



City of Elko Clerk's Department
1751 College Avenue
Elko, NV 89801
(775) 777-7126
FAX (775) 777-7129

ADDENDUM NUMBER ONE

DIGESTER No. 2 PROJECT – 2017

Please confirm receipt of ADDENDUM NUMBER ONE AND FAX BACK TO (775) 777-7129 or email to cityclerk@elkocitynv.gov.

RECEIVED:

SIGNATURE

COMPANY NAME

Dated this day of 2017.

Elko City Clerk
Shanell Owen, MMC

***** PLEASE NOTE RECEIPT OF ADDENDUM NUMBER ONE ON
APPLICABLE LINE ON SUBMITTED BID PROPOSAL *****

**City of Elko, Nevada
Elko Water Reclamation Facility
1751 College Avenue
Elko, Nevada 89801**

**Addendum No. 1 to the Bid Documents for the City of Elko
WRF DIGESTER NO. 2 CONCRETE PREPARATION & COATING PROJECT 2017
PWP No. EL-2014-325**

To all prospective Bidders for the **City of Elko WRF DIGESTER NO. 2 CONCRETE PREPARATION AND COATING PROJECT 2017** for which bids will be received until **3:00 PM, local time, on Friday, July 7, 2017**, at the office of the Elko City Clerk; 1751 College Avenue; Elko, Nevada 89801.

- I. Addendum No. 1 includes changes and clarifications to the coating material specifications and included in the project scope of work. The following clarifications, deletions, and additions shall be made to the written Bid Documents and Project Specifications for the Project:
 - A. The Contract Time is hereby **extended from forty-five (45) calendar days to sixty (60) calendar days** measured from commencement of work on the project to the completion of project cleanup. This shall be amended in Subsection 1.05 Contract Time of Section 01010 Summary of Work and in the Notice to Bidders. **Contract Time shall be sixty (60) calendar days.**
 - B. The Bid Proposal Form included in *EXHIBIT 1 – BID FORM* is hereby modified and a new *EXHIBIT 1 – BID FORM* is attached. **Delete the existing EXHIBIT 1 - BID FORM, pages 33 through 38 of the contract bid documents and add the new EXHIBIT 1 – BID FORM enclosed with this addendum document.** The changes include breaking out the Digester No. 2 interior floor square footage and the Digester No. 2 exterior roof coating square footage to be coated as separate bid items.
 - C. **Technical Specifications.** SECTION 09810 – Digester Concrete Surface Coatings has been modified to specify the required concrete preparation work and coating systems for (1) the interior digester concrete walls, roof and piping, (2) the interior digester concrete floor, and (3) the exterior surfaces of the digester roof. Delete the existing SECTION 09810 – Digester Concrete Surface Coatings and add the enclosed **Revised SECTION 09810**. See revised pages 09810-19 and 09810-20 of the enclosed revised coating specification.
 - D. All Bidders are hereby notified that the expected bid amount for is expected to be less than \$250,000.00. However, if the project bid total amount exceed \$250,000.00 in total cost, the Bidder will be required to pay the current Nevada State Prevailing Wage Rates for Elko County, Nevada. Please see web site http://labor.nv.gov/PrevailingWage/2016-2017_Prevailing_Wages/ for Nevada State Prevailing Wages (Elko County).

The Bidder shall acknowledge receipt of Addendum No. 1 on his, or her, bid submittal. A copy of this Addendum shall be submitted with the bidder's bid proposal.

Addendum No. 1 to the Bid Documents for the **CITY OF ELKO**
WRF DIGESTER NO. 2 CONCRETE PREPARATION &
COATING PROJECT 2017

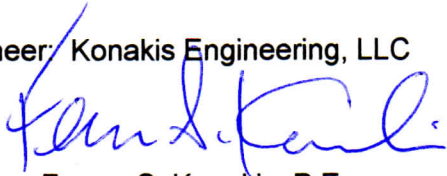
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Owner: City of Elko, Nevada

Mr. Ryan Limberg
Elko Utilities Director

Date: _____

Engineer: Konakis Engineering, LLC



Ferron S. Konakis, P.E.
Consulting Civil Engineer

Date: 4/30/2017

Attachments:

1. Revised **EXHIBIT 1 – BID PROPOSAL FORM**
2. Revised Specification **SECTION 09810 – Digester Concrete Surface Coatings.**



4.0 EXHIBITS

EXHIBIT 1 – REVISED BID FORM

THIS FORM, FULLY COMPLETED, MUST BE USED FOR ALL BIDS

TO THE CITY OF ELKO, NEVADA:

The undersigned bidder hereby offers, in the amount stated in Exhibit 1 – Bid Form, to furnish all labor, materials, tools, equipment, apparatus, facilities, transportation, incidental items and permits (except as otherwise stated in the Contract Documents) for the construction of the Project, described as follows:

THE CITY OF ELKO

WRF DIGESTER NO. 2 CONCRETE PREPARATION & RECOATING PROJECT 2017

The bidder agrees that the work will be performed in accordance with the Contract Documents together with incidental items necessary to complete the work to be constructed in accordance with the Contract, any and all Exhibits to the Contract, Exhibit 16 – Technical Specifications, Exhibit 8 – Project Construction Plans and also in accordance with the "Standard Specifications and Details for Public Works Construction", 2016 Revised Edition, and amendments (Orange Book) as adopted by the City of Elko, Nevada.

Item No. & Work Description	Quantity	Unit	Unit Price	Bid Amount
1. Mobilization and Demobilization of materials, labor and equipment to and from the Job Site @: _____ _____ Per Lump Sum Amount.	1.0	LS	LS	\$ _____
2. Remove the Existing PVC Digester Gas Liner located beneath the Digester Concrete Roof surface and properly dispose of the Liner. The Contractor shall include all materials, labor and equipment required to remove the PVC liner @: _____ _____ Per Square Foot of PVC Liner Removed and Properly Disposed of.	3,110	SF	\$ _____	\$ _____



Item No. & Work Description	Quantity	Unit	Unit Price	Bid Amount
3. Clean the Existing Digester Interior Concrete Surfaces including the concrete floor, walls, and ceiling surfaces in accordance with Society for Protective Coatings Standard SSPC-13 / NACE 6 and Standards ASTM D 4258 & D 4259 including all materials, labor and equipment required to complete this work @: _____ _____ Per Square Foot of Concrete Surface Cleaned & Prepared	8,950	SF	\$ _____	\$ _____
4. Clean and Prepare the Existing Digester Exterior Rooftop Dome Concrete Surfaces for Coating, in accordance with the Society for Protective Coatings Standard SSPC-SP13, and Standards ASTM D 4258 & D 4259 including all materials, labor, and equipment required to complete the work @: _____ _____ Per Square Foot of Concrete Surface.	2,330	SF	\$ _____	\$ _____
5. Remove the Existing Joint Filler Material in the Construction Joints in the Floor, Walls and Ceiling; Clean the Concrete Joints, as specified, and fill with a Non-Sag, Non-Shrink Joint Sealing Material as specified in the Project Specifications @: _____ _____ Per Lineal Foot of Construction Joint.	390	LF	\$ _____	\$ _____
6. Clean the Deep Concrete Cracks, Route Out Cracks (or Chip Out Cracks), Clean, and fill with epoxy grout and crack sealant, as specified in the Project Specifications @: _____ _____ Per Linear Foot of Crack Length.	250	LF	\$ _____	_____



Item No. & Work Description	Quantity	Unit	Unit Price	Bid Amount
7. Provide and Apply Series 434 Permashield H2S Coating System Prime Coats and Finish Coats to Digester Walls and Ceiling at the Specified mil Thicknesses including all Materials, Labor & Equipment Required to Apply Prime Coats @: _____ _____ Per Square Foot of Surface Area.	6,900	SF	\$ _____	\$ _____
8. Provide and Apply Perma-Glaze Series 435 Epoxy Coating System to the Digester Concrete floor including Prime Coats and Top Coat, as specified in Revised SECTION 09810 @: _____ _____ Per Square Foot of Floor Surface Area.	2,050	SF	\$ _____	\$ _____
9. Clean and Prepare the Digester Exposed Ductile Iron Pipe Surfaces (8-inch, 10-inch and 12-inch Ø Pipe) in accordance with Standard SSPC-SP10 / NACE 2 – Near-White Blast Cleaning, including all Materials, Labor, and Equipment to complete the work @: _____ _____ Per Lump Sum Amount.	370	SF	\$ _____	\$ _____
10. Provide and Apply Specified Permashield H2S Coating System on the Digester Interior Ductile Iron Pipe Surfaces (8-inch, 10-inch and 12-inch Ø Pipes) including all related materials, labor and equipment, as specified in Section 09810 @: _____ _____ Per Square Foot of Surface Area.	370	SF	\$ _____	\$ _____



11. Provide and Apply the "Enviro-Crete Series 156 & 157 Coating Sysetm to the Digester Exterior Roof Concrete Surfaces as Specified in Revised Section 09810 at the Specified mil Thicknesses shown including all Materials, Labor & Equipment Required to Apply Prime Coats @: _____ _____ _____ Per Square Foot of Roof Surface Area.	2,330	SF	\$ _____	\$ _____
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TOTAL BASE BID AMOUNT (BID ITEMS NO. 1 – NO. 11) IN NUMBERS =

\$ _____

TOTAL BASE BID AMOUNT (BID ITEMS NO. 1 – NO. 11) IN WRITTEN FORM =

BASE BID INSTRUCTIONS: The Base Bid amount is to be stated in legible figures only and is the total amount bid for the entire contract work, including all applicable taxes. Any alteration, erasure or change must be clearly indicated and initialed by the bidder. The bidder agrees that the following, without limitation, may, in the City's discretion, constitute grounds for rejecting this bid as non-responsive: (1) one or more blanks are not filled in; (2) the bid form is not signed by an authorized representative of the bidder; (3) any words or figures are not legible; (4) there are discrepancies in the figures (to include arithmetical errors); (5) the bid is not submitted with a compliant bid bond; (6) the bidder supplies false information on this bid form; or (7) the bidder fails to provide information required by this bid form or Nevada law.

COMMUNICATIONS WITH CITY: All communications with the City regarding this Project until the time a contract is executed by the City shall be directed to the Office of the Elko City Clerk. In the event the City determines that a bidder has attempted to communicate with any City official or employee in violation of the preceding sentence, the City may, in its discretion, reject that bid (even after a Notice of Award has been issued) on the ground that rejection of the bid serves the public interest.

CERTIFICATION OF FAMILIARITY WITH PROJECT AND CONTRACT

REQUIREMENTS: The bidder certifies that it has inspected the location where the Project will be performed, has read and is thoroughly familiar with the Project and the Contract



documents, and has received and thoroughly reviewed the following Addenda and/or other documents from the City in relation to this Project: _____

**BIDDER ACKNOWLEDGES RECEIPT OF THE ADDENDA
AND OTHER DOCUMENTS REFERENCED ABOVE!**

BID BOND: As a condition of the privilege to bid on this Project, the bidder shall submit with its bid a bid bond, executed by a surety company authorized to do business in the State of Nevada, in an amount equal to TEN PERCENT (10%) of the amount of the Base Bid plus all additive alternates. Should the bidder be awarded the contract and thereafter fail to enter into a written contract for the Project upon request by the City, the bidder shall thereupon forfeit and the City shall retain the full amount of the bid bond, which shall be a penalty and not damages.

CONTRACTOR’S LICENSE: The bidder certifies that it holds a valid Nevada State Contractor’s license, as follows:

LICENSE CLASSIFICATION: _____

LICENSE NUMBER: _____

CITY OF ELKO BUSINESS LICENSE: The bidder certifies that it holds a valid City of Elko Business License, as follows, or will obtain one prior to the time of Contract execution:

LICENSE TYPE: _____

LICENSE NUMBER: _____

RESOLUTION: If the bidder is a limited liability company or corporation, the bidder must include with its bid an appropriate resolution authorizing the signatory to this document to sign and submit this bid, and execute a contract for performance of the Project on behalf of the Limited Liability Company or Corporation.

EFFECT OF AWARD: An award constitutes conditional acceptance of a bid, subject to the City of Elko executing and delivering to the winning bidder a fully executed copy of



the Public Works Contract. Prior to the delivery of a fully executed copy of the Public Works Contract, the Elko City Council may, in its discretion, decide to reject all bids and perform the work itself, rebid the Project or not proceed with the Project.

WINNING BIDDER: The winning bidder will be determined accordance with Chapter 338 of the Nevada Revised Statutes. The City reserves the right, in its sole discretion, to waive minor technical defects or irregularities in bids provided the waiver does not give a competitive advantage to one bidder over another.

PROTEST RIGHTS: Under Nevada law, a person who bids on a public works contract may file a notice of protest regarding the awarding of the contract with the authorized representative designated by the public body within five (5) business days after the date the recommendation to award a contract is issued by the public body or its authorized representative. Bidders are advised to consult Nevada Revised Statutes 338.142 for requirements applicable to protests of awards of public works contracts.

BIDDER INFORMATION AND SIGNATURE:

DATED this ____ day of _____, 20_____.

NAME OF BIDDER: _____

TYPE OF ENTITY (e.g., partnership, corporation):_____

COMPLETE ADDRESS AS SHOWN ON THE OFFICIAL WEBSITE OF THE NEVADA STATE CONTRACTOR’S BOARD (THIS ADDRESS WILL BE USED FOR ALL WRITTEN CORRESPONDENCE WITH THE BIDDER UNLESS OTHERWISE AUTHORIZED BY THE CITY):

AUTHORIZED SIGNATURE: _____

PRINT OR TYPE NAME: _____

OFFICIAL TITLE OR CAPACITY: _____

*****End of Exhibit 1 – Bid Proposal Form Document *****

SECTION 09810
DIGESTER CONCRETE SURFACE COATINGS – REVISED ADDENDUM NO. 1

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Summary
- B. References
- C. System Description
- D. Submittals
- E. Quality Assurance
- F. Product Delivery Storage & Handling
- G. Job Conditions
- H. Warranty
- I. Manufacturers
- J. Chemical Emissions
- K. Concrete Repair and Coating Materials
- L. Digester Site Examination
- M. Concrete Surface Preparation
- N. Protective Coating System Application
- O. Field Quality Control, Inspection and Testing
- P. Manufacturer's Field Services
- Q. Acceptance Criteria
- R. Adjustments and Cleaning
- S. Coating Schedule
- T. Basis of Payment

1.2 SUMMARY

- A. This Section includes the surface preparation and application requirements by a qualified applicator for a high-build epoxy lining system for concrete to the interior surfaces of the structures as shown on drawings and specified herein. Including:

1. The Digester Tank Interior Concrete Floor
2. The Digester Interior Concrete Walls, Ceiling and Center Sump
3. The Exposed Ductile Iron Pipe Exterior Surfaces (pipe inside the digester)
4. The Exterior Digester Dome Roof Surfaces

B. Coordination:

1. Coordinate surface preparation of substrates to avoid later difficulty or delay in performing the Work of this Section.
2. Review installation procedures under other Sections and coordinate the installation of items that must be installed prior to application of the protective lining.
3. Substrate surface preparation and lining application, including concrete resurfacing, to be completed by manufacturer's approved Applicator.
4. The Applicator shall coordinate with Engineer regarding the availability of work areas, completion times, safety, access and other factors which can impact plant operations.

C. Related Sections:

1. Section 01010 – Summary of Work
2. Section 01025 – Measurement and Payment
3. Section 01040 – Project Coordination
4. Section 01045 – Mobilization
5. Section 01090 - References
6. Section 01300 - Submittals
7. Section 01400 – Quality Control
8. Section 01500 – Construction Facilities and Temporary Controls
9. Section 03710 – Concrete Surface Preparation

1.3 REFERENCES

A. Section contains references to the governing standards and documents listed below. They are a part of this Section as specified and modified; the current version shall apply unless otherwise noted. In case of conflict between the requirements of this section and those of the listed documents, the more stringent of the requirements shall prevail.

B. American Concrete Institute (ACI):

1. ACI 224 – Causes, Evaluation, and Repair of Cracks in Concrete Structures.
2. ACI 301 – Specifications for Structural Concrete.
3. ACI 308 – Guide to Curing Concrete.

C. ASTM International (ASTM):

1. ASTM C307 – Standard Test method for Tensile Strength of Chemical Resistant Mortars, Grouts, and Monolithic Surfacing.

2. ASTM C413 – Standard Test Method for Absorption of Chemical Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
3. ASTM C496 – Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens.
4. ASTM C531 – Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
5. ASTM C579 – Standard Test Methods for Compressive Strength of Chemical Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
6. ASTM C580 – Standard Test Method for Flexural Strength and Modulus of Elasticity of Chemical Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
7. ASTM C596 – Standard Test Method for Drying Shrinkage of Mortar Containing Hydraulic Cement.
8. ASTM C868 – Standard Test Method for Chemical Resistance of Protective Linings.
9. ASTM C1583/1583M – Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method).
10. ASTM D638 – Standard Test Method for Tensile Properties of Plastics
11. ASTM D695 – Standard Test Method for Compressive Properties of Rigid Plastics.
12. ASTM D790 – Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
13. ASTM D1653 – Standard Test Methods for Water Vapor Transmission of Organic Coating Films.
14. ASTM D2370 – Standard Test Method for Tensile Properties of Organic Coatings.
15. ASTM D2794 – Standard Test Method for Resistance of Organic Linings to the Effects of Rapid Deformation (Impact).
16. ASTM D4263 – Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
17. ASTM D4414 – Standard Practice for Measurement of Wet Film Thickness by Notch Gages.
18. ASTM D4417 – Standard Test Method for Field Measurement of Surface Profile of Blast Cleaned Steel.
19. ASTM D7234 – Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers.
20. ASTM D7682 – Standard Test Method for Replication and Measurement of Concrete Surface Profiles Using Replica Putty.
21. ASTM E96 – Standard Test Methods for Water Vapor Transmission of Materials.
22. ASTM F1869 – Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
23. ASTM F2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

24. ASTM G210 – Standard Practice for Operating the Severe Wastewater Analysis Testing Apparatus (S.W.A.T.).

D. International Concrete Repair Institute (ICRI):

1. Guideline No. 310.1 – Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion.
2. Guideline No. 310.2 – Selecting and Specifying Concrete Surface Preparation for Sealer, Linings, and Polymer Overlays.

E. NACE International (NACE):

1. NACE RP0287 – Field Measurement of Surface Profile of Abrasive Blast-Cleaned Steel Surfaces Using a Replica Tape.
2. NACE SP0188 – Standard Practice for Discontinuity (Holiday) Testing of Protective Linings.
3. NACE SP0892 – Standard Practice for Coatings and Linings over Concrete for Chemical Immersion and Containment Service.
4. NACE No. 1/SSPC-SP 5 – White Metal Blast Cleaning.
5. NACE No. 6/SSPC-SP13 – Surface Preparation of Concrete.

F. National Association of Pipe Fabricators (NAPF)

1. NAPF 500-03 – Surface Preparation Standard for Ductile Iron Pipe and Fittings in Exposed Locations Receiving Special External Coatings and/or Special Internal Linings.

G. SSPC: The Society for Protective Coatings, (SSPC)

1. SSPC-SP 1 - Solvent Cleaning.
2. SSPC-SP 5/NACE No. 1 White Metal Blast Cleaning.
3. SSPC-SP 13/NACE No. 6 Surface Preparation of Concrete.
4. SSPC-SP16 Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals.
5. SSPC-VIS 1 - Guide to Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning.

H. Unless otherwise specified, references to documents shall mean the documents in effect at the time of receipt of Bids. If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents, the last version of the document before it was discontinued.

1.4 SYSTEM DESCRIPTION

A. The Protective Coating/Lining System shall be comprised of the following materials:

1. Cementitious Repair Mortar: Rapid-setting, cementitious repair mortar when concrete is deteriorated greater than a depth of 1/4-inch and when recommended by the Manufacturer to rehabilitate and restore concrete and provide level substrate for application of the protective lining; this product requires re-blasting prior to applying basecoat; or
 2. Epoxy Cementitious Resurfacer: Epoxy-polymer modified cementitious resurfacer (thin overlay) applied to entire new or existing concrete surface to a depth up to 1/2-inch. Repair new or existing concrete to fill all bugholes, surface imperfections and provide a uniform, level substrate for application of the protective lining.
 3. Aggregate Reinforced Epoxy Mortar Basecoat: Trowel applied basecoat shall provide a chemical, permeation, and abrasion resistant protective lining against physical and chemical attack associated with severe wastewater headspace conditions.
 4. Epoxy Topcoat and Metal Coating: to provide enhanced chemical, permeation, and abrasion resistance.
- B. The surfaces to receive the protective lining shall be capable of withstanding under constant exposure to raw wastewater, permeation from hydrogen sulfide and other sewer gases, and attack from organic acids generated by microbial sources with no adverse effects. Products must have sufficient field history and accelerated laboratory testing to substantiate product viability for these exposures.

1.5 SUBMITTALS

- A. Product Data Sheets: Copies of current technical data for each component specified and applied as outlined in this Section.
- B. Safety Data Sheets: Copies of current Safety Data Sheets (SDS) for any materials brought on-site, including all clean-up solvents, repair or resurfacing mortars and lining materials.
- C. Installation Instructions: Manufacturer's written installation instructions for the materials specified in this Section.
- D. Qualification Data:
 1. Qualified Applicator Training Certificates from manufacturer.
 2. Submit proof of acceptability of Applicator by manufacturer to Engineer.
 3. Submit letter from manufacturer stating that the Applicator has successfully applied the corrosion protection lining system on projects of similar size and scope.
 - a. List of references substantiating the projects.
- E. Construction Details: Copies of manufacturer's computer generated standard lining details for specified materials, including: leading edge termination, metal embedment in

concrete, joint detail, wall-to-slab detail, pipe termination detail, and any other detail at the request of the Engineer.

- F. Jobsite Layout Plan: Including material storage/staging and equipment storage /staging.
- G. Jobsite Reports: Submit at the completion of Work
 - 1. Daily Reports: Include surface preparation, substrate conditions, ambient conditions application procedures, lining materials applied, material quantities, material batch number, description of work completed and location thereof.
 - 2. Quality Control Reports: Include all quality control testing and physical specimens.
 - 3. Applicator shall maintain a copy of records until the expiration of the specified warranty period.

1.6 QUALITY ASSURANCE

- A. Applicator Qualifications:
 - 1. Applicator shall be qualified by the manufacturer prior to bid date.
 - 2. Installation equipment shall be acceptable to the manufacturer.
 - 3. Applicator has successfully applied the corrosion protection lining system on projects of similar size and scope.
 - a. List of references substantiating the projects.
 - 4. Applicator shall establish quality control procedures and practices to monitor all phases of surface preparation, storage, mixing, application, and inspection throughout the duration of the project.
 - 5. Applicator shall provide a fulltime, on-site person whose dedicated responsibilities will include quality control of the corrosion protection linings application.
 - 6. Applicator's quality control procedures and practices must include the following items:
 - a. Training of personnel in the proper surface preparation requirements.
 - b. Training of personnel in the proper storing, mixing, and application and quality control testing of the linings.
- B. Mock-Ups:
 - 1. Prior to the installation of the corrosion protection lining and auxiliary system components, but after Engineer's approval of the Samples and Submittals, install 100 square foot stepped-back mock-ups of the systems showing surface preparation and each system component in an area selected by Engineer to show representative installation of the Work.
 - 2. Engineer shall approve the mock-up before the start of Work.

3. Retain and protect mock-ups during construction as one standard for judging completed corrosion protection lining Work. Do not alter mock-ups after approval by Engineer.
4. Applicator shall build as many mock-ups as required to achieve Engineer's acceptance of the corrosion protection lining.
5. The approved mock-up shall be considered the acceptable minimum standard of quality.
6. Any corrosion protection lining Work that proceeds without approved mock-ups will not be accepted by the Engineer and removed at no cost to the Owner.

C. Pre-Installation Conference:

1. Before erecting mock-ups General Contractor, Applicator, and Technical Representative of the Manufacturer shall meet on-site with Engineer to discuss approved products and workmanship to ensure proper application of the corrosion protection lining components and substrate preparation requirements.
2. Review foreseeable methods and procedures related to the corrosion protection lining of coating Work including but not necessarily limited to the following:
 - a. Review Project requirements and the Contract Documents.
 - b. Review required submittals, both completed and yet to be completed.
 - c. Review status of substrate Work, including approval of surface preparations and similar considerations.
 - d. Review requirements of on-site quality control inspection and testing.
 - e. Review the requirements for preparing the quality control report as specified herein.
 - f. Review availability of materials, tradesmen, equipment and facilities needed to make progress and avoid delays.
 - g. Review material storage and staging.
 - h. Review equipment storage and staging.
 - i. Review waste management and disposal.
 - j. Review environmental conditions, other Project conditions, and procedures for coping with unfavorable conditions.
 - k. Review regulations concerning code compliance, environmental protection, health, safety, fire and similar considerations.
 - l. Review procedures required for the protection of the completed corrosion protection lining during the remainder of the construction period.

D. Single-Source Responsibility:

1. Materials shall be products of a single manufacturer or items standard with manufacturer of specified coating materials.
2. Provide secondary materials which are produced or are specifically recommended by coating system manufacturer to ensure compatibility of system.

- E. Regulatory Requirements: Conform to applicable codes and ordinances for flame, fuel, smoke and volatile organic compounds (VOC) ratings requirements for finishes at time of application.

1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Delivery of Materials:

1. Deliver material in manufacturer's original, unopened and undamaged packages.
2. Clearly identify manufacturer's, brand name, contents, color, batch number, and any personal safety hazards associated with the use of or exposure to the materials on each package.
3. Packages showing indications of damage that may affect condition of contents are not acceptable.

B. Storage of Materials:

1. Materials shall be stored in accordance with manufacturer's recommendations in enclosed structures and shall be protected from weather and adverse temperature conditions. Flammable materials shall be stored in accordance with state and local codes. Store all materials only in area or areas designated by the Engineer solely for this purpose.
2. Materials exceeding storage life as defined by the manufacturer shall be removed promptly from the site.
3. Store in original packaging under protective cover and protect from damage.
4. Stack containers in accordance with manufacturer's recommendations.

- ### **C. Handling of Materials:** Handle materials in such a manner as to prevent damage to products or finishes.

1.8 JOB CONDITIONS

A. Environmental Requirements:

1. Proceed with corrosion protection lining Work only when temperature and moisture conditions of substrates, air temperature, relative humidity, dew point and other conditions comply with the manufacturer's written recommendations and when no damaging environmental conditions are forecasted for the time when the material will be vulnerable to such environmental damage. Record all such conditions and include in final Site Quality Control Report.
2. Maintain substrate temperature and ambient temperature before, during and after installation above 50°F in accordance with material manufacturer's instructions.
3. Provide adequate ventilation during installation and full curing periods of the protective lining.

4. Protective Lining shall not be applied when ambient air temperature is within 5°F of the dew point and falling.
- B. Dust and Contaminants: Protect work and adjacent areas from excessive dust and airborne contaminants during protective lining application and curing. Schedule Work to avoid excessive dust and airborne contaminants.

1.9 WARRANTY

- A. Manufacturer shall warranty its products as free from material defects for a minimum period of three (3) years. Provide associated Warranty Certificate.
- B. Applicator shall warranty the installed protective lining system as free from workmanship defects for a minimum period of three (3) years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products of Tnemec Company, Inc., Kansas City, Missouri are listed to establish a standard of performance and quality. Local Representation: Call Coating Consultants, 801-282-2327, ccc@tnemec.com
- B. Approved Equal Coating Materials. In order to be considered for approved equal status other coating systems shall be specifically formulated for coating concrete and steel components in wastewater treatment digester tanks and clarifier tanks. Coatings shall be designed for use in wastewater treatment processes where Carbon Dioxide (CO₂), Methane Gas (CH₄) and Hydrogen Sulfide Gasses (H₂S) are present in high concentrations. Approved Equal Coating Systems shall have an excellent performance record for providing corrosion protection when applied on concrete surfaces inside and outside anaerobic digester tanks for municipal wastewater treatment plants.
- C. Materials specified are those that have been evaluated for the specific service. Request for material substitutions shall be in accordance with requirements of the project specifications. Equivalent materials of other manufacturers may be submitted on written approval of the Engineer. No request for substitution shall be considered that would decrease film thickness or offer a change in the generic type of coating specified. In no case, will the request be considered unless all information is received, in writing, ten (10) days prior to the bid opening date.
- D. Requests for substitution shall include:
 1. Manufacturer's literature for each product giving name, product number, generic type, descriptive information, laboratory testing showing results equal to the performance criteria of the products specified herein.

2. Side by side comparison of the performance attributes of the proposed materials as compared to the specified coating system.
 3. List of ten (10) projects in which each product has been used and rendered satisfactory service.
 4. The sum which will be added to or deducted from the base bid should alternate materials be accepted.
- E. After first submittal, Engineer/Owner's Agent hourly rate will be charged to review further submittals.

2.2 CHEMICAL EMISSIONS

- A. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction.

2.3 CONCRETE REPAIR AND COATING MATERIALS

- A. Cementitious Repair Mortar:

1. Tnemec Series 217 MortarCrete
2. Cementitious repair mortar shall be a rapid-setting, non-shrinking resurfacing material capable of spray-transfer. Material shall have similar Coefficient of Linear Thermal Expansion (CLTE) properties as concrete.
3. Product information and performance criteria:

Recommended Dry Film Thickness per Coat	1/4"-4" horizontal/vertical
Application Time at 75F	Initial 60 min./Final 90 min.
ASTM C 1583 Bond strength at 1/4"	Concrete Failure
ASTM C 1583 Bond strength at 2"	Concrete Failure
Curing Requirements - ACI 308R Method Duration	Wet Cure 1 hour
Compressive Strength - ASTM C579 (16 hr.) (28 days)	8,670 psi 10,650 psi
Drying Shrinkage - ASTM C596 (28 day)	0% drying shrinkage
Coefficient of Linear Shrinkage - ASTM C 531 (28 day)	0.022%
Hydration (TDR Testing)	6 hours
Thermal Expansion- ASTM C531	7.46×10^{-6} in/in/F

B. Epoxy Cementitious Resurfacer:

1. Tnemec Series 218 MortarClad
2. Epoxy cementitious resurfacer shall be an epoxy-modified, aggregate reinforced material for surfacing, patching and filling voids and bugholes in concrete. The material shall be suitable for the application down to 1/16" inch thickness and be capable of spray-transfer.
3. Product information and performance criteria:

Recommended Dry Film Thickness per Coat	1/16"—1/2"
Application Working Time at 75F	60 min.
Maximum Recoat Window (with itself)	Unlimited
Minimum Substrate Temperature	40F
Curing Requirements - ACI 308R Method Duration	Ambient Cure 15 hour
Compressive Strength - ASTM C579	7,100 psi
Flexural Strength - ASTM C580	1,290 psi
Splitting Tensile - ASTM C496	640 psi

C. Aggregate Reinforced Epoxy Mortar Basecoat:

1. Tnemec Series 434 Perma-Shield H2S
2. Epoxy Basecoat shall be a 100% solids, aggregate-reinforced, trowel-applied epoxy polymer protective barrier material specifically designed to protect concrete and steel surfaces in severe wastewater environments, including associated abrasive physical attack and chemical attack from sewer gases and organic acids generated by microbial sources.
3. Epoxy Basecoat shall be capable of achieving the specified thickness in a single coat application.
4. Product information and performance criteria:

D. Epoxy Topcoat and Epoxy Metal Coating:

Recommended Dry Film Thickness per Coat	125 mils
Application Time at 75F	30 min
Severe Wastewater Analysis - ASTM G210 Initial EIS Impedance (Log Z0.01 Hz Ω cm ²) Final EIS Impedance (Log Z0.01 Hz Ω cm ²)	10.6 9.2
Not less than 86.7% retention in EIS Impedance	
ASTM D7234 Bond strength - Bare Concrete/434	Concrete Failure
ASTM D7234 Bond strength - 218/434	Concrete Failure
Chemical Resistance - ASTM C868 25% H ₂ SO ₄ , 100 days, 100°F	No effect
Compressive Strength - ATSM D695	12,331 psi
Flexural Strength - ASTM C580	3,200 psi
Modulus of Elasticity	1.1 x 10 ⁶ psi
Impact - ASTM D2794	160 in - lbs.
Coefficient of Linear Shrinkage - ASTM C531	-0.013%
Tensile Strength ASTM C307	2,030 psi
Thermal Expansion- ASTM C531	6.3 x 10 ⁻⁵ in/in/°F
Water Absorption ASTM C413	0.035%
Water Vapor Transmission ASTM E96 Procedure D	0.27 perms

1. Tnemec Series 435 Perma-Glaze
2. Product information and performance criteria:

Recommended Dry Film Thickness per Coat	15 - 20 mils Topcoat 30 – 40 mils Metal Coating
Color	Gray
Severe Wastewater Analysis - ASTM G210 Initial EIS Impedance (Log Z0.01 Hz Ω cm ²) Final EIS Impedance (Log Z0.01 Hz	10.99 8.5

Ω cm2)	
Not less than 86.5% retention in EIS Impedance	
ASTM D7234 Bond strength - Bare Concrete/434/435	Concrete Failure
Chemical Resistance - ASTM C868 25% H2SO4, 100 days, 100°F	No effect
Compressive Strength - ATSM D695	9,427 psi
Elongation ASTM D2370	14.1%
Flexural Strength - ASTM D790	3,289 psi
Flexural Modulus of Elasticity – ASTM D790	15,790 psi
Tensile Strength ASTM D2370	2,053 psi
Tensile Modulus of Elasticity – ASTM D2370	1,180 psi
Water Absorption ASTM C413	No absorption after three trials
Water Vapor Transmission ASTM D1653 Method B, Condition C	0.49 perms

- E. Applicator shall provide all accessory components such as polysulfide sealants, and curing compounds, as recommended by the manufacturer for maximum protective lining adhesion to substrate, and long-term service performance.

PART 3 - EXECUTION

3.1 GENERAL

- A. Applicator shall provide, erect, and maintain all required hoists, scaffolding, staging and planking, and perform all access related hoisting work required to complete the Work of this Section as specified.
- B. Applicator shall cover or otherwise protect finish work or other surfaces not being coated within the scope of this Section. Applicator shall erect and maintain protective tarps, enclosures and/or masking to contain debris, including dust or other airborne particles from surface preparation or application activities. This may include the use of dust or debris collection apparatus as required at no additional cost to Owner.

3.2 DIGESTER NO. 2 SITE EXAMINATION

A. Site Verification of Conditions

1. Applicator shall examine the areas and conditions under which the protective coating Work is to be performed in accordance with NACE SP0892 and SSPC-SP13/NACE No. 6, and notify ENGINEER in writing of conditions detrimental to the proper and timely completion of the Work.
2. All concrete should be cured using the procedures described in ACI 308, allowing a minimum of 28 days at 75F.
3. The Applicator shall confirm the presence of a vapor barrier or positive side waterproofing on the exterior of the concrete structure.
4. Commencement of the Work of this Section shall indicate that the substrate and other conditions of installation are acceptable to the Contractor and his Applicator, and will produce a finished product meeting the requirements of the Specifications. All defects resulting from accepted conditions shall be corrected by Applicator at his own expense.

- B. Stopping Active Leaks: After surface cleaning, any visible leaks or other water ingress shall be reported to the Engineer. Any water infiltration through minor leaks must be stopped using a polyurethane grout manufactured by Avanti International, Webster, TX (281-486-5600), or approved equal, or other approved method in accordance with ACI 224.1 Causes, Evaluation, and Repair of Cracks in Concrete Structures. Surface and grouting material may require additional surface preparation prior to application of protective coating.

3.3 CONCRETE SURFACE PREPARATION

- A. Concrete surfaces to receive protective coating shall be cast with a Smooth Form Finish in accordance with ACI 301. See SECTION 3710 – CONCRETE SURFACE PREPARATION and this section for concrete surface preparation work to be completed by the Contractor prior to applying the specified protective coating materials. Surfaces shall not be rubbed, sacked, troweled or otherwise finished in any manner that will obscure or cover the parent concrete surface with materials other than materials as specified in this Section.
- B. All surfaces must be clean, dry and free of oil, grease and other contaminants, prior to preparation in accordance with NACE No. 6/SSPC-SP13. Concrete surfaces must be sound and capable of supporting the corrosion protection lining system.
- C. Prepare concrete surfaces in accordance with NACE No. 6/SSPC-SP13 Joint Surface Preparation Standards and ICRI Technical Guidelines. Abrasive blast, shot-blast, water jet or mechanically abrade concrete surfaces to remove laitance, curing compounds, hardeners, sealers, existing coatings, and other contaminants and to provide the recommended ICRI-CSP Profile.

- D. Level or grind concrete substrates to produce a uniform and smooth surface, including removal of sharp edges, ridges, form fins, and other concrete protrusions.
- E. Steel – Structural and Pipe: Remove visible contaminants per SSPC-SP1. Prepare the steel surfaces in accordance with SSPC-SP5/NACE No.1 White Metal Blast Cleaning with a 3.0 mil minimum angular anchor profile.
- F. Ductile or Cast Iron – Pipe, Pumps & Valves: Prepare all surfaces as per NAPF 500-03 - Uniformly abrasive blast the entire exterior surface using abrasive to an NAPF 500-03-04 with a minimum angular anchor profile of 1.5 mils.
- G. Non- Ferrous Metal Pipe & Misc. Fabrications: SSPC-SP16 Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals to achieve a uniform anchor profile of 1.0 – 2.0 mils

3.4 PROTECTIVE COATING SYSTEM APPLICATION

- A. Protective coating systems shall be installed when ambient air and surface temperature is above 50°F. The substrate temperature shall be at least 5°F above the dew point. Condition the material between 70-80°F for 48 hours prior to use. Application when temperatures outside of this range will require written instruction from the Manufacturer and approval of the Engineer.
- B. Application in direct sunlight and/or with rising surface temperatures is not allowed, as this may result in blistering of the materials due to expansion of entrapped air or moisture in the concrete. In such cases, it will be necessary to postpone the application until later in the day when the temperature of the substrate is falling. Concrete surfaces that have been in direct sunlight should be shaded for at least 24 hours prior to application. Consult the Manufacturer for application schedule guidelines specific to temperature conditions and possible sealer application recommendations to reduce outgassing.
- C. Cementitious Repair Mortar: In areas of excessive deterioration use Series 217 MortarCrete cementitious repair mortar for structural repairs or surface repairs exceeding a depth ½ - inch in accordance with Manufacturer's written instructions as outlined in the product data sheet and application guide.
 - 1. Thickness – Minimum ¼" inch as required re-establishing original plane.
 - 2. Cure – Water quench for one to two hours following installation as recommended by manufacturer.
 - 3. Re-blast – Mechanically abrade the surface to remove the laitance layer and to uniformly profile the surface to produce minimum ICRI CSP 4 surface profile amplitude.
- D. Epoxy Cementitious Resurfacer: Series 218 MortarClad epoxy cementitious resurfacer shall be used for filling voids, bugholes, static cracks and joints, for general concrete

patching, and to provide a uniform, void free surface for Epoxy Lining application. Apply in accordance with Manufacturer's written instructions as outlined in the product data sheet and application guide

1. Thickness – Epoxy Cementitious Resurfacer shall be applied as a continuous parge coat at a minimum 1/16-inch thickness to the **entire concrete surface**.
- E. Aggregate Reinforced Epoxy Mortar Basecoat: Series 434 Perma-Shield H2S epoxy lining protective coating shall be applied in accordance with Manufacturer's written instructions as outlined in the product data sheet and application guide.
1. Thickness – Epoxy lining shall be applied to a thickness of 125 mils (1/8- inch) dry film thickness to the entire surface.
- F. Epoxy Topcoat: Series 435 Perma-Glaze epoxy glaze coat shall be applied over the epoxy lining system in accordance with Manufacturer's written instructions as outlined in the product data sheet and application guide.
1. Thickness – Epoxy glaze coat shall be applied to a thickness of 15-20 mils dry film thickness over the entire epoxy surface.
- G. Epoxy Ferrous and Non-Ferrous Coating: Series 435 Perma-Glaze shall be applied over properly prepared substrates in accordance with Manufacturer's written instructions as outlined in the product data sheet and application guide.
1. Thickness – Epoxy Ferrous Metal coat shall be applied to a thickness of 30–40 mils dry film thickness applied in one or two coats over the entire substrate.
- H. Terminations shall be installed in accordance with the Perma-Shield Lining Standard Details Guide:
1. In areas where the lining system is not required to be installed, a termination shall be built into the system.
- I. Areas not to receive the lining system shall be masked or otherwise protected to prevent these surfaces from being coated.

3.5 FIELD QUALITY CONTROL, INSPECTION, AND TESTING

- A. Applicator shall perform the quality control procedures listed below in conjunction with the requirements of this Section.
- B. Inspect materials upon receipt to ensure that the products are supplied by the approved Manufacturer.

- C. Concrete Surface Profile: Inspect and record substrate profile (anchor pattern). Surfaces shall be profiled equal to the CSP 5 amplitude as recommended by the coating manufacturer in accordance with ICRI Guideline 310.2 and SSPC-SP13/NACE No. 6.
1. Compare the substrate profile once every 50 square feet with the Concrete Surface Profile (CSP) comparators in accordance with ICRI Guideline No. 310.2.
 2. Perform replication of the concrete surface profile every 500 square feet using replica putty in accordance with ASTM D7682. Submit replications to the Engineer as part of the Jobsite Reports.
- D. Concrete Surface Cleanliness: Prepared concrete surfaces shall be inspected for surface cleanliness after cleaning and drying, prior to resurfacing or coating application.
- E. Concrete Moisture Testing: After surface preparation verify concrete dryness in accordance with ICRI Guideline 310.2 and SSPC-SP13/NACE No. 6 and one of the following test methods.
1. ASTM F1869 – Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
 - a. Moisture vapor transmission not to exceed three pounds per 1,000 square feet in a 24-hour period.
 2. ASTM F2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
 - a. Relative humidity not to exceed 80 percent.
 3. ASTM D4263— Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
 - a. No moisture present
 4. Consult protective lining system manufacturer regarding questions and or recommendations about moisture problems or questions.
- F. Surface pH Testing – Existing Concrete: After surface preparation test the pH of cement particles collected from the concrete substrate. The particles shall be measured using pH indicating paper or pH meter. The pH testing is to be performed once every 50 square feet for the first 500 square feet and then once every 500 square feet thereafter. Acceptable pH values shall be a minimum of 9.0 as measured using color indicating pH paper with readable color calibrations and a scale at whole numbers or pH meter.
- G. Ferrous and Non-Ferrous Metal Surface Profile and Degree of Surface Cleanliness: Inspect and record substrate profile (anchor pattern) and degree of cleanliness. Surfaces shall meet the manufacturer's recommended anchor profile and degree of blast cleaning.
1. Visually confirm the specified degree of surface cleanliness of the ferrous metal surface in accordance with SSPC-VIS 1.

2. The specified surface profile of the prepared substrate shall be verified in accordance with ASTM D4417 – Method C Replica Tape or NACE RP0287.
- H. Measure and record ambient air temperature, relative humidity and dew point temperature once every two hours of each work shift.
 - I. Measure and record substrate temperature once every two hours using an infrared or other surface thermometer.
 - J. Film Thickness:
 1. Wet-Film Thickness shall be taken every 100 square feet in accordance with ASTM D4414 or other agreed-upon method.
 2. The Dry-Film Thickness can be determined using a surface area calculation for material consumption.
 - K. High-Voltage Holiday (Spark) Testing: Upon full cure, the installed lining system shall be checked by high voltage spark detection in accordance with NACE SP0188 and the Manufacturer's printed application guide to verify a pinhole-free surface. Areas which do not pass the spark detection test shall be corrected at no cost to the Owner.
 1. Submit written reports of the test results and actions taken to correct non-conforming work.
 - L. Applicator is responsible for keeping the Engineer informed of progress so that Engineer may provide additional quality control at his discretion.
 - M. Inspection by the Engineer or others does not absolve the applicator from his responsibilities for quality control inspection and testing as specified herein or as required by the Manufacturer's instructions.

3.6 MANUFACTURER'S FIELD SERVICES

- A. Manufacturer's technical representative shall provide technical assistance and guidance for surface preparation and application of coating systems.

3.7 ACCEPTANCE CRITERIA

- A. Surfaces shall be prepared, applied, and tested in accordance with the specification and referenced standards herein.

3.8 ADJUSTMENTS AND CLEANING

- A. Protect the completed Work from traffic, physical abuse, immersion and chemical exposure until the complete system has thoroughly cured for 24 hours.

- B. At the completion of the Work, Applicator shall remove materials and debris associated with the Work of this Section.
- C. Clean surfaces not designated to receive protective coating. Restore all other work in a manner acceptable to Engineer.
- D. Protect the completed Work from damage until Final Acceptance. Protective coating damaged in any manner shall be repaired or replaced at the discretion of Engineer, at no additional cost to Owner.

3.9 COATING SCHEDULE FOR DIGESTER NO. 2 CONCRETE SURFACES AND RELATED STRUCTURES

A. **Severe Wastewater Concrete Lining System - to be applied to the Digester Concrete Walls, Ceiling and Exposed Ductile Iron Pipe Surfaces.**

1. Surface Preparation: Abrasive Blast to remove laitance, form release agents, curing compounds, sealers, and other contaminants and to provide surface profile in accordance with SSPC-SP13/NACE6, ICRI CSP5.
2. Surfacer/Filler for all concrete surfaces: Tnemec, MortarClad Series 218 - parge coat of entire surface at a minimum thickness of 1/16" inch.
3. Basecoat: Tnemec, Perma-Shield H2S Series 434 at 125 mils DFT
4. Topcoat: Tnemec, Perma-Glaze Series 435 at 15 - 20 mils DFT

B. **Severe Wastewater Concrete Coating System – to be applied to the Digester Exterior Roof Exposed Surfaces.**

1. Surface Preparation: Abrasive Blast to remove laitance, form release agents, curing compounds, sealers, and other contaminants and to provide surface profile in accordance with SSPC-SP13/NACE6, ICRI CSP5.
2. Surfacer/Filler for roof concrete surfaces: Tnemec MortarClad Series 218 – applied as per the Tnemec Product Data Sheet to fill the areas that have been worn down to the base concrete roof.
3. Primer Coat: Tnemec Elasto-Grip FC Series 151-1051 at an application thickness of 0.7 – 1.5 mils Dry Film Thickness (DFT).
4. Intermediate Coat: Tnemec Enviro-Crete 156 at 6.0 to 8.0 mils Dry Film Thickness (DFT).
5. Finish (Top) Coat: Tnemec Enviro-Crete Series 157 at 6.0 to 9.0 DFT. Apply all coatings in accordance with the individual product data sheets.

C. **Severe Wastewater Concrete Lining/Coating System – to be applied to the Digester Interior Concrete Floor and Center Sump Surfaces.**

1. Surface Preparation: Abrasive Blast to remove laitance, form release agents, curing compounds, sealers, and other contaminants and to provide surface profile in accordance with SSPC-SP13/NACE6, ICRI CSP5.

2. Surfacers/Concrete Filler: Tnemec MortarClad Series 218 – parge coat the entire floor surface at a minimum thickness of 1/16-inch after surface preparation and crack repair.
3. Topcoat/Finish Coat: Apply Tnemec Perma-Glaze Series 435 at an application rate of 30 to 40 mils Dry Film Thickness (DFT). Apply the Perma-Glaze Series 435 finish coat in accordance with the manufacturer's product data sheet surface preparation and product application requirements.

D. Severe Wastewater Ferrous Metal System – Steel

1. Surface Preparation: SSPC-SP5/NACE No.1 White Metal Blast Cleaning with a 3.0 mil minimum angular anchor profile.
2. Topcoat: Tnemec, Perma-Glaze Series 435 at 30 - 40 mils DFT applied in one or two coats.

E. Severe Wastewater Non-Ferrous Metal System – Aluminum, Stainless, etc.

1. Surface Preparation: SSPC-SP16 Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals with a 3.0 mil minimum angular anchor profile.
2. Topcoat: Tnemec, Perma-Glaze Series 435 at 30 - 40 mils DFT applied in one or two coats.

F. Severe Wastewater Ductile and Cast Iron

1. Surface Preparation: Prepare all surfaces as per NAPF 500-03 - Uniformly abrasive blast the entire exterior surface using abrasive to an NAPF 500-03-04 with a minimum angular anchor profile of 1.5 mils.
2. Topcoat: Tnemec, Perma-Glaze Series 435 at 30 - 40 mils DFT applied in one or two coats.

PART 4 BASIS OF PAYMENT

4.1 BASIS OF PAYMENT

The Basis of Payment for the City of Elko WRF Digester No. 2 concrete surface preparation and the application of the specified protective coating system for the digester interior and exterior surfaces (including initial application, intermediate applications and top coats), epoxy coating system curing, top coat touch-up, and cleanup shall be included in the Contractor's Unit Price Bid Amount or the Lump Sum Bid Amount for the work related to this section in the Project Bid Proposal Form. The Contractor shall include all material, labor, and equipment costs in his, or her, bid proposal price for related work. No additional payment shall be made for the work described in this section.

END OF SECTION