# GEneral

## Related Sections

### Comply with Division 1 – General Requirements and all other Specification Divisions, including:

#### Section 01750 – Disinfection and Testing of Water Retaining Structures and Process Piping

#### Section 11700- Elevated Water Storage Tank

## References

### Comply with the latest edition of the following statutes, codes, standards, and all amendments thereto:

#### ASTM International:

##### ASTM A532/A532M, Standard Specification for Abrasion-Resistant Cast Irons.

##### ASTM B117, Standard Practice for Operating Salt Spray (Fog) Apparatus

##### ASTM D2244, Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates

##### ASTM D4060, Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser

##### ASTM D4141/D4141M, Standard Practice for Conducting Black Box and Solar Concentrating Exposures of Coatings

##### ASTM D4214, Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films

##### ASTM D4541, Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers

##### ASTM D4585/D4585M, Standard practice for Testing Water Resistance of Coatings Using Controlled Condensation

##### ASTM D4587, Standard Practice for Fluorescent UV-Condensation Exposures of Paint Related Coatings

##### ASTM D523, Standard Test Method for Specular Gloss.

##### ASTM D870, Standard Practice for Testing Water Resistance of Coatings Using Water Immersion

##### ASTM G8, Standard Test Methods for Cathodic Disbonding of Pipeline Coatings

#### American National Standards Institute/NSF International:

##### ANSI/NSF 61, Drinking Water System Components – Health Effects.

#### American Water Works Association:

##### AWWA D100, Welded Carbon Steel Tanks for Water Storage.

##### AWWA D102, Coating Steel-Water Storage Tanks.

##### AWWA D107, Composite Elevated Tanks for Water Storage

##### AWWA C210, Liquid-Epoxy Coating and Lining for the Steel Water Pipe and Fittings.

##### AWWA C222, Polyurethane Coatings and Linings for Steel Water Pipe and Fittings

##### AWWA C652, Disinfection of Water‑Storage Facilities.

#### The Canadian Standards Association:

##### CSA B95 Surface Texture (Roughness, Waviness and Lay)

#### NACE International:

##### NACE RP‑01, Design, Fabrication and Surface Finish of Metal Tanks and Vessels.

##### NACE 6A192, Dehumidification, Temperature Control, Surface Preparation, Application, Curing Coatings/Linings, Steel Tanks, Vessels, Enclosed Spaces.

##### NACE SP0178-2007 (formerly RP0178) Standard Practice, Design, Fabrication, and Surface Finish Practices for Tanks and Vessels to Be Lined for Immersion Service.

##### NACE SP0188-2006 (formerly RP0188), Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates.

##### NACE 6A192/SSPC TR 3, Dehumidification and Temperature Control During Surface Preparation, Application, and Curing for Coatings/Linings of Steel Tanks, Vessels, and Other Enclosed Spaces.

#### Occupational Safety and Health Act, R.S.O.1990 c. O.1, and Regulations for Construction Projects.

#### Environmental Protection Act, R.S.O. 1990 c. E.19, Regulations with regard to abrasive blast cleaning and painting procedures.

#### The Society for Protective Coatings (SSPC):

##### SSPC AB 2, Cleanliness of Recycled Ferrous Metallic Abrasives.

##### SSPC Guide 6, Guide for Containing Debris Generated During Paint Removal Operation.

##### SSPC Guide 7, Guide for the Disposal of Lead Contaminated Surface Preparation Debris.

##### SSPC Guide 12, Guide for Illumination of Industrial Painting Projects

##### SSPC PA 1, Shop, Field, and Maintenance Painting of Steel.

##### SSPC PA 2, Procedure for Determining Conformance to Dry Coating Thickness Requirements.

##### SSPC PA 3, A Guide to Safety in Paint Application.

##### SSPC SP 1, Solvent Cleaning.

##### SSPC SP 10/NACE No. 2, Joint Surface Preparation Standard: Near-White Metal Blast Cleaning.

##### SSPC TR3/NACE 6A192, Dehumidification and Temperature Control During Surface Preparation, Application, and Curing for Coatings/Linings of Steel Tanks, Vessels, and Other Enclosed Spaces.

##### Steel Structures Painting Manual Vol. 2 – Systems and Specifications

## Definitions

### Terms used in this Section:

#### Coverage: Total minimum dry film thickness in microns.

#### Micron (µm) = 1 micron = 10e- 6 m = 0.0393701 mil, 1 mil = 25.4 microns.

#### Mil = 25.4 microns (µm) = 0.0254 millimeter

#### MDFT: Minimum Dry Film Thickness, microns.

#### MDFTPC: Minimum Dry Film Thickness Per Coat, microns.

## Intent

### It is the intent of this specification that all steel surfaces be cleaned, properly prepared and coatings applied so that a sound, continuous coating system exists in all areas.

## Design Requirements

### Containment systems and scaffolding must be designed by a Professional Engineer . The Professional Engineer must affix their professional seal and signature to Shop Drawings for such items.

## Damage or Contamination

### The Contractor shall adequately protect, shield, or cover all structures, stores, machinery, equipment, and openings, as identified by the Contractor or as required by the Consultant, to prevent damage or contamination from the Work procedures involved. The Contractor shall be responsible for any such loss or damage, at no cost to the Region.

## Submittals

### Data Sheets:

#### For each coating system, provide three copies of the coating paint manufacturer's technical data sheets, and the coating colours available (where applicable) for each Product used in coating that demonstrates compliance with specification.

#### Submit the required information on a system‑by‑system basis.

#### Provide copies of coating system submittals to the coating applicator.

#### Indiscriminate submittal of manufacturer's literature only is not acceptable.

#### Product and Safety Data Sheets: Submit three copies of data sheets for each product.

#### Provide a detailed chemical and gradation analysis for each proposed abrasive material.

#### Provide proof that the coating system meets requirements of NSF 61.

#### Provide details on the coating system and reports confirming that the system meets or exceeds the performance requirements listed in this specification.

### Colour Samples:

#### Submit the manufacturer's colour samples showing the full range of standard colours.

### Manufacturer's Quality Assurance:

#### Submit the manufacturer's certification that coatings comply with specified requirements and are suitable for intended application.

### Affidavit of Compliance or Certificate of Compliance from the manufacturer or constructor that the materials and work furnished complies with the applicable AWWA standards (AWWA D100 subsection 14.5, D102 subsection 6.3, and C210 subsection 6.3).

### Written proposal outlining method for protection of the adjacent areas to prevent damage or contamination from the work procedures involved.

### Written proposal outlining the methods and sequence for surface preparation and application of coatings. Do not commence any surface preparation or coating application until the review is complete.

### Written proposals shall contain, but not be limited to, description of:

#### Ventilation system, including forced air.

#### Dehumidification systems.

#### Blast abrasive recovery systems.

#### Containment systems.

## Quality Assurance

### Qualifications:

#### Coating Manufacturer's Qualifications:

##### The Contractor shall ensure that the coating manufacturer specializes in the manufacture of coatings with a minimum of 10 years of successful experience in the application of the specified Product.

##### Capable of demonstrating successful performance on comparable projects.

#### Applicator Qualifications:

##### The Contractor shall ensure the applicator is experienced in the application of specified coatings for a minimum of 5 years on projects of similar size and complexity to this Work.

##### Applicator's Personnel: The Contractor shall ensure that the applicator employs persons trained for the application of the specified coatings.

##### Submit proof of qualifications upon request.

### Quality Assurance‑Pre-Application Meeting:

#### Convene a pre-application meeting 5 Business Days before commencing the application of the coating systems. Attendance of the parties directly affecting the work of this Section, including the Contractor, Consultant, applicator, manufacturer's representative and NACE Coating Inspector, shall be required. The following items shall be reviewed at the pre‑application meeting:

##### Health and safety requirements.

##### Environmental protection requirements.

##### Protection of surfaces not scheduled to be coated.

##### Material storage and Safety Data Sheets (SDS’s) for all applicable products.

##### Surface preparation.

##### Application.

##### Repair.

##### Field quality control including inspection requirements, testing and reports.

##### Hold points or check points that require the Work to be inspected by the Consultant prior to moving to the next step of the Work.

##### Cleaning.

##### Protection of coating system.

##### Disinfection in accordance with AWWA C652 specifying the disinfection method.

##### One year inspection and inspection report.

##### Two year inspection and inspection report (end of warranty period).

##### Coordination with the Work.

### Submit a report of alternative recommendations for any adverse conditions encountered.

### Arrange with the paint manufacturer to visit the Site at intervals during the surface preparation and painting operations to ensure that the proper surface preparation and product specific Environmental Requirements have been completed and met, that the specified paint products are being used, that the proper number of coats are being applied and that the agreed finishing procedures are being used, and that the paint manufacturer regularly submits written reports to the Contractor after each Site visit. Submit these reports to the Consultant when received from the coating manufacturer.

### Perform surface preparation and painting in accordance with recommendations of the following:

#### Paint manufacturer's instructions.

#### SSPC PA 3, Guide to Safety in Paint Applications.

#### Federal, provincial, and local agencies having jurisdiction.

### Regulatory Requirements:

#### Meet all regulations established by the Ministry of Labour under the Occupational Health and Safety Act, R.S.O. 1990 c. O.1, and Regulations for construction projects, and by other government authorities, including those regulations pertaining to the handling of hazardous paints and solvent materials.

#### Meet federal, provincial and local requirements limiting the emission of volatile organic compounds.

## Workmanship

### All work performed by the Contractor shall be of the best quality throughout and in accordance with the requirements of SSPC PA 1, unless otherwise specified in the Contract Documents. Any dispute or difference of opinion as to the interpretation of these specifications or regarding the quality of material or workmanship shall be left to the decision of the Consultant, whose decision shall be final and binding.

## Access

### The Contractor shall provide scaffolding and other temporary facilities such as staging, platforms, ladders, etc. as required for execution of the work. Comply with the Occupational Health and Safety Act.

#### Scaffolding shall be designed and sealed by a professional engineer licensed in the Province of Ontario

### The Contractor shall provide free and safe access to the Work area at pre-determined and agreed milestones and setpoints for the benefit of the Consultant, the Region and inspection staff.

### Operational activities will take precedence over construction activities.

## Details of Work

### Any particulars of the Work provided herewith are given only for the guidance of the Contractor who will be held responsible for securing all necessary dimensions and details. The intent of these specifications is to provide for a quality coating system in the areas specified in the Contract Documents.

### The Contractor, at its option, may take additional coating samples and provide testing of these samples for its use and information in determining the level of containment required and air quality standards necessary to meet MECP, OHSA, and other requirements associated with this Work. All costs associated with additional sampling and testing shall be borne by the Contractor.

## Exceptions

### There shall be no departure from these specifications unless otherwise directed by the Consultant. The Consultant has the right, during the performance of the Work, to make alterations, provided that such alterations are instituted before the particular work requiring the change is commenced, and also provided that such alterations will not increase the Contractor's cost. Any exceptions required by the Contractor must be presented in writing to the Region prior to the commencement of the Work.

## Delivery, Storage, and Handling

### Shipping:

#### Protect shop painted surfaces during shipment and handling by suitable provisions including padding, blocking, and use of canvas or nylon slings.

### Storage:

#### Deliver paint materials to the Site in sealed, labeled containers with the manufacturer's labels intact. Store products in a protected area that is heated or cooled to maintain temperatures within the range recommended by paint manufacturer.

#### Do not expose primed surfaces to weather for more than 2 months before being top-coated, or less time if recommended by the coating manufacturer.

## Project Conditions

### Environmental Requirements:

#### Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the coating product manufacturer.

#### Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the coating product manufacturer.

#### Minimum application temperatures shall be as required by the manufacturer's instructions.

#### Provide lighting level equivalent to 80 foot candles (861 lux) measured mid height at substrate surface in accordance with SSPC Guide 12.

#### Painting may be continued during inclement weather only if the areas and surfaces to be painted are enclosed and heated within the temperature limits specified by the coating manufacturer during application and drying periods.

#### Painting shall be suspended when wind velocities exceed that which will allow for a quality application of exterior coatings and where coating could be carried off Site by the wind.

#### Adequate illumination and ventilation shall be provided in all areas where painting operations are in progress. Forced air ventilation shall be supplied to tank interior for a continuous period until at least 48 hours after the final coat has been applied and must be continuous while work is being carried out within the tank interior. Ventilation, at a minimum, shall be in accordance with AWWA D102 and Confined Space Regulations (O. Reg. 632) to achieve acceptable atmospheric levels. If supplemental heating or dehumidification is required to aid in curing the coatings, the Contractor shall furnish and operate the equipment at its own expense as necessary and required to assist in the curing of the coatings.

#### In addition to any air monitoring requirements of the MECP and the OHSA, the Consultant may determine that additional air monitoring is required to ensure that air quality in other parts of the structure is within acceptable levels. At the Consultant's request, the Contractor shall provide additional air monitoring equipment and services as necessary, and at the Contractor’s expense, to verify acceptability of the air quality within the tank.

#### All waste materials resulting from abrasive blast cleaning and coating removal operations shall be cleaned up by vacuuming. Sweeping, shoveling, or other mechanical means to remove the waste materials will not be allowed.

#### The Contractor shall ensure that the containment, collection and storage of waste materials is done in strict accordance with all current federal, provincial, and local regulations with respect to waste handling and disposal, including but not limited to, the *Environmental Protection Act*, RSO 1990 and its regulations.

#### When abrasive blast cleaning is used, the Contractor shall consider all areas which are subject to any abrasive blast cleaning to be of a containment nature, and which shall be subject to all health and safety standards and practices set forth by any and all federal, provincial, and local agencies, authorities, departments, or governing body involved.

#### All waste materials shall be recovered and removed from the Site, and disposed of in accordance with all applicable local, provincial, and federal laws, regulations, and codes. Removed coating, cleaning debris, and abrasive blast cleaning materials shall be cleaned up daily and stored in leak proof covered containers for disposal.

##### Tank interior blast residue shall be stored separately from exterior blast residue and containers labelled as such. Containers shall be designed to keep water from entering the containers.

##### Collection, handling, and disposal of these materials shall be in accordance with OHSA, EPA, and all other governing laws, rules, and regulations. The cost of all disposals under this Contract shall be the responsibility of the Contractor. The Contractor shall consider all waste materials as hazardous unless proven otherwise by additional testing. The Contractor shall make all arrangements and pay all associated laboratory costs necessary to determine if the materials are classified as hazardous waste and shall make necessary arrangements, based upon these results, for the proper disposal of the materials. Copies of all testing results shall be sent to the Consultant prior to the removal of any debris from the Site.

#### The Contractor shall furnish copies of all manifests, chain of custody forms, testing results, etc. to the Consultant for all materials removed from the Site and disposed of prior to the Total Performance of the Work.

#### The Contractor shall provide the name of the treatment or disposal facility to the Consultant for approval prior to the removal of any materials from the Site.

#### All materials removed from the Site shall be transported to a treatment or disposal facility. The treatment or disposal facility shall be approved by the Consultant prior to removal of any materials from the Site. The Contractor shall ensure the transporter shall obtains the necessary insurances and permits required for the transportation of the materials which shall be submitted to the Consultant for approval prior to removal and transporting of materials from the Site.

#### All waste materials that remain on the collector system shall be removed at least once a Day or more frequently if directed by the Consultant.

#### Unless otherwise permitted by the Consultant, all coatings shall be applied by roller, brush, air or airless spray on interior work. Intermediate coats on interior work shall be applied according to the manufacturer's recommendations. Where containment is used for abrasive blast cleaning of the exterior surfaces of tanks, and coating overspray will not affect the performance of the containment material, airless spray will be allowed on the exterior with containment in place. When spraying is used, all welds, edges, inside corners, and structural members shall be painted first using a brush (stripe coated) in a manner not to exceed the maximum DFT for the product being applied and the maximum DFT of the total system as recommended by the coating manufacturer.

## Warranty and Repair

### Warranty

#### Warranty Period: Provide a 2-year Warranty (24 months), commencing at the date of Total Performance of the Work.

##### If the 2‑year warranty period ends between June 15 and September 15, extend the warranty period until November 15 to allow the Region to drain the tank and inspect the Work.

#### Submit the manufacturer's warranty against material deterioration due to system incompatibility, peeling, blistering, uneven fading or colour change, excessive surface erosion or weathering or other forms of coating failure which can be directly attributed to an abnormal coating system breakdown (the "Manufacturer's Warranty"). The Manufacturer's Warranty shall include loss of gloss which shall be less than 24 units as measured by a gloss meter in accordance with ASTM 532/A532M with 60 degree geometry. Exterior coating system shall not chalk in excess of a rating of 8 as measured in accordance with ASTM D4214, Method A. Change colour more than five dE Hunter units as determined in accordance with ASTM D2244 by comparing the affected exposed coating cleaned with water and a soft cloth with the unexposed Original Project Colour Standards maintained by the manufacturer and the Region.

#### Submit the Contractor's warranty against system deterioration due to defects in surface preparation or coating application due to faulty workmanship, or failure to follow the specifications and/or the manufacturer's instructions as set forth in the manufacturer's data sheets, for the warranty period.

#### The Contractor's warranty shall warrant against product failures and include the repair of product failures unless incorporated in the Manufacturer's Warranty.

#### The coating warranties outlined in Section 09960 – Painting of Steel Tanks and Appurtenances shall be provided by the Contractor in its entirety for the minimum duration indicated. Any damage to the coating caused by third party works during the warranty period will be documented and assessed by the Region to determine the impact to the coating warranties provided under this Contract.

#### The maintenance of the tank shall be in accordance with the Region's current maintenance program and will be performed by the Region.

### Warranty Inspection:

#### The Region or its authorized inspectors will perform a warranty inspection at the end of the first year and at the end of the 2-year warranty period.

#### The coating materials manufacturer and the Contractor will be invited to attend the inspection and will be advised in writing of any failure.

### It will be the Contractor's responsibility to identify the 1‑year and 2‑year anniversary inspections to the Region by contacting the Region's Project Manager. The Region has the option of waiving the inspection or requesting additional inspections/repairs.

#### Repair coating failures as directed by the Consultant and at a time acceptable to the Region. When requested, the Contractor shall provide a written repair procedure from or approved by the coating manufacturer for the repair of defects. The Contractor shall not commence repair operations until a repair procedure is approved by the Consultant. It will be at the Consultant's discretion if deviation from this process will result in the removal of the entire system at the defect area.

#### Repairs of greater than 15% of the surface area of either the interior or exterior shall require that the entire system be removed from the structure with reapplication of the specified system at no cost to the Region.

## Measurement and Payment

### All costs associated with the work of this Section shall be included in the prices for Item Nos. A9.XX in the Bid Form.

# PRODUCTS

## Abrasive Materials

### Select abrasive type and size to produce surface profile that meets the coating manufacturer's recommendations for specific primer and coating system to be applied.

### Blasting Grit: Silica sand is a designated substance and is not to be used for the field preparation of surfaces to be coated. Environmentally safe grit shall be used for the blast preparation of surfaces.

## Coating Materials

### General:

#### Manufacturer's highest quality products suitable for intended service.

#### Compatibility: Use only compatible materials from the same manufacturer. Particular attention shall be directed to compatibility of primers and finish coats.

#### Thinners, Cleaners, Driers, and Other Additives: As recommended by coating manufacturer.

### Apply coatings to achieve dry film thickness shown in the Exterior Coating System Application Table at the end of this Section.

### Exterior Coating System: The exterior coating system shall be zinc rich primer/ aliphatic polyurethane/aliphatic fluorourethane coating system conforming to the requirements of AWWA D102 Outside Coating System No. 4 (OCS 4). The exterior shall be coated to the dry film thicknesses shown in the Exterior Paint System Application Table at the end of this Section. The system shall be as follows:

#### Primer of inorganic or organic zinc in accordance with AWWA D102 OCS 4 and the Exterior Coating System Application Table at the end of this Section.

#### Mid coat of aliphatic polyurethane in accordance with AWWA D102 OCS 4 and the Exterior Coating System Application Table at the end of this Section.

#### Coat of aliphatic fluorourethane in accordance with AWWA D102 OCS 4 and the Exterior Coating System Application Table at the end of this Section.

#### The exterior coating materials shall be a system of Products from the same manufacturer.

#### The coating system must meet all the performance criteria as listed below.

##### Adhesion to Steel (coating system as a whole): ASTM D4541-09e1, 1,800 psi minimum value, Method E, Type 5.

##### Gloss Retention: ASTM D4141/D4141M, 96% gloss retention minimum with a 1,260 MJ/m2 exposure.

##### Colour Retention: ASTM D4141/D4141M, 0.18 DED Hunter Scale maximum change with a 1,260 MJ/m2 exposure.

##### Salt Spray: ASTM B117-16, Maximum 1/16 inch rust creep after 10,000 hours exposure.

##### QUV Exposure: ASTM D4587, 60% gloss retention minimum, UVA 340 Bulbs 8 hour UV 4 hour condensation with 25,000 hours exposure.

##### QUV Exposure: ASTM D4587, 1.8 DED FMCII (MacAdam Units for Total Colour Change) maximum change, UVA 340 Bulbs 8 hour UV 4 hour condensation with 25,000 hours exposure.

### Interior Coating System: The interior coating system shall be a zinc rich primer and epoxy topcoat conforming to the requirements of AWWA D102 Inside Coating System No. 3 (ICS 3) and the NSF 61 Standard for Tank Coatings. The maximum dry film thickness shall not exceed the maximum thickness as allowed to obtain NSF 61 approval. The interior shall be coated to the dry film thicknesses shown in the Interior Coating System Application Table at the end of this Section. The inside system shall be as follows:

#### Primer organic zinc in accordance with AWWA D102 ICS 3 and the Interior Coating System Application Table at the end of this Section.

#### Lining of epoxy in accordance with ICS 3 and the Interior Coating System Application Table at the end of this Section.

#### The coating system, including the primer, shall be NSF 61 certified and proof of certification shall be provided to the Consultant during shop drawing submission.

#### The following performance criteria are required for this system:

##### Adhesion to Steel (coating system as a whole): ASTM D4541-09e1 Method E, Type 5, 1,800 psi minimum.

##### Cathodic Disbondment: ASTM G8, Method A (30 day), 5 mm maximum.

##### Abrasion Resistance: ASTM D4060, CS17 Wheel, 0.18 g loss maximum 1 kg weight, 1,000 revs.

##### Humidity Resistance: ASTM D4585/D4585M, no blistering, cracking, or delamination of the system after 2,000 hours exposure.

##### Immersion: ASTM D870-15, no blistering, cracking, or delamination of the system after 2 years continuous immersion.

##### Salt Spray: ASTM B117-16, no blistering, cracking, or delamination of the system and no more than 1/64 inch of rust creepage after 9,000 hours exposure and 1/4 inch of rust creepage after 20,000 hours exposure.

#### All coating materials systems are to be supplied by the same manufacturer.

#### Coating shall be supplied at the Site in new, unopened containers. Materials older than the manufacturer's published shelf life shall not be accepted. Damaged containers will not be accepted. If requested, the Contractor shall provide the Consultant with a 1 L sample of each different lot of material proposed for the Work. Upon the Consultant's request, the Contractor shall provide the Consultant with certified copies of the manufacturer's quality control testing records.

#### Material Lots: Different lots of material shall be kept to a minimum consistent with the manufacturer's production facilities for the Product. Material shall be delivered to the Site in new, unbroken containers bearing the designated name, specification number, colour, directions for use, manufacturer, and date of manufacture with proof of NSF 61 certification for all inside coating systems.

#### Storage of Materials: Coating, patching, and caulking materials shall be stored in a location that is protected from the elements, well ventilated, and free from excessive heat, open flame, and other sources of ignition. The storage area shall be such that the Contractor will be able to maintain ambient conditions in accordance with the manufacturers' storage requirements.

#### Old or Damaged Materials: Materials older than the manufacturer's published shelf life shall not be accepted. Previously opened and damaged containers will not be accepted. All coating materials for any system shall be supplied by the same manufacturer.

#### Material Sample: If requested, the Contractor shall provide the Consultant with a 1 L sample of each different lot or batch of material proposed for the work. Upon the Consultant's request, the Contractor shall provide the Consultant with certified copies of the manufacturer's quality control testing records.

#### Material Identification: All prime, intermediate, and finish coating materials shall be supplied in different colour shades and shall be clearly marked on each container as to the material function and colour.

#### Material Suitability: The coating manufacturer shall submit confirmation in writing that their Product will not introduce toxic materials or product taste or odours into the potable water. Toxic materials shall be those materials identified from time to time by the Ministry of the Environment, Health Canada, and other pertinent regulatory authorities. Taste and odour shall be quantified by APHA/AWWA/WPCF Standard Methods (for examination of water and wastewater).

#### The Contractor shall use a Water Operator licensed by the Ontario Water and Wastewater Certification Office to perform the sampling of water from the elevated tank prior to placing the elevated tank back into service. It will be the Contractor's responsibility to ensure the water samples meet the requirements of the Ontario Drinking Water standards. The licensed Water Operator shall deliver the water samples to a laboratory approved by the Region for testing. The Consultant must be present on Site during the sampling.

##### Salt Spray (Fog): ASTM B117-16.

#### The water samples for bacteriological testing shall be taken by qualified, licensed Region personnel only. The Region shall be responsible for sending the samples to a registered laboratory for testing.

## Manufacturers

### Approved Manufacturers and Coating Systems:

#### Tnemec Company, Inc.

##### Interior System (ICS‑3):

###### Primer Coat: Series 91 H2O or 94-H2O Hydro Zinc.

###### Finish Coat: Series 22 Pota Pox 100 or Series FC22 Epoxoline.

##### Exterior System (OCS‑4):

###### Primer Coat: Series 91 H2O or 94-H2O Hydro Zinc.

###### Mid Coat: Series 1095 Endurashield.

###### Finish Coat: Series V700 HydroFlon.

#### Sherwin‑Williams Company

##### Interior System (ICS‑3):

###### Primer Coat: Corothane I Galvacpac 2K Zinc Primer.

###### Finish Coat: SherPlate PW Epoxy with Opti‑Check Technology (OAP Hardener) or Dura-Plate UHS with Opti-check OAP Technology.

##### Exterior System (OCS‑4):

###### Primer Coat: Corothane I Galvacpac 2K Zinc Primer.

###### Mid Coat: Series B65‑650 Acrolon 218 HS.

###### Finish Coat: Series B65‑550 Fluorokem.

#### Or Equivalent.

## Mixing

### Multiple Component Coatings:

#### Prepare the coatings using each component as packaged by the paint manufacturer.

#### No partial batches will be permitted.

#### Do not use multiple component coatings that have been mixed beyond their pot life.

#### Furnish small quantity kits for touch‑up painting and for painting other small areas.

#### Mix only components specified and furnished by the paint manufacturer.

#### Do not intermix additional components for reasons of colour or otherwise, even within the same generic type of coating.

### Colours: Formulate paints with colourants free of lead, lead compounds.

# EXECUTION

## General

### Provide the Consultant a minimum 7 Days advance notice prior to the start of field surface preparation work and coating application work.

### Perform the work of this Section only in presence of the Consultant, unless the Consultant grants prior approval to perform the work of this Section in the Consultant's absence.

### Schedule inspection with the Consultant in advance for cleaned surfaces and all coats prior to applying subsequent coats.

### The Contractor shall perform a primary inspection of the surface preparation and lining application work to ensure conformance with all pertinent specifications. The Contractor's supervisor should not participate in the physical work, but should limit their activities to supervision, co‑ordination and communication with the Consultant's construction Site personnel and to thorough inspection of the surface preparation and lining installation work.

### All material and equipment furnished, and items of Work performed, will be subject to rigid inspection by the Consultant, the Region, or its authorized inspectors.

### Perform thorough inspection and be satisfied that all the requirements of the specification have been met prior to requesting the Consultant's approval for any portion of the Work.

### Provide adequate facilities, including scaffolding, swing stages, ladders, lighting, etc., as required, for execution of the work and for the inspection of all work by any representative of the Region. Ensure cooperation of all trades and provide labour as required for assistance during the inspection process.

### Manufacturer's Services:

#### Arrange for a qualified representative of the coating manufacturer to visit the Site during the period of coating application to examine surfaces to be coated, materials to be used, and methods of application. Submit a copy of the written report of each visit prepared by the manufacturer's representative to the Consultant.

#### Arrange for the manufacturer's representative to be present at the Site as follows:

##### On first day of application of any coating system: interior and exterior coating system, for a minimum of 4 hours. The Contractor shall ensure that the manufacturer's representative will observe mixing preparation and review the condition of the surface with the Contractor and Consultant prior to the application of the Product.

##### A minimum of two additional Site inspection visits, each for a minimum of 4 hours, in order to provide Manufacturer's Certificate of Proper Installation.

##### A minimum of one additional Site visit during the application of each coat layer of the interior and exterior coating system while the coating is being applied for a minimum of 4 hours, in order to provide the Manufacturer's Certificate of Proper Installation.

##### As required to resolve field problems attributable to or associated with the manufacturer's product.

##### As required to provide recommendations for the repair of coating defects.

##### To verify the full cure of the coating prior to coated surfaces being placed into immersion service.

##### As a minimum, at each of the Work stages noted below, the manufacturer must complete quality inspections and provide the Contractor with approval to proceed with the next phase of the Work in conjunction with the Region's quality assurance inspection team. The Contractor and manufacturer shall perform the necessary inspections required to ensure the proper application of the system in order to provide the warranties specified within this specification.

##### To verify full cure of coating prior to coated surfaces being placed into immersion service.

### Work Stages:

#### Specified inspections are required for each work stage. Do not proceed beyond the Work stage requiring inspection until the Consultant has made or waived inspection. Inspection may be waived only by written notice to the Contractor.

#### Provide the Consultant with a schedule detailing each Work stage and provide notice of delay during the course of the project a minimum of 48 hours prior to when delays are expected.

#### Specified inspections are required for each Work stage as follows:

##### Prior to preliminary blast.

##### Prior to surface upgrading and/or repairs.

##### After surface preparation/upgrading.

##### Prior to each phase of final blast.

##### Prior to each prime phase.

##### Prior to each intermediate coat phase.

##### Prior to each final coat application.

##### After each final coat phase.

##### After deficiency repairs.

### Defective Work:

#### Repair or remove immediately when ordered by the Consultant any defective work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause resulting from actions or omissions, found to exist prior to final acceptance of the Work. Repair using procedures acceptable to the Consultant. Replace any removed items of Work by new work and materials conforming to the Contract Documents. This clause has full effect regardless of the fact that the defective work may have been previously overlooked by the Consultant.

#### Unsatisfactory Application:

##### If an item of Work has an improper finish colour or insufficient film thickness, clean surface and topcoat with specified coating material to obtain specified colour and coverage. Obtain specific surface preparation information from coating manufacturer.

##### Evidence of runs, bridges, shiners, laps, or other imperfections is cause for rejection.

##### Repair defects in accordance with written recommendations of coating manufacturer.

#### Damaged Coatings, Pinholes, and Holidays:

##### Feather edges and repair in accordance with the recommendations of coating manufacturer.

##### Hand or power sand visible areas of chipped, peeled, or abraded coating, 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 touch‑up and damage repair coats in a manner that will present a uniform texture and colour matched appearance.

### Dry Film Thickness:

#### Measure dry film thickness measurements using a Type I or Type II magnetic gauge according to the requirements of SSPC PA2.

#### Dry film thickness shall be measured and evaluated in accordance with the requirements of SSPC PA2, and acceptable tolerances as identified therein.

#### Verify calibration of Type I gauges before, during and after use, using NIST standard plates.

#### Verify calibration of Type II gauges before, during and after use, using either traceable standards (test blocks) or plastic shims (reference the manufacturer's instructions).

#### Calibration of magnetic gauges should be done in accordance with SSPC PA2, "SSPC method for measurement of dry coating thickness with magnetic gauges".

#### Provide dry film thickness within the range specified in the Interior and Exterior Application Tables as found within this specification Section and as measured in accordance with SSPC PA2.

### Work on Tank Interior:

#### Do not place or use any equipment within the interior of the tank without the prior written approval of the Consultant and the Region.

## Interior Tank Pre‑Cleaning

### The Contractor shall pre‑clean the interior of the elevated tank with a pressure water wash down.

### All water, silt/solids and any other foreign material shall be removed from the tank prior to commencing interior coating works. The Contractor shall assume a silt/solid accumulation depth of 900 mm from the lowest wet interior floor elevation of the tank. Measurements will be made at the time of initial draining. If solids are in excess of 900 mm, the Contractor will be requested to provide a quotation for the additional effort for cleaning.

### The Contractor shall utilize one or two vacuum excavation (vac‑ex) trucks as appropriate, depending upon the amount of silt/solids found within the tank, for the cleaning process. Water and silt/solids from the tank interior may be directed to the overflow line and discharged to the nearest downstream manhole.

#### The Contractor shall implement the necessary measures to ensure that the silt/solids do not proceed further downstream. The silt/solids shall not be discharged to the environment.

#### The Contractor shall submit a pre‑cleaning plan to the Consultant for review and approval prior to performing the work.

### Tank pre‑cleaning shall be coordinated with the Region for the operation of all valves.

## Surface Preparation Preliminary

### Prepare exterior surfaces in accordance with the requirements of ASME B46.1 and the coating manufacturer's instructions.

### Prepare interior surfaces of tanks in accordance with NACE Standard SP0178 (formerly RP0178).

### Remove accumulations of bird droppings, sediment, iron oxide precipitate, etc. by high pressure water cleaning, blast cleaning, or other suitable method approved by the Consultant.

### Correct steel and fabrication defects revealed by surface preparation.

### Ensure all welds are continuous.

### Remove all welding residue (including flux, spatter and slag).

### Round sharp edges and corners of welds to a smooth contour.

### Smooth weld undercuts and recesses.

### Grind down porous welds to pinhole‑free material.

### Fill pits deeper than 5 mm with 1 100% solids epoxy fillter compound approved by the Consultant after the prime coat has cured but prior to application of the second coat. Blast cleaning may be necessary in localized areas to institute this procedure.

### Tank Defect and Repair:

#### Accumulation of bird droppings, sediment, iron oxide, etc., shall be removed by high pressure water cleaning, blast cleaning, and/or other suitable methods approved by the Consultant.

#### Pitted areas shall be blast cleaned to a SSPC SP 10 standard near white quality, then thoroughly inspected by the Consultant. Pits deeper than 5 mm shall be filled with a coating system manufacturer's approved epoxy polyamide compound after the prime coat has cured but prior to application of the second coat.

#### After cleaning, tank surfaces shall be upgraded to meet the requirements of NACE SP0178. Particular attention shall be given to the welds and adjacent plates. All old weld scabs and remains of old erection clips shall be removed and ground smooth.

### The Contractor shall not proceed with preliminary or final surface preparation until the installation of the antenna mast, communication equipment and handrailing and communication supports on the tank roof have been completed.

## Surface Preparation Final

### Oil and Grease:

#### Prior to blast cleaning remove all oil or grease contamination in accordance with the requirements of SSPC SP 1 Solvent Cleaning.

### Blast Cleaning:

#### Blast clean all interior and exterior steel surfaces in accordance with the requirements of SSPC SP10/NACE 2, Near White Blast Cleaning using clean dry abrasive to produce a surface profile of 50 to 70 microns, or profile as recommended by the coating supplier.

#### At the finish of any primer application leave a 150 mm wide strip of uncoated, blast cleaned steel between primed and un-blasted surfaces.

### Blast Cleaning – Partial Coating Replacement and Weld Preparation:

#### Blast clean all bare steel and rusted areas in accordance with the requirements of SSPC SP10/NACE 2 using clean dry abrasive which will produce a surface profile of 50 to 70 microns, or profile as recommended by the coating supplier. Extend blast cleaning around perimeter of area until sound coating is found. Feather edges of existing coatings

#### At the finish of any primer application leave a 150 mm wide strip of uncoated, blast cleaned steel between primed and un-blasted surfaces.

#### At areas where primer, intermediate or topcoats are in sound condition, clean all surfaces by high pressure water blasting or sweep blasting to remove all soil and deteriorated coating.

### Recycled Abrasive:

#### New abrasive should be used to start abrasive blasting.

#### Recycling of new abrasive media initially used on Site is acceptable for use during abrasive blast cleaning operations when used with abrasive recycling equipment to extract all dust and foreign materials.

#### The cleanliness of the recirculated abrasive media shall be in accordance with SSPC AB 2. The Contractor shall perform tests on recirculated abrasive in the presence of the Consultant.

#### The use of the recycled abrasive shall cease when the required surface profile cannot be obtained, when it has failed test results, or when the recycler is not extracting contaminants or foreign matter.

### Reclaimed Abrasive:

#### Do not use reclaimed abrasive for any final blast cleaning operation.

### Areas where Blast Cleaning is Not Permitted:

#### In all such areas, prepare surfaces in accordance with the requirements of SSPC SP 3 Power Tool Cleaning. If permitted, apply high pressure water cleaning to remove all soil and deteriorated coating before proceeding with SSPC SP 3 cleaning.

#### The Contractor shall provide the equipment necessary for all power tooled areas to obtain the minimum surface profile as recommended by the coating manufacturer.

#### Power tool cleaning equipment must be equipped with dust collection systems when used outside of an approved containment area.

### Contamination:

#### Exercise care to prevent contamination of any cleaned or coated surfaces prior to over-coating. Provide a rough surfaced sisal type mat at the tank entrance after surface preparation for cleaning footwear prior to entering the tank.

### Final Cleaning:

#### The Contractor shall provide the equipment and methods to obtain the acceptable level of dust accumulation of all areas prior to coating application; this includes the use of compressed air blowdown.

#### Prior to the commencement of the coating application, the assessment of dust on the steel surface shall be performed in accordance with ISO 8502‑3:

##### Emersion Surface (Tank Interior): The blasted clean surface shall have a dust quantity rating of not greater than 1 with a dust size class not greater than 1 or as recommended by the coating manufacturer.

##### Dry Surface (Tank Exterior): The blasted clean surface shall have a dust quantity rating of not greater than 2 with a dust size class not greater than 1 or as recommended by the coating manufacturer.

#### Ensure that the appropriate specified degree of surface preparation exists as each coat of paint is being applied. The ambient conditions will dictate the interval between blasting and painting.

### Dew Point:

#### Do not perform cleaning operations for final surface preparation if steel temperatures are less than 3 degrees Celsius above the dew point.

## Application

### The Contractor shall not proceed with surface preparation and coating application until the installation of all interior tank fixtures and accessories, exterior antenna mast, permanent installation of communication equipment, handrailing and communication supports on the tank roof.

### Depending on the condition of degree of surface preparation, commence the painting schedule at the appropriate stage to maintain the specified total dry film thickness. As a minimum requirement apply one full finish coat of the specified thickness over the entire surface area to be coated as indicated in the Contract Documents.

### Apply coating materials in successive coats as specified in the Coating Systems Application Table, Exterior at the end of this Section, and in accordance with the directions of the manufacturer to attain the required film thickness for each system.

### Prior to any field painting, grind all welds and sharp edges, including those revealed by blast cleaning, prime, and stripe with a topcoat material of a colour contrasting with both the primer and second coat colours. Apply by brush and work in well on all rough areas that cannot be successfully ground smooth.

### If the allowable recoating period, as specified by the coating manufacturer, has elapsed since the application of the prior coat, the entire surface shall be lightly abraded in accordance with the manufacturer's recommendations (brush‑off abrasive blast, power sanding, hand sanding, etc.). After light abrasion, the entire surface shall be cleaned in accordance with SSPC SP 1. The entire surface shall be cleaned to remove any surface contaminants prior to the commencement of the light abrasion in accordance with SSPC SP 1, if required.

### Prepare surfaces for over-coating in conformance with the coating manufacturer's recommendation. Use brush blasting if the recoat window has expired and the manufacturer so recommends.

### Do not mix partial paint kits. Maintain a sufficient supply of small volume kits to supply any requirement for small batches.

### Coating Uniformity:

##### Apply all coatings uniformly without sags, foreign materials contamination, or other blemishes.

##### At the discretion and direction of the Consultant remove defects and repair before proceeding with subsequent coat.

##### Thoroughly mix all ingredients in any container prior to use and agitate often enough during application to keep the pigment in suspension.

### Application Method:

#### Apply all coatings by spray according to the manufacturer's published instructions unless prohibited under the OHSA.

#### Where spray is prohibited, use roller application except that brushing will be accepted where rolling would not be effective.

#### All rollers used shall be lint free.

#### Thoroughly mix all ingredients in any container prior to use and agitated often enough during application to keep the pigment in suspension.

#### Mix and thin coatings, including plural‑component materials, only in accordance with the manufacturer's instructions.

#### Keep containers closed when not in use to avoid contamination.

#### Do not use mixed coatings beyond pot life limits.

#### Use application equipment, tools, pressure settings, and techniques in accordance with the manufacturer's instructions.

### Spray Pressure:

#### Regulate pressures on the spray gun to achieve optimum atomization of the coating at the lowest possible pressure. Excessive dry spray, or overspray, will not be accepted.

### Spray Technique:

#### Overlapping (50%) vertical passes followed by overlapping (50%) horizontal passes (or vice versa) with each spray coat to obtain uniform film thickness.

#### Apply a complete wet coat in each operation.

#### If sagging occurs, use a mist coat/full coat application to obtain the desired wet film thickness per coat.

#### Coat all brackets, nozzles, irregular surfaces, etc. first and blend the surrounding regular surfaces into these areas.

### Dew Point:

#### Do not apply coating materials when the surface to be coated is less than 3 degrees Celsius above the dew point.

#### Use a surface temperature thermometer in intimate contact with the steel for monitoring purposes.

#### Apply coatings in accordance with maximum Relative Humidity (R.H.) conditions as advised by the coating manufacturer, except do not apply coating above 80% R.H. except for inorganic zinc.

#### Do not apply coating when steel temperature is above 59 degrees Celsius.

### Curing:

#### Strictly follow manufacturer's published curing schedule, and steel temperatures, rather than ambient temperatures, are to be the basis of cure times.

## Access Tube and Tank Floor

### The access tube (dry side) and underside of the tank floor shall be recoated with the same ICS system as the interior of the tank.

### Surface preparation shall be performed in accordance with this Specification Section.

## Non‑Skid Coating

### A non‑skid coating shall be placed on the exterior tank roof after completion of the exterior coating system.

### The non‑skid coating shall be recommended by the approved coating manufacturer.

### The non‑skid coating shall consist of:

#### A circular area, 5.0 m in diameter, located at the centre of the tank roof.

#### A path, 1.2 m wide, from the 5.0 m diameter circular area up to the painter's rail hatches located along the perimeter of the tank roof. A non‑skid path shall be provided for the two painter's rail hatches located on the tank roof.

## Ventilation

### Ventilation shall conform to all applicable requirements of AWWA D102, Section 7.3 and the requirements of the Ontario Ministry of Labour.

### The Contractor shall design and maintain adequate and continuous forced air ventilation in addition to natural convection attained by keeping all tank hatches open during all coating operations.

### Provide continuous forced air ventilation at a rate of at least one air change every 4 hours, for a minimum of 48 hours after coating application is completed or until coating is completely cured in accordance with the coating manufacturer's recommendations.

## Dehumidification

### Furnish, install and operate appropriately sized dehumidification equipment to assist in the coating and curing of the coating systems.

### Where interior coatings are to be applied provide equipment to maintain a minimum of 6.5 degrees Celsius dew point depression between internal steel surface temperature and internal ambient air dew point temperature and a relative humidity of 40% maximum inside the tank.

### Dehumidification shall be performed in accordance with Contract requirements and manufactures recommendations; whichever is more stringent and will not negatively impact the application and curing of the coating system.

### Operate dehumidification equipment 24 hours a Day on a continuous basis during cleaning, priming and painting and until the coatings have fully cured.

## Heating

### Furnish, install, and operate appropriately sized heating equipment to assist in the painting and curing of the interior coating systems when surface temperatures reach below the manufacturer's specified minimum temperature for application and curing.

### Heating equipment shall be of a forced air type and is required to increase the interior ambient temperature of the tank enough to result in an increase of the surface temperature.

### Operate heating equipment when surface temperatures are below 4 degrees Celsius or as recommended by the coating manufacturer, whichever is the higher temperature. Heating shall be in operation during cleaning, priming and painting, coating repairs and until the coatings have fully cured.

## Holiday Testing

### Check interior and exterior coatings with a wet sponge or high voltage holiday detector in accordance with NACE SP0188 (formerly RP0188) and the recommendations of the coating manufacturer. Perform all tests in the presence of the Consultant.

### Testing shall conform to all applicable requirements of AWWA D102, Section 5.1.

### Repair all holidays identified and re‑test.

### Furnish to the Consultant upon request holiday test report conforming to the requirements of AWWA D102, Section 5.1.

## Clean‑up

### Remove all discarded paint materials, rubbish, cans and rags from the Site at the end of each Working Day during the progress of the Work.

### Upon completion of the painting work, clean all paint‑splattered surfaces.

### Remove splattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished work.

### Touch‑up and restore all damaged or defaced surfaces to the satisfaction of the Consultant.

## Disinfection

### Refer to Section 01750 – Disinfection and Testing of Water Retaining Structures and Process Piping for additional requirements.

### Conform to all applicable requirements of AWWA C652, and as specified below.

### Disinfect the interiors of all water tanks prior to putting tanks into service.

### Notify the Consultant a minimum of 10 Days prior to the Work being ready for disinfection.

### After the tank has been painted and interior surfaces have thoroughly dried, remove any visible dirt or contaminating materials. Disinfect the interior of the tank using Chlorination Method 2 as described in AWWA C652, and as specified below. The Region will provide the required disinfecting agent in order to complete disinfection. The Region and the Consultant will be present during disinfection activities.

### The Region will furnish the water for initial disinfection. The Contractor shall be responsible for properly disinfecting the tank as determined by bacteriological tests taken by qualified, licensed Region personnel only. After disinfection and filling, a minimum of two bacteriological samples (one immediately after tank is filled and a second one after 24 hours) will be taken for testing by an approved laboratory in accordance with the latest Ontario Drinking Water Standard requirements. All costs associated with cleaning and disinfection to achieve acceptable limits shall be included and paid for by the Contractor. The Region and Consultant will be present during disinfection activities.

### The Region will furnish the water for initial disinfection.

### The Contractor shall be responsible for obtaining proper disinfection as determined by bacteriological tests taken by Region in the presence of the Consultant and Contractor.

### At the same time as the second bacteriological test, one water sample shall be collected by the Region in the presence of the Consultant and Contractor and sent to a Region approved laboratory to be analyzed for VOCs as outlined in subsection 3.13 below and the Ontario Drinking Water Standards.

### In addition, while taking samples on the second Day, the Region will collect one water sample which shall be analyzed for free chlorine residual. The free chlorine residual level in the water shall be greater than 0.5 mg/L and less than 1.5 mg/L prior to placing tank back into service.

### If additional disinfection is required, or an objectionable taste and odour in the tank water exist due to painting operations, the Contractor shall pay the Region for the additional chemicals required, water chemistry analysis and additional water required, at a cost to be computed from the Region's current rate schedule and laboratory invoices. Such additional disinfection shall be carried out at no additional cost to the Region, until bacteria free samples, acceptable taste and odour free samples are obtained, and the requirements of the Ontario Drinking Water Standards are satisfied.

## VOC Monitoring

### After the tank has been filled but prior to placing it in service arrange with the Region for testing the water for volatile organic contaminant (VOC). Conduct analysis by a laboratory, which is specifically approved for the work to be performed and approved by the Region. The cost for such testing will be borne by the Region.

### Perform monitoring for vinyl chloride and 52 principal organic contaminants including drinking water volatile hydrocarbons and drinking water volatile aromatics in accordance with the Environmental Laboratory Approval Program.

### Analyze Hydrocarbons by EPA Method 524.2 with a detection limit of 0.5 mg/l or less.

### Analyze aromatics will by EPA Method 524.2 with a detection limit of 0.5 µg/l or less.

### Do not place the tank into service until VOCs are below the MCL for drinking water.

### If VOC levels exceed Ontario Drinking Water Standards for drinking water, drain the tank, refill, disinfect, and retest. The cost for any retesting will be at the Contractor's sole expense.

## Coating System Application Tables

### The following tables outline each coating layer of the specified coating system. Material details and performance requirements are listed in Part 1 and Part 2 of this Specification Section.

## Graphics

### The Contractor shall provide a price under Item Nos. A9.XX in the Bid Form for the following graphics applied to the exterior of the vertical wall of the tank:

#### the text "York Region" and the York Region logo on two sides of the tank, and

#### the text “City of Vaughan” and the City’s logo on two sides of the tank.

### Unless instructed otherwise by the Region, the Local Municipality text shall be in Times bold typeface and small caps, the small caps being 80% of the height of the full size upper case letters. The text height shall be approximately 90% of the tank's vertical face. Text height shall be finalized through shop drawing reviews. The Contractor shall provide proofs of the following tank graphics for review and approval by the Region and shall allow a period of 30 Days for the Region to complete its review process.

#### The proof shall include an overhead view drawing of the tank with dimension of the tank, length of each logo and space between each logo with north arrow and orientation requested by the Region.

## Colour

### Interior: The colour of the interior of the tank shall be white or as light and reflective a colour as is available from the approved manufacturer (e.g., eggshell, beige, silver). The Contractor shall provide colour samples for each finished coating colour on the interior surface for the Region's review and approval before ordering Product.

### Exterior: The colour of the exterior background, vertical surfaces, roof of the tank shall be white. The lower cone portion shall be a blue tone specifically in Pantone Matching System (PMS) 072. The Contractor shall provide colour samples for each finished coating colour on the interior and exterior surface for review and approval before ordering the Product.

### Graphics: The text “York Region” and logo shall be in Pantone Matching System (PMS) 072. The stylized trillium and rising star in the Region's logo are officially designated as PMS 072 screened 30 percent.

### All large colour samples of actual paint system shall be provided to the Region for review and approval. Minimum size of sample is 200 mm by 250 mm. The minimum quantity of samples provided shall be four.

## Coating of Appurtenances

### The scope of this Work shall also include the coating of new appurtenances installed as part of this Contract. Installed appurtenances shall be coated with the approved coating systems noted in this specification.

### Perform coating of all piping, fittings, bolted connections, pipe supports and any other exposed metal surface within the wet interior, this includes but not limited to, stainless steel ladders, the exterior surface of the outlet and inlet pipe sections including flange assemblies, the exterior surface of the overflow pipe and the recoating of the dome floor hatch. Items within the wet interior shall be coated with the approved wet interior coating system including mixing system piping.

### The exterior stainless-steel surface of the mixing system shall be coated with the approved wet interior coating system. Refer to Section 11268 - Hydrodynamic Mixing System.

### The dry side of the dome floor hatch shall be coated with the approved coating system for the access tube.

#### EXTERIOR PAINT SYSTEM APPLICATION TABLE

|  |  |  |  |
| --- | --- | --- | --- |
| Description | Application Temperature | Max. Relative Humidity (R.H.) | Dry Film Thickness |
| Zinc Rich Primer | As directed by the manufacturer | As directed by the manufacturer | 65µm to 100 µm |
| Epoxy Tie Coat | As directed by the manufacturer | As directed by the manufacturer but not greater than 80% | 75µm to 125 µm |
| Aliphatic Polyurethane | As directed by the manufacturer | As directed by the manufacturer but not greater than 80% | 50µm to 88 µm |
| **Total Thickness** |  | | **190µm to 301 µm** |

INTERIOR PAINT SYSTEM APPLICATION TABLE

|  |  |  |  |
| --- | --- | --- | --- |
| Description | Application Temperature | Max. Relative Humidity (R.H.) | Dry Film Thickness |
| Zinc Rich Primer | As directed by the manufacturer | As directed by the manufacturer | 65µm to 100 µm |
| Epoxy or 100% Solids Epoxy applied in one or two coats | As directed by the manufacturer | As directed by the manufacturer but not greater than 80% | 500 µm to 625 µm |
| **Total Thickness** |  | | **565 µm to 725 µm** |

**END OF SECTION**