



— WATER RESOURCE RECOVERY DEPARTMENT —

**Request for Proposal (RFP)**

**For**

**“McCord and Plainview Lift Stations – Piping Improvements”**

**Issued by:  
City of Indianola WPC  
11870 Hoover St  
Indianola, IA 50125**

**Mailing Address:  
City of Indianola  
Attn: Rick Graves  
Lift Station Piping Quotes  
P.O. Box 299  
Indianola, IA 50125**

**Proposals must be submitted  
No later than 11:00 AM  
January 26, 2022**

**LATE PROPOSALS WILL BE REJECTED**  
*There will not be a public opening for this RFP*

**For further information regarding this  
RFP contact Rick Graves  
Phone: 515-961-9416  
Email: [rgraves@indianolaiowa.gov](mailto:rgraves@indianolaiowa.gov)**

**Issued: December 30, 2021**



## — WATER RESOURCE RECOVERY DEPARTMENT —

December 30, 2021

Indianola McCord and Plainview Lift Stations – Piping Improvements

Dear Contractor:

The City of Indianola is soliciting for Proposals to complete the removal and replacement of piping within two of the City's wastewater lift stations: McCord Lift Station and Plainview Lift Station. The City will receive competitive quotations from contractors for this project and award contract to lowest responsive responsible quoter subject to Iowa Code Section 26.9, or the City may reject all quotes. The project shall consist of removal and replacement of pump discharge piping, bases, and fittings in the McCord Lift Station wet well located at 900 W. 17<sup>th</sup> Ave and the Plainview Lift Station wet well located at 901 E. Plainview Ave. See attached drawings and specifications for more information.

The work shall be constructed in accordance with the Statewide Urban Design and Standard Specification (aka. Iowa SUDAS specifications) most recent edition. The Bidder further agrees to complete the work in strict accordance with said contract documents, and to guarantee the work as required by law, for the time required herein and indicated by Bidder in Proposal after its acceptance by the Jurisdiction. Bidder is to commence and complete the work in accordance with the proposal completion provisions. If Bidder cannot perform the work within these completion provisions, Bidder should not submit a proposal for this work.

The following items also apply to this RFP.

1. Bid Security. None required.
2. Site Visit. Bidder may visit the site prior to submitting proposal. Please coordinate a site visit with Rick Graves, WWRD Superintendent at (515) 961-9416.
3. Addenda. The Bidder shall acknowledge that all addenda become part of the contract documents when issued, and acknowledges receipt of the addenda(um) by indicating in the proposal.
4. Sales Tax. The bidder shall not include sales tax in the bid pursuant to Iowa Code. A sales tax exemption certificate will be available for all material purchased for incorporation in the project.



## — WATER RESOURCE RECOVERY DEPARTMENT —

5. Certificates of Insurance. Contractor shall provide insurance certifications including the Owner as additional insured. These shall be submitted after proposals have been reviewed and indication to the Contractor has been provided.
6. Performance, Payment and Maintenance Bond. Duration of one (1) year and as required by SUDAS.
7. Submittal requirements. All submittals required shall be routed to the awarded contractor for submission to the City for review. Submittals shall include necessary documentation for City to review for conformance of the design concept and general compliance with the information given in the Contract Documents. Anticipated submittals include ductile iron pipe & fittings, pump base, painting, etc.
8. Storage. Storage of equipment shall be at site or furnished by Contractor until a coordinated time that the equipment is to be onsite and installed.
9. Delivery. Deliveries shall be included for equipment to be supplied FOB to storage location mentioned above in 8 and to the jobsite.
10. Warranty. For all items provided, a full warranty against defects in materials and workmanship for one year from date of startup, including all parts, labor, and expenses. See 6.
11. Schedule for Equipment. Contractor shall provide a tentative schedule starting at signed agreement with awarding contractor (Day 1) showing submittals received, show 2 weeks for City review, place order, and materials ready for contractor.
12. Lift Station Startup. Contractor shall include startup inspection to ensure that replaced piping does not leak.
13. Project Completion. Contractor shall provide start date and completion date. Final Completion (including startup) shall be by May 31, 2022. Contractor to pay liquidated damages in the amount of \$200/ calendar day for non-compliance with completion provisions.
14. Department of Labor. A contract will not be executed until the apparent low bidder is registered with the Iowa Commissioner of Labor pursuant to Section 91C.5 of the Iowa Code. The bidder should contact 515-242-5871 for registration information.



## — WATER RESOURCE RECOVERY DEPARTMENT —

15. Quote Items, Quantities and Prices: The bidder must provide the Unit Breakout Price for each lift station and the Total Construction Cost; in case of discrepancy, the Unit Breakout Price governs. The City will only use the Total Construction Cost for comparison of quotes.

Work Item	McCord Lift Station	Plainview Lift Station
Mobilization/General Requirements	\$	\$
Plugging/Bypass Pumping	\$	\$
Removals	\$	\$
Painting	\$	\$
New Piping/Fittings/Supports/Cable Holders	\$	\$
Traffic Control (if needed)	\$	\$
Subtotal for Each Lift Station	\$	\$
<b>Total Construction Cost</b>	<b>\$</b>	

Depending on the cost for the work, the City will evaluate whether the costs for improvements at both lift stations falls within their budgeted amount. In the case that the total cost for both lift stations exceeds the City's budget, the City may choose to move forward with work at only one lift station. In the event that the City moves forward with work at only one lift station, the contract price for the second lift station will be change ordered out of the contract. The City will utilize the Unit Breakout Prices herein to execute the change order deduction amount, and the Unit Breakout Prices will not be subject to renegotiation.

16. Proposal/Quote Evaluation. Proposals will be evaluated based on cost. Contractor shall also be responsible and responsive. The Contractor's quote shall be broken out as follows:
17. Notified Contractor will be required to submit Contract, Performance, Payment and Maintenance Bond, and Certificate of Insurance in February.
18. Contract. Contract will be executed by the City Administrator immediately on receipt.
19. Notice to Proceed. Notice to Proceed is anticipated to be within one (1) week after acceptable Contract; Performance, Payment and Maintenance Bond; and Certificates of Insurance are received.



— WATER RESOURCE RECOVERY DEPARTMENT —

20. Payment. Progress Payments will be made monthly. Contractor shall submit payment application broken out with an approved schedule of values.

Please provide a detailed cost proposal in accordance with Item 15 for the project described above and in the attached documents. The cost of the Work shall be in accordance with Division 1 of the Iowa SUDAS Specification. Please provide the proposal not later than January 26, 2022 at 11:00 am. Your proposal may be submitted in a sealed envelope to City of Indianola., attention Rick Graves, or electronic mail to [rgraves@indianolaiowa.gov](mailto:rgraves@indianolaiowa.gov). Mailing address is:

Rick Graves  
City of Indianola WPC  
P.O. Box 299  
Indianola, IA 50125

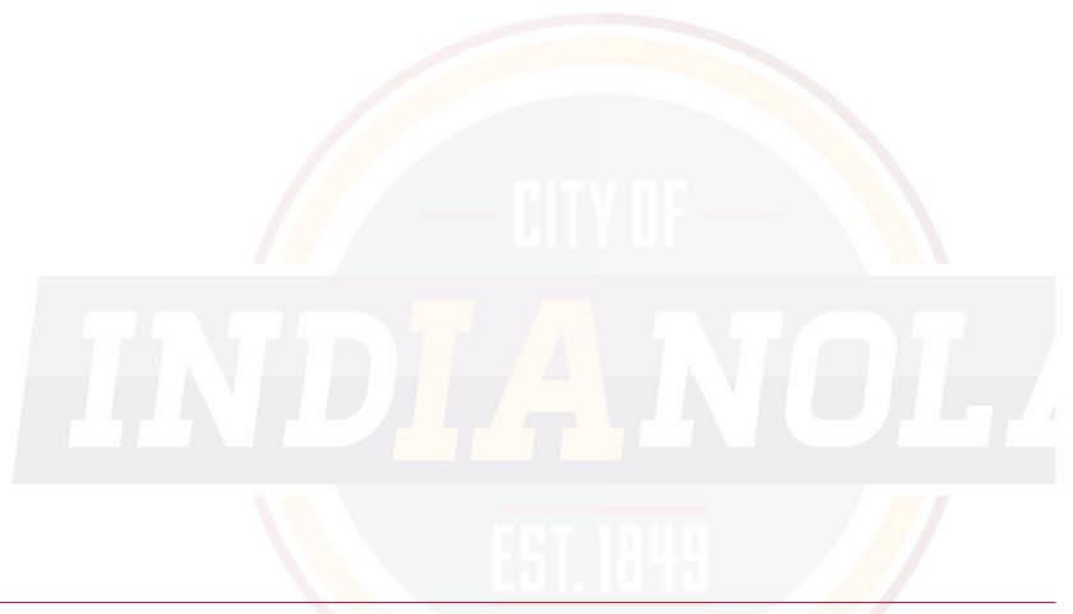
If you have any questions or comments, feel free to call me at (515) 961-9416.

Sincerely,

Rick Graves  
WRRD Superintendent  
City of Indianola

Enclosures

cc: File





# McCORD AND PLAINVIEW LIFT STATIONS

## PIPING IMPROVEMENTS

### CITY OF INDIANOLA

### INDIANOLA, IOWA

2021

ABBREVIATIONS

CL	CENTERLINE
DI	DUCTILE IRON
INVT	INVERT
LR	LARGE RADIUS
MFGR	MANUFACTURER
MH	MANHOLE
REQ'D	REQUIRED
SCHED	SCHEDULE
STN STL	STAINLESS STEEL
TYP	TYPICAL
WRRD	WATER RESOURCE RECOVERY DEPARTMENT

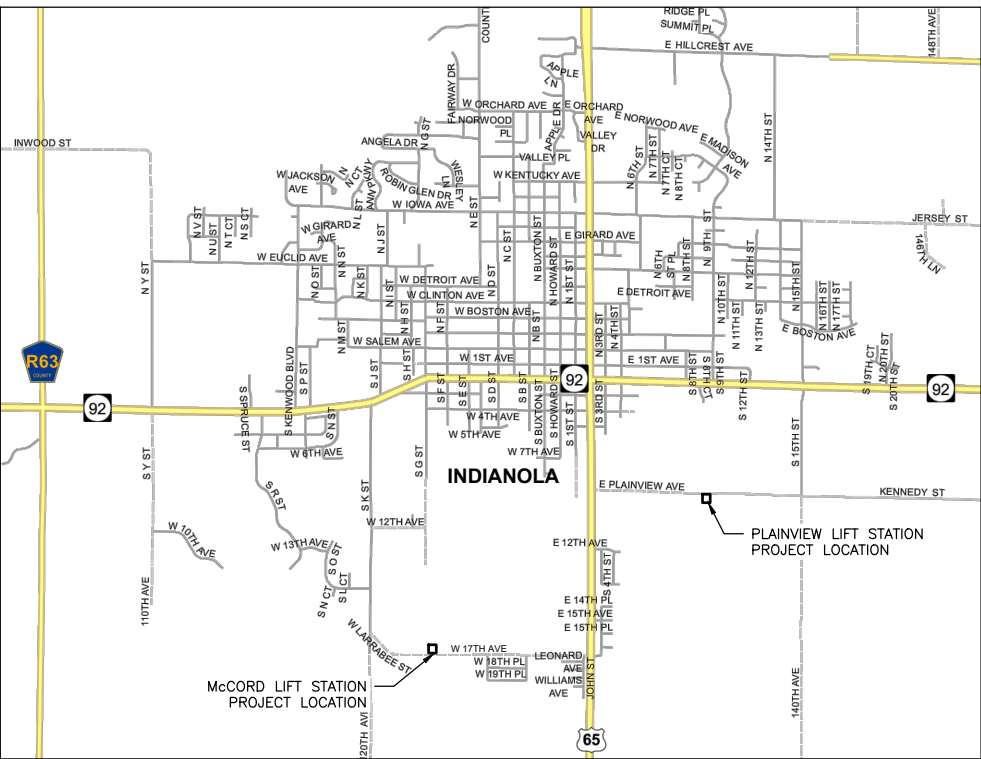
UTILITY NOTES

WHERE PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THOSE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.

THE CONTRACTOR IS REQUIRED TO UTILIZE THE UTILITY ONE-CALL SERVICE AT (800) 292-8989 AT LEAST 48 HOURS PRIOR TO EXCAVATING ANYWHERE ON THE PROJECT.

THE 2021 EDITION OF THE IOWA STATEWIDE URBAN STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS (SUDAS) SHALL APPLY TO ALL WORK ON THIS PROJECT EXCEPT AS MODIFIED HERE IN AND BY THE PROJECT'S CONTRACT DOCUMENTS.

LOCATION MAP



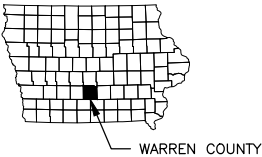
SHEET INDEX

Sheet Number Sheet Title

GENERAL	
G.1	COVER SHEET
CIVIL	
C.1	SITE LAYOUTS
PROCESS	
P.1	McCORD LIFT STATION IMPROVEMENTS -- PLAN AND SECTION
P.2	PLAINVIEW LIFT STATION IMPROVEMENTS -- PLAN AND SECTION
P.3	PROCESS DETAILS

GENERAL NOTES

- "SCREENED" (LIGHT) DELINEATION SHOWN IN THESE DRAWINGS DENOTES EXISTING CONDITIONS. "SCREENED" INFORMATION WAS TAKEN FROM PREVIOUS CONSTRUCTION DRAWINGS, IS FOR REFERENCE ONLY, AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING OF MATERIALS AND BEGINNING CONSTRUCTION. "BOLD" DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
- CONTRACTOR SHALL MAKE PROVISIONS TO MAINTAIN SECURITY AT SITE AT ALL TIMES. OWNER IS NOT RESPONSIBLE FOR SECURED/UNSECURED STORED MATERIALS STORED ON SITE.
- CONTRACTOR SHALL COORDINATE WITH OWNER ON CONSTRUCTION STAGING AND STORAGE AREAS.
- ALL WORK INVOLVED IN THIS PROJECT SHALL BE CONSTRUCTED ON CITY OWNED RIGHT-OF-WAY OR ON EASEMENTS OBTAINED BY THE CITY. CONTRACTOR SHALL RESTRICT CONSTRUCTION OPERATIONS TO WITHIN THE DESIGNATED RIGHT-OF-WAY OR CONSTRUCTION EASEMENTS. NO MATERIALS, EXCAVATED MATERIAL, OR EQUIPMENT SHALL BE STORED ON, PARKED ON, DEPOSITED ON, OR DRIVEN OVER ANY PRIVATE PROPERTY UNLESS WRITTEN AUTHORIZATION IS OBTAINED FROM THE PROPERTY OWNER BY THE CONTRACTOR. A COPY OF SUCH WRITTEN AGREEMENT SHALL BE PROVIDED TO THE CITY AND THE ENGINEER. UPON COMPLETION, CONTRACTOR SHALL PROVIDE TO THE CITY AND THE ENGINEER A WRITTEN RELEASE SIGNED BY THE PROPERTY OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING ITEMS, EQUIPMENT AND/OR STRUCTURES FROM DAMAGE DURING CONSTRUCTION.
- WASTE SITES: IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL WHICH IS NOT DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED ON THIS PROJECT. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES, NO MATERIAL SHALL BE PLACED WITHIN RIGHT-OF-WAY UNLESS SPECIFICALLY STATED ON THE PLANS OR APPROVED BY THE ENGINEER.
- WHERE EXISTING SEWER FLOW CANNOT BE MAINTAINED, INTERRUPTION OF SERVICE SHALL BE MINIMIZED SUCH THAT NO DISCHARGE OF SANITARY SEWAGE TO ANY WATERWAY, STORM SEWER, OPEN TRENCH, GROUND SURFACE, STREETS OR GUTTERS OCCURS NOR SHALL SUCH INTERRUPTION CREATE A PUBLIC HEALTH HAZARD FROM SEWAGE BACKUPS OR OVERFLOWS. BYPASS OPERATIONS MUST BE APPROVED BY THE OWNER BEFORE STARTING. SEE DRAWINGS FOR ADDITIONAL DETAILS AND REQUIREMENTS OF BYPASSING.
- ONE WEEK PRIOR TO COMMENCING CONSTRUCTION THE CONTRACTOR SHALL NOTIFY THE CITY OF INDIANOLA. WORK SHALL BE SCHEDULED DURING A DRY WEATHER PATTERN WITH LOW TO NORMAL WASTEWATER FLOWS. CONTRACTOR RESPONSIBLE FOR CHECKING WEATHER FORECAST AND VERIFYING THAT NO WET WEATHER IS FORECASTED FOR DURATION OF WORK.
- CONTRACTOR SHALL NOTIFY OWNER AT MINIMUM 48 HOURS PRIOR TO TESTING OR ANY OTHER INSTANCE THAT REQUIRES ONSITE OBSERVATION.
- THE CONTRACTOR SHALL VIDEO RECORD THE ENTIRE PROJECT AREA PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES FOR THE PURPOSE OF DOCUMENTING EXISTING CONDITIONS. THE CONTRACTOR SHALL PROVIDE ONE COPY TO THE CITY AND ONE COPY TO ENGINEER. CONTRACTOR TO LEAVE THE EXISTING ELEMENTS AND FACILITIES IN AN EQUAL OR BETTER-THAN-ORIGINAL CONDITION AND TO THE SATISFACTION OF THE ENGINEER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ACCESS TO SITE THROUGHOUT CONSTRUCTION, INCLUDING SNOW REMOVAL AS APPLICABLE.



5525 MERLE HAY ROAD, SUITE 200 | JOHNSTON, IOWA 50131  
Phone: 515.278.2913 | Toll Free: 800.728.7805 | Fax: 515.278.1846 | HRGreen.com

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McCORD AND PLAINVIEW LIFT STATIONS PIPING  
IMPROVEMENTS  
CITY OF INDIANOLA  
INDIANOLA, IOWA

GENERAL  
COVER SHEET

SHEET NO.  
G.1





1 **McCord Lift Station  
SITE LAYOUT**  
SCALE: 1"=20'



2 **Plainview Lift Station  
SITE LAYOUT**  
SCALE: 1"=20'



**GENERAL NOTES:**

1. INDIANOLA WRRD WILL PROVIDE A VACTOR TRUCK TO CLEAN THE LIFT STATION DURING NORMAL WORKING HOURS: 7:00 AM TO 2:30 PM. CONTRACTOR WILL BE RESPONSIBLE FOR ANY LOW DEPTH PUMPING AND/OR CLEANING THAT IS NOT FEASIBLE WITH WRRD VACTOR TRUCK AS MAY BE NECESSARY TO COMPLETE WORK BEING DONE IN THE DRY.
2. CONTRACTOR IS RESPONSIBLE FOR PLUGGING OFF FLOW TO EACH LIFT STATION AND BYPASS PUMPING TO A DOWNSTREAM MANHOLE.
  - A. NEAREST DOWNSTREAM MANHOLE AT McCord LS IS APPROXIMATELY 1,420 LF EAST WITH RIM ELEVATION=874.98. NEAREST DOWNSTREAM MANHOLE AT PLAINVIEW LS IS APPROXIMATELY 2,550 LF EAST WITH RIM ELEVATION=948.00. (ALTERNATIVELY TO PUMPING TO PLAINVIEW DOWNSTREAM MANHOLE, CONTRACTOR MAY PUMP INTO THE AIR RELEASE VALVE LOCATED ON THE PLAINVIEW FORCE MAIN. CONTRACTOR RESPONSIBLE FOR MAKING ARRANGEMENTS WITH THE CITY TO REMOVE THE AIR RELEASE VALVE AND MAKING PIPING CONNECTION.)
  - B. AVERAGE DAILY PEAK FLOW AT McCord LS IS APPROXIMATELY 100 GPM AND AVERAGE DAILY PEAK FLOW AT PLAINVIEW LS IS APPROXIMATELY 50 GPM
  - C. CONTRACTOR IS RESPONSIBLE FOR VISITING SITE AND INVESTIGATING MOST FEASIBLE ROUTE FOR BYPASS DISCHARGE PIPING. CONTRACTOR SHOULD UTILIZE CULVERTS FOR DRIVEWAY AND ROAD CROSSINGS AS MUCH AS PRACTICAL. PIPE ROUTING TO BE APPROVED BY CITY.
  - D. CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL AS NECESSARY DURING BYPASS PUMPING. TRAFFIC CONTROL MUST BE APPROVED BY CITY.
  - E. CONTRACTOR IS ONLY ALLOWED TO BYPASS PUMP DURING NORMAL WORKING HOURS AND MUST RETURN EACH LIFT STATION TO NORMAL OPERATIONS WITH AT LEAST ONE PUMP OPERATIONAL AT THE END OF EACH DAY.
  - F. WORK REQUIRING BYPASS PUMPING WILL BE LIMITED TO 3 DAYS PER LIFT STATION.

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**McCord and Plainview Lift Stations Piping Improvements**  
CITY OF INDIANOLA  
INDIANOLA, IOWA

CIVIL  
SITE LAYOUTS

SHEET NO.  
C.1











**SECTION 09 9000  
PAINTING AND COATING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Responsibility for surface preparation and primary coating of equipment and motors shall be equipment manufacturers. Equipment to be finish coated and coating system is identified in equipment specification section(s).
- B. Field application of paints.
- C. See Schedule - Surfaces to be Finished, at end of this Section.

**1.02 REFERENCES**

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency.
- B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- D. NACE (IMP) - Industrial Maintenance Painting; NACE International; current edition.
- E. NPCA (National Paint and Coatings Association) - Guide to U.S. Government Paint Specifications.
- F. PDCA (Painting and Decorating Contractors of America) - Painting - Architectural Specifications Manual.
- G. SSPC SP-2 - Surface Preparation Specification No. 2 - Hand Tool Cleaning.
- H. SSPC SP-3 - Surface Preparation Specification No. 3 - Power Tool Cleaning.
- I. SSPC SP-11 - Surface Preparation Specification No. 11 - Power Tool Cleaning to White Metal.
- J. SSPC SP-13 - Surface Preparation Specification No. 13 - Concrete Cleaning.
- K. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings.

**1.03 DEFINITIONS**

- A. Conform to ASTM D16 for interpretation of terms used in this section.
- B. Coatings: Heavy duty finishes for use on any surfaces, especially surfaces subject to submerged, high moisture, splash, or chemical environment.
- C. Ambient Conditions:
  - 1. Chemical: Surface subject to corrosive chemical splash or fumes.
  - 2. Moist: Surface subject to wet areas such as shower rooms and rooms with open tanks.
  - 3. Normal: Surface subject to normal temperatures and humidity such as found in offices and corridors.
- D. Splash: Surface subject to frequent washing and chemical splash.
- E. Submerged P: Surface submerged in potable water plus 1'-0" above high liquid level.
- F. Submerged NP: Surface submerged in non-potable liquid plus 1'-0" above high liquid level.

**1.04 SUBMITTALS**

- A. Product Data: Provide data on all finishing products.
- B. Samples: Actual color samples available for each type of coating scheduled. Colors to be approved by Owner.
- C. Samples: Submit two paper chip samples, 2 x 2 inch in size illustrating range of colors and textures available for each surface finishing product scheduled.
- D. Literature:



1. Submit manufacturer's literature stating application recommendations and generic makeup of each type of coating schedule.
  2. Substitutions: For coatings not specified herein, provide substitute manufacturer's literature with specified coating literature for Engineer to make proper evaluation.
- E. Letter of Certification/Shop Painting:
1. Contractor has option of shop coating materials and equipment partially or totally.
  2. Submit the following for factory-applied coatings:
    - a. Coating used.
    - b. Manufacturer's written certificate factory-applied coating system identical to, or exceeding, requirements specified herein.
    - c. Requirements for touch-up or coating.
    - d. History of coating performance in same environment.
  3. Submit the following for factory-applied primer.
    - a. Primer used.
    - b. Contractor's certification factory-applied primer compatible with field-applied finish coat.
  4. Schedules:
    - a. Submit schedule of proposed coating systems within 90 calendar days of Award of Contract.
    - b. Complete schedule of proposed coating systems containing same information as indicated in coating schedule.
- F. Manufacturer's Instructions: Indicate special surface preparation procedures and substrate conditions requiring special attention.
- G. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

#### **1.05 QUALITY ASSURANCE**

- A. Sampling of Materials:
1. Engineer reserves the right to select unopened containers of materials furnished on job and have materials tested at approved laboratory. Owner will pay for first tests.
  2. Retests of rejected materials and tests of replacement materials shall be paid for by the Contractor.
  3. Remainder of contents of containers not required for testing will be returned to Contractor.
- B. Field Quality Control:
1. If coverage is not acceptable to the Engineer, Engineer reserves the right to require extra application of paint at no extra cost to Owner.
  2. Work at site where coat of material applied will be inspected by Engineer before application of succeeding specified coat, otherwise no credit for coat applied will be given and Contractor automatically assumes responsibility to recoat work in question. Furnish Engineer report of particular coat applied and when completed for inspection to comply with above.

#### **1.06 REGULATORY REQUIREMENTS**

- A. Conform to applicable code for flame and smoke rating requirements for products and finishes.

#### **1.07 DELIVERY, STORAGE, AND PROTECTION**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.
- D. Avoid danger of fire: Deposit cleaning rags and waste materials in metal containers having tight covers or remove from building each night. Provide fire extinguishers of type recommended by

coating manufacturer in areas of storage and where finishing is occurring. Allow no smoking or open containers of solvents. Store solvents in safety cans.

- E. Empty containers shall have labels cancelled and be clearly marked as to use.
- F. Upon project completion, remaining material will become property of Owner. Seal material as required for storage, marked as to contents and shelf life, and store where required by Owner.
- G. Protect floor and walls of storage area from splatter or disfiguration.

#### **1.08 ENVIRONMENTAL REQUIREMENTS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Do not apply exterior coatings during rain or snow or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- C. Apply no finish in rooms where dust is being generated.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Maintain interior temperature and relative humidity of space, as recommended by coating manufacturer, 24 hours before applying and until coating is cured.
- F. Provide adequate lighting.

#### **1.09 PROJECT/SITE CONDITIONS**

- A. Protection:
  - 1. Cover material and surfaces, including floors and open tanks, adjoining or below work in progress with clean drop cloths or canvas.
  - 2. Remove hardware, accessories, plates, lighting fixtures, and similar items or provide protection by masking. Upon completion, replace above items or remove protection and clean.
  - 3. Maintain manufacturer's environmental requirements while coating dries.
- B. Cooperation: Work shall be scheduled and coordinated with other trades and shall not proceed until other work and/or job conditions are, in the judgment of the Owner's Construction Inspector, as required to achieve satisfactory results.

#### **1.10 WARRANTY**

- A. Full warranty against defects in materials and workmanship for two years after final acceptance by Owner, including all parts, labor, and expenses.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Paints:
  - 1. Sherwin-Williams Co.
  - 2. Tnemec.
  - 3. Dudick.
  - 4. Engineer approved equivalent.

#### **2.02 PAINTS AND COATINGS - GENERAL**

- A. Materials selected for coating system for each type of surface shall be product of same manufacturer.
- B. Paints and Coatings: Ready mixed, except field-catalyzed coatings. Prepare pigments:
  - 1. To a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
  - 2. For good flow and brushing properties.
  - 3. Capable of drying or curing free of streaks or sags.

- C. Color shall be formed of pigments free of lead, lead compounds or other materials which might be affected by presence of hydrogen sulfide or other gases likely to be present at project.
- D. Coatings shall meet surface burning characteristics as required by code and established by ASTM E84.
- E. Any surface not listed in the schedule of materials shall be painted as scheduled for similar surfaces. In general, all non-ferrous metals, aluminum, stainless steel, chrome, and copper will not be painted.

### **2.03 SCHEDULE - COLORS**

- A. Colors shall be selected and approved by Owner.
- B. Prior to beginning work, Engineer will provide color coordinating schedule. System color coding shall comply with this Section.
- C. Equipment Colors (Equipment includes equipment, structural supports, and fasteners): Coat equipment same color as piping it serves.

### **2.04 ACCESSORY MATERIALS**

- A. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners, and other materials not specifically indicated but required to achieve the finishes specified; commercial quality.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

### **2.05 MIXING AND TINTING**

- A. Each coat - primer, intermediate, finish - shall be slightly darker than preceding coat to visually indicate adequate coverage, unless otherwise approved by the Engineer.
- B. Tint undercoats similar to finish coats but with sufficient variations to distinguish between coats.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that surfaces are ready to receive Work as instructed by the product manufacturer.
- B. If surfaces to be finished cannot be put into proper condition or finished by customary cleaning, sanding, and puttying operations, or if surfaces were improperly primed by others, report defects to Engineer, in writing, or assume responsibility and correct unsatisfactory finish resulting from improper surfaces. Commencement of work indicates acceptance of surfaces.
- C. Materials removed and replaced to correct defects due to work placed on unsuitable surfaces shall be at Contractor's expense.
- D. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- E. Test shop-applied primer for compatibility with subsequent cover materials.

### **3.02 PREPARATION**

- A. Preparation and cleaning methods shall comply with Hot Work Permit, as applicable.
- B. Surfaces, including floors, shall be clean, dry, and free of loose dirt, dust, and foreign matter before applying coating.
- C. Comply with coating manufacturer's recommendations for surface preparation.
- D. Surface Appurtenances: Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
- E. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.
- F. Marks: Seal with shellac those which may bleed through surface finishes.



- G. Joints: All joints shall be caulked and sealed. This includes the joint or gap between the threaded flange and the pipe on all progress piping. Caulking shall be a paintable polyurethane or silicone sealant such as BASF Sonolastic NP1, or an Engineer approved equivalent. Paint over sealant to match pipe color.
- H. Ferrous Metal:
  - 1. Round or chamfer sharp edges and grind smooth burrs, jagged edges, and surface defects.
  - 2. Prepare welds and adjacent areas to remove undercutting or reverse ridges on weld bead, weld spatter on or adjacent to weld or area to be coated, and sharp peaks or ridges along weld bead. Grind embedded pieces of electrode or wire flush with adjacent surface of weld bead.
  - 3. Coat surfaces same day prepared and prior to "rust bloom". Re-prepare surfaces starting to rust before coating. Surface preparation shall be verified in accordance with SSPC-Vis 1, Vis 3, and ICRI templates.
  - 4. Cleaning Methods:
    - a. Workmanship for metal surface preparation as specified shall conform to current SSPC specifications as follows;
      - 1) Hand Tool Cleaning: SP-2.
      - 2) Power Tool Cleaning: SP-3.
      - 3) Power Tool Cleaning to White Metal: SP-11.
      - 4) Concrete. Cleaning: SP-13.
  - 5. Shop Preparation: Equipment, structural steel, metal louvers, and similar items may be shop-prepared and primed at Contractor's option. Centrifugal wheel blast cleaning acceptable alternate to shop blast cleaning. Clean and prime in accordance with this section.
  - 6. Field Touch-up: Sandblast items and equipment as specified to restore damaged surfaces previously shop or field blasted and primed. Materials, equipment, procedures, and safety equipment for personnel shall conform to SSPC.

### 3.03 APPLICATION

- A. General:
  - 1. Apply products in accordance with manufacturer's instructions.
  - 2. Apply paint, enamel, and varnish with suitable brushes, rollers, or spraying equipment.
  - 3. Spread evenly and flow on smoothly without runs, lumps, or sags.
  - 4. Make edges of coating adjoining other materials or colors sharp and clean without overlapping.
  - 5. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
  - 6. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
  - 7. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.
  - 8. Sand metal surfaces lightly between coats to achieve required finish.
  - 9. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
  - 10. Manufacturer-Applied Coating System:
    - a. Repair abraded areas on factory-finished items in accordance with manufacturer's directions.
    - b. Blend repaired areas into original finish.
  - 11. Coverage and hide shall be complete. When color, stain, dirt, or undercoats show through final coat of paint, the surface shall be covered by additional coats until the paint film is of uniform finish, color, appearance, and coverage.
- B. Priming and Sealing:
  - 1. Refer to coating schedule for specific products.
  - 2. Shop:

- a. Shop primer for ferrous metal shall comply with SSPC guidelines, and as specified in coating schedule of this specification.
  - b. Hand or power sand chipped, peeled, or abraded primer and feather edges. Spot prime areas with specified primer.
  - c. Prior to application of finish coats, clean shop-primed surfaces free of dirt, oil, and grease.
  - d. Prepare and prime holdback areas as required for specified coating system.
3. Field:
- a. Prepare holdback area for welding and prime after welding as required for specified coating system.

### **3.04 CLEANING**

- A. Collect waste material which may constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. Before final completion, remove masking, coating, and other material from floors, glass and other surfaces and remove rubbish and accumulated materials of whatever nature not caused by other trades from premises and leave in clean, orderly condition, with floors broom clean.
- C. Hardware and other unpainted surfaces shall be cleaned using lacquer thinner or paint remover. No edge tools or abrasives will be permitted.

### **3.05 SCHEDULE - SURFACES TO BE FINISHED**

- A. Paint the surfaces described below under Schedule - Paint Systems.
- B. Coordinate painting schedule with the General Contractor and Subcontractor.

### **3.06 SCHEDULE - PAINT SYSTEMS**

- A. General
  1. Unless otherwise noted, Tnemec products are identified in this schedule to establish quality and type desired.
  2. Scheduled thickness or coverage rate is as recommended by Tnemec. If other manufacturers are used, manufacturer's requirements shall be followed, but in no case shall thickness or coverage rate be less than Tnemec.
  3. DFT = dry film thickness (mils/coat). DFT shown is for spray application. Additional coats may be required if brushed and rolled.
  4. sfpg = sq ft/gal (per coat).
  5. Examples of items to be coated are not all inclusive.
- B. New interior and exterior piping, equipment, and appurtenances regardless of type of factory-applied finish, where color coding required.
- C. Schedule:
  1. System 3A (Cast Iron and Ductile Iron, Interior Moist/Interior Splash, Semi-Gloss Sheen).
    - a. Application: Cast Iron and Ductile Iron pipes, fittings, valves, etc.
    - b. Preparation: Ferrous Metal SP-6.
    - c. System:
      - 1) Primer: 1 coat/2.5 to 3.0 DFT "Series 1 Omnithane."
      - 2) Top Coat: 1 coat/4.0 to 6.0 DFT "135-Color Chembuild."
- D. Process mechanical piping color coding schedule:
  1. Wastewater Lines:
    - a. Sewage (wastewater): Tnemec 68BR "Twine", or similar.
    - b. Contents and direction of flow shall be stenciled on the piping in a contrasting color.
  2. In situations where two colors do not have sufficient contrast to easily differentiate between them, a six-inch band of contrasting color should be on one of the pipes at approximately 30 inch intervals. The name of the liquid or gas should also be on the pipe. In some cases, it may be advantageous to provide arrows indicating the direction of flow.

**3.07 FINAL TOUCH-UP**

- A. Prior to substantial completion, examine coated surfaces and retouch or refinish to leave surfaces in condition acceptable to the Engineer.

**3.08 CLEANING**

- A. Before final completion, remove masking, coating, and other material from floors, glass, and other surfaces and remove rubbish and accumulated materials of whatever nature not caused by other trades from premises and leave in clean, orderly condition with floors broom clean.

**END OF SECTION**



**SECTION 22 1116  
DUCTILE IRON PIPE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Detailed requirements for various ductile iron piping products. Some products specified in this section may not be required for this Contract. Piping system Specification section(s) and Drawings identify particular ductile iron piping products to be provided under this Contract.

**1.02 REFERENCES**

- A. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- B. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
- C. AWWA C110 - Ductile-Iron and Gray-Iron Fittings, 3 in. Through 48 in., for Water and Other Liquids.
- D. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron and Pressure Pipe and Fittings.
- E. AWWA C115 - Flanged Ductile-Iron Pipe with Threaded Flanges.
- F. AWWA C150 - Thickness Design of Ductile-Iron Pipe.
- G. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids.
- H. AWWA C153 - Ductile-Iron Compact Fittings, 3 inch Through 16 inch, for Water or Other Liquids.
- I. ANSI B18.2.1 - Square and Hex Bolts and Screws Inch Series.
- J. ANSI B18.2.2 - Square and Hex Nuts.
- K. AWS A5.6 - Specification for Covered Copper and Copper Alloy Arc Welding Electrodes.
- L. AWS A5.15 - Specification for Welding Electrodes and Rods for Cast Iron.

**1.03 SUBMITTALS**

- A. Product Data: Include Manufacturer's specifications, catalog cuts, and literature:
  - 1. Pipe.
  - 2. Outside coatings.
  - 3. Inside linings.
  - 4. Flanged joints.
  - 5. Standard fittings.
  - 6. Special fittings.
- B. Submit outside coating system for buried, interior, exterior, and submerged piping locations. Include submittal information specified in Section 09 9000.
- C. Submit product data and coating system information specified above in one complete submittal.
- D. Shop Drawings showing layout for ductile iron piping systems shall be submitted in accordance with and transmitted under appropriate piping system specification section.
- E. A letter from the pipe and fitting manufacturers stating the product(s) are supplied new from the manufacturer and all linings required by the specifications for the pipe and fittings are supplied by the manufacturer and are covered by the manufacturer's warranty.

**1.04 WARRANTY**

- A. Full warranty against defects in materials and workmanship for two years after substantial completion, including all parts, labor, and expenses.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Liquid Service Pipe: AWWA C151, ductile iron.

- B. Minimum Thickness Class:
  - 1. Flanged Joint Pipe: Thickness Class 53.

## **2.02 INSIDE LINING**

- A. Cement Mortar: Cement lining and seal coat shall be in accordance with AWWA C104.

## **2.03 JOINTS**

- A. Flanged Joints:
  - 1. Flanged pipe for liquid service shall be in accordance with AWWA C115.
  - 2. Fabrication of flanged pipe, including assembly of flange on pipe shall be performed by pipe manufacturer in accordance with AWWA C115. Assembly of flange on pipe outside of manufacturer's shop is unacceptable.
  - 3. Flange material for flanged pipe shall be ductile iron. Flanged pipe with gray iron flanges is not acceptable.
  - 4. Gasket material shall be suitable for service and maximum operating temperature of piping system. Torque requirement of gaskets shall be less than torque rating of flange, bolts, and nuts.
  - 5. Gaskets shall be full face, 1/8 inch thick, and conform to dimensions shown in Appendices to AWWA C110 and C115.
  - 6. Bolts:
    - a. Size, length, and number as shown in AWWA C110 and C115.
    - b. Material: Stainless steel, ASTM A193, Grade B8M.
    - c. Dimensions: ANSI B18.2.1, heavy hex.
    - d. Contractor shall treat all bolts with an anti-seize compound prior to installation.
  - 7. Nuts:
    - a. Size, length, and number as shown in AWWA C110 and C115.
    - b. Material: Stainless steel, ASTM A194, Grade 8M.
    - c. Dimensions: ANSI B18.2.2, heavy hex.

## **2.04 FITTINGS**

- A. Pressure rating shall be 250 psi, minimum.
- B. Standard fittings for liquid and air service shall be as follows:
  - 1. Flanged Joint Fittings:
    - a. Ductile iron.
    - b. AWWA C110.
    - c. Flange dimensions in accordance with AWWA C115.
- C. Special fittings for liquid service, not included in AWWA standards, shall be manufacturer's standard, based on AWWA design principles, and in compliance with applicable requirements of AWWA standards.

## **2.05 OUTSIDE COATING**

- A. Surface preparation, priming, and finish coating of non-buried piping shall be compatible and in accordance with Section 09 9000, System 3A. Non-buried piping shall not have the asphaltic coating but shall be provided with the specified shop prime coat.
- B. Finish color for interior and exterior piping shall be as specified in Section 09 9000.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Use proper implements, tools, and facilities for safe and proper handling and protection of piping products prior to installation. Handle piping products carefully to avoid damage to products.
- B. Carefully inspect piping products before installation. Provide new, repair or recondition damaged piping products. Repair or reconditioning is subject to Engineer's approval. Patch damaged interior

linings and exterior coatings or replace damaged product with new product. Patching is subject to Engineer's approval.

- C. Clean ends of piping product thoroughly before installation. Remove foreign matter and dirt from inside of piping product and keep product clean until Work has been accepted.

### **3.02 INSTALLATION**

- A. Location:
  - 1. Install piping in accordance with arrangements shown on Drawings. Install piping parallel to structure lines unless shown otherwise on Drawings.
  - 2. Do not install piping through beams, columns, or other structural members unless shown otherwise on Drawings.
- B. Assembly:
  - 1. Install in accordance with manufacturer's recommendations by qualified craftsmen.
  - 2. Install piping without springing or forcing in manner which would cause stress in piping, valves, or connected equipment.
  - 3. Set pipe flanges level, plumb, and aligned. Set flanged fittings so flange is true and perpendicular to pipe axis. Set flanges so bolt holes straddle vertical centerline of pipes.
  - 4. For flanged connections, match bolt holes and obtain uniform contact over entire flange area prior to installation of flange bolts. Tighten bolts to uniformly compress gaskets and minimize flange stress. Tighten bolts to torque recommended by gasket manufacturer. Coat nuts and bolts with anti-seize thread compound.
  - 5. Machine off raised-face of steel flange when mating with flat-faced flange.
- C. Pump and Equipment Connections:
  - 1. Align pipe, equipment, and pumps so stresses are not transmitted to connections. Support piping independently from pumps and equipment. Do not support piping from equipment and pumps.
  - 2. Install couplings, adapters, expansion joints, flanges, and unions so pumps, equipment, valves, and in-line instruments can be removed from service without disruption to other portions of piping system.
  - 3. For welded nozzle connections, allow for shrinkage during welding to prevent excessive stresses on pumps and equipment.
  - 4. Provide piping from pump and equipment drains and overflows to floor drain system.
  - 5. Provide control lines such as air and bubbler level system piping necessary for operation of pumps, equipment, valves, and on-line instruments.
- D. Install insulating flange, insulating coupling, or dielectric union at each connection between ferrous and non-ferrous metal piping.

### **3.03 FIELD QUALITY CONTROL**

- A. Inspect installed piping products for dents, kinks, abrupt changes of curvature, damage to lining, and other damage. Repair or recondition damaged products as approved by Engineer or replace damaged products with new products.
- B. Inspect installed, unlined piping products for corrosion and scale on interior surfaces. Clean products to remove corrosion and scale or replace with new products.
- C. Testing for lift station piping systems.
  - 1. During testing of pumps, contractor shall inspect all piping, valves, and fittings that were rebuilt and replaced for damage or leaks. Repair all visible leaks regardless of the amount of leakage. Damaged or defective pipe, fittings, valves, or joints discovered in the pressure test shall be replaced by the Contractor and the test repeated until the test results are satisfactory. Do not use chemicals, stop-leak compounds, mastics, or other temporary repair methods.

**END OF SECTION**