPONSE

   Yes. The Contractor shall be responsible for testing the interior and exterior coatings to see if lead paint is present. Bid Items have been included for lead paint abatement. Should no lead paint be present at each respective water storage tank, Bid Items 8a and/or 8b will be deducted from the Contract.

3. **QUESTION**

   Where are the two tanks located?

   RESPONSE

   The tanks are located at the following coordinates:
   Cowen Tank: 38.410376° N / -80.545803° E
   Nursing Home Tank: 38.421141° N / -80.563829° E

4. **QUESTION**

   Who will be responsible for providing inspection?

   RESPONSE

   The Thrasher Group, Inc. will be providing a Resident Project Representative.

5. **QUESTION**

   Are there any antennas on the tank?

   RESPONSE

   No.

6. **QUESTION**

What is required from Article 6 – Bonds and Insurance, Part 6.05 Property Insurance of Specification Section C-700, Standard General Conditions?

RESPONSE

Builders Risk Insurance is not required.

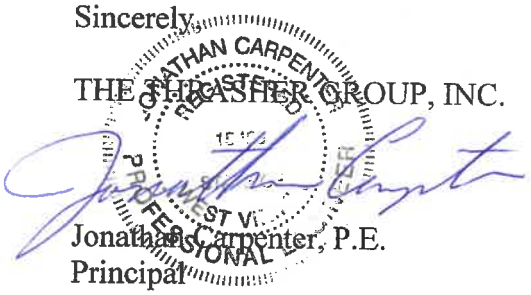
E. CLARIFICATIONS

N/A

If you have any questions or comments, please feel free to contact me at your earliest convenience. Good luck to everyone and thank you for your interest in the project.

Sincerely,

THE THRASHER GROUP, INC.



Jonathan Carpenter, P.E.
Principal

SECTION 264200 - CATHODIC PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cathodic protection systems that use anodes to protect the water storage tanks.

1.2 ACTION SUBMITTALS

A. The cathodic protection constructor shall submit the following information to the Engineer for approval.

1. Drawings showing system design/configuration.
2. Description of system components.
3. Copy of ANSI/NSF 61 classification for all system components located within the tank.
4. Design calculations for required voltage, amperage & life expectancy.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

B. Warranty: Sample of special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace permanent reference electrodes that fails in materials or workmanship within specified warranty period.

1. Warranty Period: one (1) years from date of Substantial Completion.

1.6 SCOPE

A. The cathodic protection contractor shall provide materials, equipment, labor, for the installation of an automatically controlled impressed current cathodic protection system to provide corrosion control for the interior submerged surface of the specified tank. All work furnished shall be in accordance with A.W.W.A. Standard D104, ANSI/NSF 61 and features included in this specification.

1.7 QUALIFICATIONS

A. The cathodic protection constructor shall have a minimum of five (5) years experience installing and servicing the types of systems described in this specification. The system shall be installed by personnel specifically trained by the constructor to provide all workmanship required for corrosion control performance. All personnel shall be subject to Federal Substance Abuse and Testing Regulations.

PART 2 - PRODUCTS

2.1 RECTIFIER

A. The rectifier unit shall perform in accordance with ANSI/AWWA Standard D104 and shall include:

1. Transformer
2. Silicon rectifying elements
3. Circuit breakers
4. Lightning, surge, and overload protection
5. Provision for air-cooling operation
6. Digital voltmeters, ammeters, and potential meters
7. Weatherproof cabinet in accordance with NEMA 4 requirements
8. Provision to vary current output from 0% to 100% of rated capacity
9. Provisions for mounting, grounding, and locking
10. D.C. output capacity in volts and amperes in accordance with Design
11. Automatic controller shall adjust current output to compensate for changes in water level, temperature of water, water chemistry, and cathodic polarization, and shall include the following provisions:
    a. Utilize long-life reference electrode(s) installed within the tank
    b. Monitor the tank-to-water potential, free of IR drop
    c. Automatically adjust the tank-to-water potential, free of IR drop, to a preset value
    d. Operate within 25MV of preset value
    e. Limit current to a preset value
    f. Utilize digital potential meter(s) to display tank-to-water potential, free of IR drop

2.2 LONG LIFE REFERENCE ELECTRODES

A. The permanent reference electrode shall consist of a copper-copper sulfate electrode which is manufactured to remain stable (plus or minus 10MV) for minimum of ten (10) years. The reference electrode to lead wire connection shall be encapsulated to prevent water migration. The stationary reference electrode shall be positioned within the tank to provide the most representative measurements for the submerged surface area.

2.3 HORIZONTAL ANODE SUSPENSION SYSTEM

A. The anode suspension system shall be designed to be resistant to ice damage and in accordance with ANSI/AWWA Standard D104, Section 4.2.4.1.1 Type A, Horizontal System. The anode suspension system shall consist of a minimum 5/16" polyester cord. The cord shall be secured to steel anchors welded to the side wall and/or floor of the tank bowl or to the exterior of the dry access column of spheroidal type tanks. Tanks with wet risers which are 30" diameter or larger shall incorporate an anode suspension system with the steel anchors welded to the sidewall of the riser pipe. All cord to cord connections shall be tied and taped.

2.4 ANODE MATERIALS

A. The anode materials shall be selected in accordance with Design (Section B) and shall consist of one of the following:

1. Minimum .062" diameter titanium with a mixed metal oxide coating.
2. Minimum .062" diameter platinized niobium with 25 micro-inches of platinum.

B. All anode to header cable connections shall be sealed to prevent water migration.

2.5 PRESSURE ENTRANCE FITTING

A. For icing tanks the pressure entrance fitting shall accommodate anode and reference electrode lead wires at the base of the tank or at the base of wet risers for elevated tanks, which are 30" diameter or larger. The fitting shall be manufactured to prevent leakage through the fitting and to prevent water migration through the wire insulation. The entrance fitting shall be sized for minimum of 1.0-inch NPT, 3000 per square inch steel coupling.

2.6 WIRING

A. All wiring within the tank shall be insulated to prevent copper conductor to water contact.

B. All wiring on the exterior of the tank shall be insulated and run in rigid conduit.

2.7 HARDWARE

A. All hardware used in conjunction with the system shall be protected against corrosion.

PART 3 - EXECUTION

3.1 ANSI/NSF 61

A. All materials in contact with the water or exposed to the interior of the tank shall be classified in accordance with ANSI/NSF 61 "Drinking Water System Components".

3.2 ENERGIZING THE SYSTEM

A. After the system is installed and the tank is filled, the cathodic protection constructor shall provide start-up service which includes energizing, testing, and adjusting the system for optimum performance of the cathodic protection system. This start-up service shall be in performed in accordance with ANSI/AWWA D104 Section 5.2 Testing. This start-up service shall be coordinated with the Owner or his representative. All tank-to-water potential measurements shall be conducted with a calibrated portable copper-copper sulfate reference electrode and a portable high impedance voltmeter. A minimum of five (5) locations shall be measured. All test data shall be reviewed and evaluated by the Corrosion Specialist. The final test and adjustment of the system shall be conducted approximately twelve (12) months after the start-up service. In addition to the start-up service, "as-built" drawings and an Owners Maintenance Manual shall be submitted to the Owner.

3.3 ADJUSTING

A. During the first year after Substantial Completion, test, inspect, and adjust cathodic protection system every three months to ensure its continued compliance with specified requirements.

3.4 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain cathodic protection system.

END OF SECTION 264200