

Date: October 7, 2024

Project Owner: SMD 1/Town of Superior

Project: SMD1 Anaerobic Zones Project

Purpose: To Clarify and Modify Plans, Contract Documents, and Special Provisions of the Project

Message:

The following additions, corrections, modifications, and interpretations shall be incorporated into the plans, specifications, and contract documents for the above project and shall take complete precedence over anything therein contained to the contrary. All other provisions of the specifications, contract documents, and drawings shall remain unchanged.

Each and every bidder, subcontractor, and material supplier shall be responsible for reading each and every item in this addendum, to ascertain to what extent and in what manner it affects the work in which he is responsible.

Information Requests and Clarifications:

Not used

Questions and Answers:

1. Per the Pipe Specifications, we have specs for RAS for 10" - 16" and greater/equal than 12" ($x > 12$). Please supply a spec for 8" RAS.

RESPONSE: See Specifications section below. The provided specifications for DI1 and DI2 shall be used. DI1 shall be used for exposed or submerged pipe in exterior or outside locations. DI2 shall be used for buried RAS pipe.

2. Site Pipe - 24" SS is called to be SDR35 per piping specifications. Sheet M-2103 calls out for (2) Long Sleeves with Restraints. Per the specifications, the fittings are to be gaskets SDR35 PVC. Is PVC fittings or Cast iron restrained fittings to be used. If Cast Iron MJ Fittings are to be used, please supply specs for lining and coating wanting on the fittings.

RESPONSE: The 24" influent WW is SDR 26 as existing. 24" WW from the new manhole to the new anaerobic zone structure shall be DI2 with fittings per Specification 33 14 13.

3. Page C-3, in dark print is a note: Retaining Wall. Please clarify engineer's expectations on this retaining wall? If contractor is to perform, please provide spec and detail. If by others, please let me know?

RESPONSE: Retaining wall shall be provided with Pavestone 4 in. x 11.75 in. x 6.75 in. Pewter Concrete Retaining Wall Block (model # 81100), or engineer approved equal. Provide

Mirafil 110N underneath and behind the wall. Provide 3 inches of road base or similar material compacted in a trench. Bury one row of blocks at base of wall and place above road base. Blocks shall be placed level. Provide compacted backfill soil per specification 30 05 00 in lifts as wall is built.

4. I am trying to find a complete spec book with section 09 90 00, which is heavily referenced in Spec section 33 14 13 for pipe coatings. However, I could not find any reference to the section in the addendum. Could you please provide me with the specified spec section at your earliest convenience so that I can pass it along to the interested parties.

RESPONSE: *Specification 09 90 00 included in this addendum.*

5. Key Note 3 on drawings E-02 and E-04 was added in Addendum 1 and references relocating the existing inverter, meter, and disconnect for the solar system. Note 3 on E-04 states that the contractor shall field investigate the equipment, number and size of conduits and cables for relocating. We won't have access to this information prior to bid time.
 - a. Can you provide the number, size, type, amperage, voltage for the conduits and cables to be rerouted.
 - b. Can you provide the existing routing of the conduits and cables so we can determine how much needs to be rerouted and from/to?
 - c. If the information requested in a and b above isn't currently available can an allowance be established to include in the bid?

RESPONSE: *For bidding purposes, assume the scope of work related to the relocation of the solar inverter shall include removing (2) 3", (1) 1", and (1) 3/4" conduits and their associated conductors out of the 50' excavation radius to allow for construction of the new basins. The removed conduit and conductors shall be intercepted and extended to the new location of the solar inverter. The solar inverter AC disconnect is rated 200A, please assume 200A rated conductors. The conductors routed to the solar array (2-3") and (1) 1" conduits are unknown and shall be field identified*

6. Revised drawings C-02 and C-03 issued with Addendum #1 call to relocate the existing HVAC unit.
 - a. Can you provide the number, size, type, amperage, voltage for the conduits and cables to be rerouted?

RESPONSE: *For bidding purposes, assume the electrical scope of work related to the relocation of the existing HVAC unit shall include removing and replacing approximately 50 feet of (1) ¾" conduit with 3 #10, 1#10 ground, and disconnect switch.*

7. Please provide drawings, details and specifications for the new 8" CMU wall.

RESPONSE: In lieu of 8" CMU, this new wall shall be an 8-inch-thick concrete wall. Concrete shall be the same mix design and strength as the new Anaerobic zone concrete basin. The wall shall be reinforced with one layer of #5 reinforcing at 12" on center. New wall shall be attached to existing concrete walls and foundation with #5 dowels lapped to the new #5 reinforcement. Dowels shall be epoxied to existing concrete with 6" of embedment, epoxy shall be Hilti HIT-RE 500 V3 or equal. To protect against water intrusion, low expansion hydrophilic waterstop shall be installed between new and existing concrete. Low expansion hydrophilic waterstop shall be Sika Lockstop or equal. Finish top of new concrete wall against existing wood members as close as possible and fill final gap with exterior grade expandable polyurethane foam.

8. Only SSC on the piping schedule is for the size 3" only. Are we to use DI2 piping specs for 6" SSC line? Will it also be the same for exposed?

RESPONSE: DI2 shall be used for 6" SSC. Any exposed SSC pipe shall be DI1.

9. I do not see a pipe spec for 6" FTW line, can we get a specification?

RESPONSE: The 6" FTW shall be schedule 80 PVC to match existing.

10. There seems to be a probability of a cut on this site. Is there a location on site for the dispersal of the excess soils, or should it be budgeted to have the soil hauled off site.

RESPONSE: Excess soils shall be budgeted to be hauled off site.

Specifications:

1. Specification 33 14 13 – 3.30(A) Pipe Schedule:

REMOVE:

RAS	Return Activated Sludge	10 – 16	DI1	150	HS	Exposed, submerged, or encased	Inside	
RAS	Return Activated Sludge	≥ 12	DI2	150	HS	Buried	Outside	

REPLACE with:

RAS	Return Activated Sludge	≥ 6	DI1	150	HS	Exposed, submerged, or encased	Inside/Outside	
RAS	Return Activated Sludge	≥ 6	DI2	150	HS	Buried	Outside	

REMOVE:

WW	Influent Wastewater	24	PVC4	100	HS	Buried or Encased	Outside	Influent wastewater sewer from headworks to anaerobic zones
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REPLACE with:

WW	Influent Wastewater	24	DI2	100	HS	Buried or Encased	Outside	Influent wastewater sewer from new manhole to new anaerobic zones.
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2. Specification 09 90 00 – Coatings: add specification to contract documents.

Drawings:

1. Not used

Attachments:

2. Specification 09 90 00.

Acknowledgement of this Addendum is required in your solicitation response.

SECTION 09 90 00

COATINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

A. This section specifies architectural and industrial coating systems, including surface preparation and application requirements.

1.02 REFERENCES

A. All coating materials shall conform to the following references. In case of discrepancies between the referenced specifications and this section, the more stringent requirement shall prevail.

<u>Reference</u>	<u>Title</u>
ASME A13.1-1996	Scheme for the Identification of Piping Systems
ASTM D4258-83(1999)	Standard Practice for Surface Cleaning Concrete for Coating
NSF/ANSI Std. 61-02e	Drinking Water System Components – Health Effects
SSPC-SP1	Surface Preparation Specifications No. 1 - Solvent Cleaning
SSPC-SP2	Surface Preparation Specification No. 2 - Hand Tool Cleaning
SSPC-SP3	Surface Preparation Specification No. 3 - Power Tool Cleaning
SSPC-SP-5/NACE No. 1	Surface Preparation Specification No. 5 - White Metal Blast Cleaning
SSPC-SP6/NACE No. 3	Surface Preparation Specification No. 6 - Commercial Blast Cleaning
SSPC-SP7/NACE No. 4	Surface Preparation Specification No. 7 - Brush-off Blast Cleaning
SSPC-8	Surface Preparation Specification No. 8 - Pickling
SSPC-SP10/NACE No. 2	Surface Preparation Specification No. 10 - Near-White Blast Cleaning
SSPC-11	Surface Preparation Specification No. 11 - Power Tool Cleaning to Bare Metal

1.03 ABBREVIATIONS

A. The abbreviations used in this Section shall have the following definitions:

<u>Abbreviation</u>	<u>Title</u>
ASTM	American Society for Testing and Materials
DFT	Dry Film Thickness
SFPG	Square Feet Per Gallon
SSPC	Society for Protective Coatings

1.04 QUALITY ASSURANCE

- A. REGULATIONS. Comply with federal, state, and local air pollution and environmental control regulations limiting the emission of volatile organic compounds, blast cleaning, confined space entry (if required), and deposition of spent aggregate and debris.
- B. STANDARDS AND GUIDELINES. Perform surface preparation and painting in accordance with these Specifications, the paint manufacturers' printed recommendations and the following standards and guidelines. The more stringent requirements shall apply.
 - 1. Paint manufacturer's instructions.
 - 2. SSPC PA Guide No. 3, Guide to Safety in Paint Applications.
 - 3. Federal, state, and local agencies having jurisdiction.
- C. PROJECT STANDARDS. Finish one complete space or item of each color scheme showing selected colors, finish texture, materials, and quality of work for inspection and acceptance by Engineer. After approval, sample spaces or items shall serve as a standard for all similar work.
- D. SUBMITTALS. Submit manufacturer's information for each material specified in accordance with Section 01 33 00.
 - 1. Technical product data sheets and material Safety Data Sheets
 - 2. Submit certificate of compliance attesting that all paints proposed are free of lead, chromate, and heavy metals free, and meet federal, state, and local requirements limiting the emissions or volatile organic compounds (VOC).
 - 3. Color Data: Provide complete fan deck, color card or actual color chips illustrating full range of color availability.
 - 4. Samples: Submit 2 samples, 12 x 12 inch in size illustrating colors and textures for each surface finishing product scheduled.
 - 5. Test Reports: Flame spread per ASTM E-84 for paints requiring rating per NFPA 101.
 - 6. O&M Manuals: Submit color number and formula for each color and type of paint.

1.05 PACKAGING AND LABELING.

- A. Deliver materials to job site in original, new, and unopened packages and containers bearing manufacturer's name and label, and following information:
 - 1. Name of material
 - 2. Manufacturer's stock number and date of manufacture
 - 3. Thinning instructions
 - 4. Application instructions
 - 5. Color name and number
 - 6. Handling instructions and precautions
 - 7. Hazardous warning labels
- B. Store materials not in actual use in tightly covered containers at a minimum temperature of 45 degrees F in a well-ventilated area. Maintain containers used in storage in a clean condition, free of foreign materials and residue.

- C. Remove oily rags and waste daily. Take precautions to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

1.06 EXTRA STOCK

- A. At the Completion of painting, deliver to the Owner one full gallon of each paint color and type used along with the color number or formula for each color. Epoxy and High performance coatings are not included in this requirement.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Apply coatings only when the temperature of surfaces to be coated and surrounding air temperatures are between 50 degrees F and 90 degrees F, unless otherwise permitted by manufacturer's printed instructions.
- B. Do not apply in snow, rain, fog or mist, or when relative humidity exceeds 85 percent, or to damp or wet surfaces, unless otherwise permitted by manufacturer's instructions.
- C. Allow wet surfaces to dry thoroughly and attain the temperature and conditions specified before proceeding with or continuing the coating operation.
- D. Work may continue during inclement weather only if areas and surfaces to be coated are enclosed and temperature and relative humidity within the area can be maintained within limits specified during application and drying periods.

PART 2 PRODUCTS

2.01 MATERIALS

- A. **QUALITY.** Provide manufacturer's highest quality products suitable for intended service. Provide primer and finish coats produced by same manufacturer. Furnish thinners, cleaners, driers, and other additives as recommended by manufacturer of the particular coating.
- B. **ACCEPTABLE MANUFACTURERS.** Acceptable manufacturers are Glidden, Sherwin-Williams, PPG Pittsburgh Paints, Tnemec, and Sauereisen.

2.02 MIXING

- A. **Multiple-Component Coatings**
 - 1. Prepare using the contents of the container for each component as packaged by paint manufacturer.
 - 2. No partial batches will be permitted.
 - 3. Do not use multiple-component coatings that have been mixed beyond their pot life.
 - 4. Furnish small quantity kits for touchup painting and for painting other small areas.
 - 5. Mix only components specified and furnished by paint manufacturer.
 - 6. Do not intermix additional components for reasons of color or otherwise, even within the same generic type of coating.

B. Colors

1. Formulate paints with colorants free of lead, lead compounds, or other materials that might be affected by presence of hydrogen sulfide or other gas likely to be present at the site.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions for compliance with requirements for application and notify Engineer in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected.
- B. Starting of coating work will be construed as Contractor's acceptance of surfaces and conditions within any particular area.
- C. Do not cover over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable coating system.
- D. Notify Owner and Engineer a minimum of 7 days prior to the start of shop or field surface preparation work and coating application work.

3.02 PREPARATION

- A. Weld/ pipe grinding required to prepare surfaces for coating shall be completed prior to pressure testing piping.
- B. Clean surfaces prior to applying coating or surface treatments. Remove oil and grease before mechanical cleaning.
- C. Program cleaning and coating processes so contaminants from the process will not fall onto wet, newly coated surfaces.
- D. Perform preparation and cleaning in compliance with manufacturer's instructions and as herein specified, for each substrate condition.
- E. Meet applicable Federal, State, and Local air pollution and environmental control regulations for blast cleaning, confined space entry (if required) and deposition of spent aggregate and debris.
- F. Shop Blast Cleaning
 1. Structural steel, metal doors and frames, metal louvers, and similar items, may be shop prepared and primed. Centrifugal wheel blast cleaning is an acceptable alternate to shop blast cleaning.
 2. Field Abrasive Blasting: Perform blasting for items and equipment where specified and as required to restore damaged surfaces previously shop or field blasted and primed.
 3. Protection of Items not to be painted:
 - a. Remove, mask, or otherwise protect hardware, lighting fixtures, switchplates, aluminum surfaces, machined surfaces, couplings, shafts, bearings, nameplates on machinery, and other surfaces not intended to be painted.

- b. Provide drop cloths to prevent paint materials from falling on or marring adjacent surfaces.
- c. Protect working parts of mechanical and electrical equipment from damage during surface preparation and painting process.
- d. Mask openings in motors to prevent paint and other materials from entering the motors.

3.03 SURFACE PREPARATION

A. Metal Surfaces

1. Where indicated, meet requirements of the Steel Structures Painting Council Specifications. The words "solvent cleaning", "hand tool cleaning", "wire brushing", and "blast cleaning", or similar words of equal intent in these Specifications or in paint manufacturer's specifications refer to the applicable SSPC Specifications.
2. Prepare welds and adjacent areas such that there is no undercutting or reverse ridges on weld bead, no weld spatter on or adjacent to weld or any other area to be painted, no sharp peaks or ridges along weld bead. Grind embedded pieces of electrode or wire flush with adjacent surface of weld bead. Round or chamfer sharp edges and grind smooth burrs, jagged edges, and surface defects.
3. Clean metal surfaces using abrasive blast, or wet or vacu-blast methods. Follow coating manufacturers' recommendations for wet blast additives and first coat application. Hand tool clean areas that cannot be cleaned by power tool cleaning.
4. Pre-blast Cleaning Requirements:
 - a. Remove oil, grease, welding fluxes, and other surface contaminants prior to blast cleaning.
 - b. Cleaning Methods: Steam, open flame, hot water, or cold water with appropriate detergent additives followed with clean water rinsing.
 - c. Clean small isolated areas as above or solvent clean with suitable solvents and clean cloths.
5. Blast Cleaning Requirements:
 - a. Type of Equipment and Speed of Travel: Design to obtain specified degree of cleanliness. Minimum surface preparation is as specified herein and takes precedence over coating manufacturer's recommendations.
 - b. Select type and size of abrasive to produce a surface profile that meets coating manufacturer's recommendations for particular primer to be used.
 - c. Use only dry blast cleaning methods.
 - d. Do not reuse abrasive, except for designed recyclable systems.
 - e. Meet applicable Federal, State, and Local air pollution and environmental control regulations for blast cleaning, confined space entry (if required), and disposition of spent aggregate and debris.
6. Post-Blast Cleaning and Other Cleaning Requirements:
 - a. Clean surfaces of dust and residual particles from cleaning operations by dry (no oil or water vapor) air blast cleaning or other method prior to painting. Vacuum clean enclosed areas and other areas where dust settling is a problem and wipe with a tack cloth.

- b. Paint surfaces the same day they are blasted. Reblast surfaces that have started to rust before they are painted.

B. Concrete Surfaces

1. Do not begin until 30 days after concrete has been placed. Remove grease, oil, dirt, salts or other chemicals, loose materials, or other foreign matter by solvent, detergent, or other suitable cleaning methods.
2. Blast clean to remove loose concrete and provide a tooth for binding. Upon approval by Engineer, surface may be cleaned by acid etching method. Approval subject to producing desired profile.
3. Secure coating manufacturer's recommendations for additional preparation if required for excessive bug holes exposed after blasting.
4. Unless otherwise required for proper adhesion, ensure surfaces are dry prior to painting.
5. If hardeners, curing compounds or sealers are to be applied on concrete, use mechanical surface preparation methods.

C. Plastic Surfaces

1. Hand sand plastic surfaces to be coated with a medium grit sandpaper to provide tooth for the coating system.
2. Large areas may be power sanded or brushoff blasted, provided sufficient controls are employed so surface is roughened without removing excess material.

D. Masonry Surfaces

1. Complete and cure masonry construction for 14 days or more before starting surface preparation work. Remove oil, grease, dirt, salts or other chemicals, loose materials, or other foreign matter and clean masonry surfaces of mortar and grout spillage and other surface deposits using specified nonmetallic fiber brushes and commercial detergent cleaner followed by rinsing with clean water as specified in Section 04 20 00.
2. Leave surfaces clean and dry prior to painting unless otherwise required for proper adhesion. Paint masonry surfaces to be of uniform texture and free of surface imperfections that would impair the finished appearance.

E. Wood Surfaces

1. Replace damaged wood surfaces or repair in a manner acceptable to Owner prior to start of surface preparation.
2. Solvent clean (mineral spirits) knots and other resinous areas and coat with shellac or other knot sealer, prior to painting. Remove pitch by scraping and wipe clean with mineral spirits or turpentine prior to applying knot sealer.
3. Round sharp edges by light sanding prior to priming.
4. Filler:
 - a. Synthetic-based wood putty approved by paint manufacturer for the paint system.
 - b. For natural finishes, color of wood putty shall match color of finished wood.
 - c. Fill holes, cracks, and other surface irregularities flush with surrounding surface and sand smooth.

- d. Apply putty before or after the prime coat, depending on compatibility and putty manufacturer's recommendations.
 - e. Use a cellulose type putty for stained wood surfaces.
5. Ensure surfaces are clean and dry prior to painting.

F. Gypsum Board

1. See Architectural Surface Finishes in this specification for required surface preparation.
2. Surface Finish: Dry, free of dust, dirt, powdery residue, grease, oil, or any other contaminants.

G. Existing Surfaces to be Painted

1. Detergent wash and rinse with fresh water. Clean loose, abraded, or damaged coatings to substrate by Hand or Power Tool, SP 2 or SP 3. Perform blasting as required to restore damaged surfaces.

3.04 SURFACE CLEANING METHOD

A. Brushoff Blast Cleaning

1. Equipment, procedure, and degree of cleaning shall meet requirements of SSPC-SP 7, Brushoff Blast Cleaning. Use abrasives consisting of either wet or dry blasting sand, grit, or nut shell. Select various surface preparation parameters such as size and hardness of abrasive, nozzle size, air pressure, and nozzle distance from surface such that surface is cleaned without pitting, chipping, or other damage. Verify parameter selection by blast cleaning a trial area that will not be exposed to view. Owner or Engineer will approve acceptable trial blast cleaned area and will use area as a representative sample of surface preparation. Repair or replace surfaces damaged by blast cleaning.

B. Acid Etching

1. After pre-cleaning, spread the following solution by brush or plastic sprinkling can: 1 part commercial muriatic acid reduced by 2 parts water by volume. Adding acid to water in these proportions gives an approximate 10 percent solution of HCl.
2. Application:
 - a. Application Rate: Approximately 2 gallons per 100 square feet.
 - b. Work acid solution into surface by hard-bristled brushes or brooms until complete wetting and coverage is obtained.
 - c. Acid will react vigorously for a few minutes, during which time brushing is continued.
 - d. After bubbling subsides (10 minutes), hose down the remaining slurry with high pressure clean water.
 - e. Rinse immediately to avoid formation on the surface of salts that are difficult to remove.
 - f. Thoroughly rinse to remove any residual acid surface condition which can impair adhesion.
3. Ensure surface is completely dry before application of coating.
4. Apply acid etching, to obtain a "grit sandpaper" surface profile. If not, repeat treatment.

C. Solvent Cleaning

1. Remove foreign matter such as oil, grease, soil, drawing and cutting compounds, and any other surface contaminants by using solvents, emulsions, cleaning compounds, steam cleaning, or similar materials and methods which involve a solvent or cleaning action. Meet requirements of SSPC-SP 1.

3.05 APPLICATION

- A. GENERAL. Protect workers and work areas from fire and health hazards resulting from handling, mixing, and application. Use primer and undercoat material produced by same manufacturer as finish coats. Use only thinners approved by the manufacturer. Allow sufficient time between coats to allow wet surfaces to dry thoroughly and attain the temperature and conditions specified before applying subsequent coatings. Provide "Wet Paint" signs to protect fresh finishes.
- B. TEMPERATURE. Apply coatings only when the temperature of surfaces to be coated and surrounding air temperatures are between 50 degrees F and 90 degrees F, unless otherwise permitted by manufacturer's printed instructions.
- C. INCLEMENT WEATHER. Do not apply coatings in snow, rain, fog or mist, or when relative humidity exceeds 85 percent, or to damp or wet surfaces, unless otherwise permitted by manufacturer's instructions. Work may continue during inclement weather only if areas and surfaces to be coated are enclosed and temperature and relative humidity within the area can be maintained within limits specified during application and drying periods.
- D. MULTIPLE COMPONENT COATINGS. Prepare using the contents of the container for each component as packaged by paint manufacturer. Mix only components specified and furnished by paint manufacturer. Do not intermix additional components to adjust color or otherwise, even within the same generic type of coating. Discard multiple component coatings that have been mixed beyond their pot life.
- E. FILM THICKNESS. Apply the minimum number of coats specified without regard to coating thickness. Apply additional coats as needed to obtain minimum required paint thickness. Maximum film build per coat shall not exceed coating manufacturer's recommendations.
- F. SUCCESSIVE COATINGS. Sand wood and metal lightly between coats to achieve required finish. Vacuum clean surfaces free of loose particles. Use tack cloth just prior to applying next coat. Where more than one coat is applied, vary shade or tint of successive coats to provide a visual indicator of holidays or coating defects.
- G. FACTORY FINISHED EQUIPMENT. Do not paint architectural components and equipment supplied with a factory-finished final coating including:
1. Architectural woodwork and casework, prefinished partition systems, acoustic materials, entrance doors and frames.
 2. Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, metal toilet enclosures, and similar finished materials.
 3. Finished mechanical equipment including valves, damper operators, linkages, sensing devices, motor and fan shafts, moving parts of operating units, elevator equipment, sprinkler heads or other fire-detection elements.
 4. Finished electrical equipment including light fixtures, switch gear and distribution cabinets.

5. Equipment identification plates bearing performance rating, name or model, or any code-required labels such as Underwriters' Laboratories and Factory Mutual.
- H. BARE AND SHOP PRIMED SURFACES. Prime bare surfaces. Repair shop primed surfaces with compatible primer and apply mist coat of primer, 1 mil dry film thickness. After welding, prepare and prime holdback areas as required for paint system in accordance with manufacturer's instructions. Apply final coating.
- I. CONCRETE, MASONRY, AND POROUS SURFACES
 1. Filler/Surfer: Use coating manufacturer's recommended product to fill air holes, bug holes, and other surface defects.
 2. Prime Coat: May be thinned to provide maximum penetration and adhesion as recommended by paint manufacturer, dependent on surface and type of coating. Provide multiple coats to comply with specified DFT.
 3. Water Base Coating: Apply to damp surface, but free of running water.
- J. PAINTING INACCESSIBLE SURFACES. Coat surfaces of equipment and structural steel framing to be bolted together or joined closely to structures or to one another prior to assembly or installation.
- K. REPAINTING. Verify that existing coatings have oxidized sufficiently to prevent lifting or peeling when overcoated with paints specified. If an aged, plural-component material is to be topcoated, contact coating manufacturer concerned for additional surface preparation requirements. Check compatibility by application to a small area prior to starting painting. If lifting or other problems occur, request disposition from Engineer. Apply one spot coat of the specified primer to bare areas, overlapping prepared existing coating. Apply one full finish coat of the specified primer or finish coat(s) overall. Feather surrounding intact coating.
 1. Factory Finished Surfaces: Schedule inspection with Owner or Engineer before priming or top coating factory finished items delivered to site. Prepare surfaces using specified primer and apply finish paint system.
 2. Ductile Iron Pipe: For pipe with asphaltic varnish finish, apply a coat of tar shop seal coat prior to application of the finish coat.

3.06 INSPECTION AND TESTING

- A. Provide adequate staging and lighting for inspection of surface or coating. Visually inspect coated surfaces to ensure complete coverage and mil thickness including edges, angles, flanges, and other similar areas.
- B. THICKNESS TESTING. After coated areas have dried sufficiently, measure coating thickness specified in mils with a calibrated magnetic type dry film thickness gauge. Test finish coat, except zinc primer, galvanizing, and elastomeric coatings in excess of 25 mils dry, for discontinuities with an electrical holiday detector. Test coatings in excess of 25 mils dry with high voltage units recommended by the coating manufacturer. Check each coat for correct mil film thickness. Do not make measurement before a minimum of 8 hours after application of coating.
- C. ACCEPTANCE CRITERIA. Acceptability of finished coatings and color schemes shall be evaluated against the Project Standards defined in Part 1 of this Section. Evidence of runs, bridges, shiners, laps, holidays, or other imperfections is cause for rejection.

3.07 REPAIR OF DAMAGED COATINGS AND TOUCHUP

- A. At completion of work of other trades, touch-up and restore damaged or defaced coated surfaces. Repair abraded areas on factory finished items as recommended by manufacturer. Carefully blend repaired areas into original finish. Prepare surface and repair defects in accordance with written recommendations of coating manufacturer. If item has an improper finish color, or insufficient film thickness, clean surface and topcoat with specified paint material to obtain specified color and coverage. Hand or power sand visible areas of chipped, peeled, or abraded paint, and feather the edges. Follow with primer and finish coat. Depending on extent of repair and appearance, a finish sanding and topcoat may be required. Apply finish coats, including touchup and damage repair coats to present a uniform texture and matching color.

3.08 CLEANING

- A. During progress of work, remove discarded materials, rubbish, cans, and rags from site at end of each work day. Upon completion of work, clean window glass and spattered surfaces. Remove spattered coatings by washing and scraping, using care not to scratch or otherwise damage finished surfaces. Correct any damage to work of other trades by cleaning, repairing, replacing, and repainting. Remove temporary protective wrappings provided for protection of work, after completion of coating operations.

3.09 COLOR CODE

- A. The following color code is selected from the Sherwin Williams digital color palette, which can be found at www.sherwin-williams.com/homeowners/color/find-and-explore-colors/. Match from other acceptable manufacturers.

Color Coding Schedule

Color Number	Color Name
SW 9183	Dark Clove (Dark Brown)
SW 6431	Leapfrog (Olive Green)
SW 2933	Greenhouse (Dark Green)
SW 6174	Andiron (Dark Gray)
SW 7669	Summit Gray (Light Gray)
SW 6258	Tricorn Black
SW 6914	Eye Catching (Yellow)
SW 6321	Red Bay
SW 6965	Hyper Blue
SW 6841	Dynamo (Purple)
SW 7757	High Reflective White
SW 9116	Serengeti Grass (light brown)

Color Coding Schedule – Buildings

Color Number	Color Name
P1	Benjamin Moore; White Drift; OC-138
P2	Sherwin Williams; Ceiling Bright White; SW7007
P3	Benjamin Moore; Black Jack; 2133-20
P4	Sherwin Williams; Debonair; SW9139
P5	Sherwin Williams; Slate Tile; SW7624
P6	Benjamin Moore; Springfield Tan; AC-5
P7	Sherwin Williams; Kilim Beige; SW6106

3.10 PIPE MARKERS

- A. Pipes exposed or concealed in accessible spaces: Provided with plastic markers for coding pipe. Markers shall be the mechanically attached type that are easily removable. They shall not be the adhesive applied type of marker.
1. Pressure sensitive legends applied to plastic backing, strapped or otherwise mechanically attached to pipe conforming to ASME A13.1-1996.
 2. Coding markers shall not be the individual letter type but shall be manufactured and applied in one continuous length of plastic.
 3. Materials resistant to petroleum-based oils and grease and meeting criteria for humidity, solar radiation, rain, salt, fungus, and leakage as specified in MIL-STD- 810C.
 4. Markers shall withstand continuous operating temperature range of –40 to 180 degrees F.
 5. Include uni- and bidirectional arrows in the same size as legends to indicate flow direction.
 6. Pipe labels shall show flow pipe type as shown on the P&IDs.
 7. Legends and arrows shall be white on blue or red backgrounds and black on yellow or green backgrounds.
 8. Manufactured by W.H. Brady Company or Seaton Name Plate Corporation or equal.
- B. Pipe Marking sizes shall be as shown in the following schedule:

Pipe Marking Sizes

Outside Diameter of Pipe Covering (inches)	Legend Height (inches)
Less than 1-½	1/2
1-½ through 3	1-1/8
Greater than 3	2-1/4

3.11 PIPE COLORS

- A. Pipe colors shall match existing piping systems where appropriate. Coordinate color selection with Owner.
- B. All pipe shall contain a pipe label marker according to the following Pipe Label Color Schedule.

Pipe Color Schedule

Pipe System	Service	Color Name	Color Number
1W	Potable Water	Hyper Blue	SW 6965
2W	Non-potable Water	Dynamo (Purple)	SW 6841
A	Aeration Air	Greenhouse (Dark Green)	SW 2933
ALS	Alum Chemical Feed	Eye Catching (Yellow)	SW 6914
CA	Compressed Air	Greenhouse (Dark Green)	SW 2933
CAS	Citric Acid Solution	Eye Catching (Yellow)	SW 6914
CEN	Centrate	Summit Gray (Light Gray)	SW 7669
D	Drain	Summit Gray (Light Gray)	SW 7669
DS	Digested Sludge	Dark Clove (Dark Brown)	SW 9183

Pipe System	Service	Color Name	Color Number
FA	Odor Control Foul Air	High Reflective White	SW 7757
FE	Final Effluent	Andiron (Dark Gray)	SW 6174
GR	Grit	Summit Gray (Light Gray)	SW 7669
ML	Mixed Liquor	Leapfrog (Olive Green)	SW 6431
MLR	Mixed Liquor Recycle	Leapfrog (Olive Green)	SW 6431
NG	Natural Gas	Red Bay	SW 6321
OF	Overflow	High Reflective White	SW 7757
PER	Permeate	Andiron (Dark Gray)	SW 6174
PD	Pumped Drain	Summit Gray (Light Gray)	SW 7669
POL	Polymer	Eye Catching (Yellow)	SW 6914
RAS	Return Activated Sludge	Dark Clove (Dark Brown)	SW 9183
RAS/WAS	Return Activated Sludge and Waste Activated Sludge	Dark Clove (Dark Brown)	SW 9183
SHC	Sodium Hypochlorite	Eye Catching (Yellow)	SW 6914
SSC	Secondary Scum	Dark Clove (Dark Brown)	SW 9183
SNT	Supernatant	Summit Gray (Light Gray)	SW 7669
TA	Treated Air	High Reflective White	SW 7757
TW	Tempered Water	Hyper Blue	SW 6965
V/VTR	Vent/Vent Thru Roof	High Reflective White	SW 7757
WAS	Waste Activated Sludge	Dark Clove (Dark Brown)	SW 9183
WW	Wastewater	Serengeti Grass (Light Brown)	SW 9116

3.12 ARCHITECTURAL SURFACE FINISHES

A. The scope of this painting schedule involves Architectural finishes for the entire building. These finishes include, but are not limited to:

1. Interior and exterior gypsum board walls and ceilings.
2. Interior masonry unit and cast-in-place concrete walls.
3. Interior and exterior miscellaneous metals, brows, awnings, equipment screens support steel, lintels, and bollards.
4. Interior exposed steel structural columns, deck angles, and beams.
5. Hollow metal doors and frames.
6. Interior steel roof joists and roof deck.
7. Sectional overhead door steel angle door jambs.
8. Unless otherwise indicated, paint all exposed interior and exterior conduit and piping.

B. Gloss Levels: Paint gloss levels specified herein are based on the following ranges:

Description	Gloss Range	ASTM D523 Test Method
Flat	0-15	85°
Eggshell	5-20	60°
Satin	15-35	60°
Semi-Gloss	35-65	60°
Gloss	Over 65	60°

C. Special Architectural finish requirements:

1. Verify that substrate conditions are ready to receive Work. Should any surface be found to be unsuitable to produce a proper finish, notify in writing and do not apply material until the surfaces are made satisfactory. Application of paint to any surface shall be deemed to be acceptance of that surface and full responsibility shall be borne by the Contractor throughout the guarantee period.
2. First quality preparation, painting and finishing is required. Dirt, grit or dust in paint or finish, runs, sags or drips of paint or finish or irregularity of finish is cause for rejection. Remove rejected finishes, repair, re-prime and refinish as required to achieve first quality finish.
3. Work and storage areas must be free of dust during application of paint finishes. Spaces to receive finishes must be clean prior to finishing. Do not apply finishes in spaces with accumulated rubbish, dust or dirt or where construction activity is present.
4. Provide finish coats that are compatible with substrate materials or with prime coats specified in other sections.
5. Patch painting will not be acceptable; total affected area shall be finished. Terminate painting only at corners or joints.
6. Use only coatings with NFPA 101A or B rating in rated exit routes.
7. Gypsum Board Surfaces: Latex fill minor defects. Spot prime defects after repair.
8. Remove all signs, hardware, cover plates, light fixtures, accessories and similar items prior to finishing. Replace after finish operations are completed.

D. Architectural Finish Schedule: See the administration building drawings for coordination of required colors scheduled in this specification. Otherwise, a finish schedule will be prepared by the Architect and submitted to the Contractor during construction to designate coating finish colors for each building item to be painted. The Architect will select up to five additional paint colors to be used throughout the project, which will include separate and distinct colors for the various building components to be painted, as itemized in 3.13 below. Provide draw-down samples of the architectural colors scheduled here-in and the additional colors selected during construction for the project. Submit 3 draw-down samples of each color and finish for final approval prior to commencing coating work.

3.13 ARCHITECTURAL COATING SCHEDULE

A. Exterior and interior surfaces of the building shall be finished as scheduled below. Unless otherwise noted, the products of Sherwin-Williams are indicated to establish a level of quality.

ITEM	1ST COAT	2ND COAT	3RD COAT
Interior Cast-in-Place Concrete & CMU Walls	P2	F2	
Interior and exterior drywall	P1	F1	F1
Exterior & Interior Ferrous primed or galvanized steel, including Hollow metal doors & frames, steel brows over doors, steel angle @ masonry jambs, steel awning framing with associated brackets & plates, support and rail framing at equipment screens, exposed exterior steel masonry opening lintels & steel bollards.	F3	F3	--
Interior overhead Ferrous Metal, including structural columns, steel joists, bridging, roof beams & beams supporting joists, deck angles, misc. interior steel & metal roof deck.	F2	F2	

3.14 ARCHITECTURAL MATERIALS LIST

SYMBOL	GENERIC GROUP	TRADE NAME
PRIMERS		
P1	Latex primer and sealer	Sherwin-Williams PrepRite 200 Latex Primer, B28W200, DFT 1.1 mils.
P2	Block filler/sealer	Sherwin-Williams Kem Cati-Coat HS Epoxy filler/sealer, B42, DFT 15 mils.
FINISHES		
F1	Latex enamel	Sherwin-Williams Promar 200 Zero VOC Latex Semi-Gloss Enamel, B31 2600 Series, DFT 1.5 mils each coat.
F2	Epoxy finish coat	Sherwin-Williams Macropoxy 646, Semi- Gloss Fast Cure, high solids, high build polyamide epoxy. 72% solids. B58-600, DFT 5.0 mils each coat.
F3	Acrylic coating (Waterborne)	Sherwin-Williams DTM Semi-Gloss Acrylic Coating (Waterborne), B66, DFT 3.0 mils each coat.

3.15 INDUSTRIAL COATING SCHEDULES

A. See the following Industrial Coating Schedules for coating systems.

Industrial Coating Schedule

Surface/Exposure	Surface Preparation	Primer		Intermediate Coat		Final Coat		Total DFT, mils
		Type	DFT, mils	Type	DFT, mils	Type	DFT, mils	
Factory Primed Steel (Not scheduled as an architectural surface)								

Surface/Exposure	Surface Preparation	Primer		Intermediate Coat		Final Coat		Total DFT, mils
		Type	DFT, mils	Type	DFT, mils	Type	DFT, mils	
Exterior exposed	SSPC-SP6	Factory Primed	----	Polyamide epoxy, 2 component, 58% solids volume	5	Aliphatic acrylic polyurethane, 2 component, 54% solids volume	5	10
Interior exposed	SSPC-SP6	Factory Primed	----	Polyamide epoxy, 2 component, 58% solids volume	5	Polyamide epoxy, 2 component, 56% solids volume	5	10
Ductile Iron Pipe								
Below Grade	See Section 33 14 13							
Interior exposed	SSPC-SP6 to near black color	Polyamide epoxy, 2 component, 56% solids volume	5	----	----	Polyamide epoxy, 2 component, 56% solids volume	6	11
Exterior exposed	SSPC-SP6 to near black color	Polyamide epoxy, 2 component, 56% solids volume	5	Polyamide epoxy, 2 component, 56% solids volume	6	Aliphatic acrylic polyurethane, 2 component, 54% solids volume	3	14
Immersed	SSPC-SP10 to gray-white color	Polyamide epoxy, 2 component, 56% solids volume, NSF certified w/ NSF/ANSI Std. 61-02e	5	----	----	Polyamide epoxy, 2 component, 56% solids volume, NSF certified w/ ANSI/NSF Std. 61	6	11
Steel (Pipe, Structural, Equipment)								
Below Grade – Pipe	See Section 33 14 13 for pipe							
Interior exposed	SSPC-SP10	Polyamide epoxy, 2 component, 56% solids volume	5	----	----	Polyamide epoxy, 2 component, 56% solids volume	6	11
Exterior exposed	SSPC-SP10	Polyamide epoxy, 2 component, 56% solids volume	5	----	----	Aliphatic acrylic polyurethane, 2 component, 54% solids volume	5	10

Surface/Exposure	Surface Preparation	Primer		Intermediate Coat		Final Coat		Total DFT, mils
		Type	DFT, mils	Type	DFT, mils	Type	DFT, mils	
Immersed	SSPC-SP10	Polyamide epoxy, 2 component, 56% solids volume, NSF certified w/ NSF/ANSI Std. 61-02e	5	----	----	Polyamide epoxy, 2 component, 56% solids volume, NSF certified w/ ANSI/NSF Std. 61	6	11
PVC and CPVC								
Interior exposed	Scarify	Polyamide epoxy, 2 component, 56% solids volume	3	----	----	Same as prime coat	3	6
Exterior exposed	Scarify	Polyamide epoxy, 2 component, 56% solids volume	3	----	----	Aliphatic acrylic polyurethane, 2 component, 54% solids volume	3	6
Concrete and Masonry								
Channels or Tanks (2)	Chemical cleaning, abrasive blast or high pressure water blast	Modified polyamine epoxy, 2 component, 100% solids volume	6	Modified polyamine epoxy(3), 2 component, 100% solids volume	40	Modified polyamine epoxy(3), 2 component, 100% solids volume	40	86
Interior floors/walls of chemical containment areas	Shot blast or mechanically abrade	Polyamide epoxy, 2 component, 96% solids volume	6	Aggregate-filled polyamide epoxy, 2 component and aggregate as per coating manuf., 97% solids volume with aggregate	2 @ 1/16-inch for 1/8-inch total	Polyamide epoxy, 2 component, 98% solids volume	8	> 1/8-inch
Non-Ferrous Metals and Galvanized Steel								
Interior exposed	Per coating manuf.	Polyamide epoxy, 2 component, 56% solids volume	3	----	----	Polyamide epoxy, 2 component, 56% solids volume	5	8
Exterior exposed	Per coating manuf.	Polyamide epoxy, 2 component, 56% solids volume	5	----	----	Aliphatic acrylic polyurethane, 2 component, 54% solids volume	5	10

Surface/Exposure	Surface Preparation	Primer		Intermediate Coat		Final Coat		Total DFT, mils
		Type	DFT, mils	Type	DFT, mils	Type	DFT, mils	
Immersed	Per coating manuf.	Polyamide epoxy, 2 component, 56% solids volume, NSF certified w/ NSF/ANSI Std. 61-02e	5	----	----	Polyamide epoxy, 2 component, 56% solids volume, NSF certified w/ ANSI/NSF Std. 61	6	11

Note:

1. Where NSF/ANSI 61-02e certification is called for, it shall only be required in potable water treatment systems.
2. Required areas for coating application are specified on the drawings. Coating shall provide low permeation to H₂S gas, protects against MIC and provides chemical resistance to severe wastewater environments.
3. Acceptable coatings include Sherwin-Williams COR-COTE SC Plus, Themec Perma-Glaze Series 435, or Sauereisen SewerGard No. 210X.

END OF SECTION