
**SPECIFICATIONS
FOR**

CITY OF KALAMAZOO

FINAL SETTLING TANK LAUNDRER COVERS

SECONDARY CLARIFIER REHABILITATION PROJECT

JANUARY 2026



SECTION 46 43 00 - CIRCULAR CLARIFIER EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY:

A. Section Includes:

1. This Section includes, but is not necessarily limited to, the furnishing and installation of clarifier launder covers as indicated on the Drawings, as specified herein, and as necessary for the proper and complete performance of the Work.

1.2 SUBMITTALS:

A. Product Data: Manufacturer's product data for system materials and component equipment.

B. Shop Drawings:

1. Name of Manufacturer and Model.
2. General arrangement and dimensional Drawings of the launder cover system.
3. Plan and profile Drawings of the launder cover.
4. Handling, storage, and installation instructions.
5. List of required accessories and suggested spare parts.

C. Manufacturer's Certificate: Products meet or exceed specified requirements.

D. Operation and Maintenance Manuals:

1. Equipment function, normal operating characteristics, and limiting conditions.
2. Assembly, installation, alignment, adjustment, and checking instructions.
3. Instructions for maintenance and cleaning.
4. Guide to troubleshooting.
5. Parts list and predicted life of parts subject to wear.
6. Outline, cross sections, exploded view assembly drawings, and engineering data.

1.3 QUALITY ASSURANCE:

A. Qualifications:

1. Manufacturer:

- a. Company specializing in manufacturing products specified in this Section with a minimum of five (25) years documented experience through successful similar installations that have been in continuous operation over that period.

- b. Naming a Manufacturer does not relieve them from complying with the requirements of the Contract Documents.
 - c. The Contract Documents represent the minimum acceptable standards for the launder covers.
 2. Fabrication and installation personnel:
 - a. Trained and experienced in the fabrication and installation of the materials and equipment.
 - b. Knowledgeable of the design and the reviewed submittals.
- 1.4 DELIVERY, STORAGE, AND HANDLING:
 - A. Delivered to the site fully fabricated.
 - B. Receiving and Storage:
 1. Deliver all materials in original, unbroken, brand marked containers or wrapping as applicable.
 2. All Equipment: Boxed, crated or otherwise completely enclosed for protection during shipment, handling and storage.
 3. Handle and Store Materials:
 - a. According to Manufacturer's instructions.
 - b. In a manner which will not affect the equipment warranty.
 - c. In a manner which will prevent deterioration or damage, contamination with foreign matter, and effects of weather or elements.
 4. Inspect equipment prior to unloading and notify Manufacturer of any damage to equipment.
 - C. Rejected Material and Replacements:
 1. Reject damaged, deteriorated, or contaminated material and immediately remove from the Site.
 2. Replace rejected materials with new materials at no additional cost to Owner.
- 1.5 EXISTING CONDITIONS:
 - A. Field Measurements:
 1. Verify field measurements prior to fabrication.
 2. Indicate field measurements on Shop Drawings.
 - B. Provide additional geomembrane fabric for reuse of launder covers on future clarifier upgrade.

1.6 WARRANTY:

- A. Furnish non-prorated Manufacturer's warranty on the launder cover for a period of one (1)-year, covering defects in materials and workmanship.
- B. Furnish a minimum 10-year Manufacturer's warranty on the UV-protected membrane.

PART 2 - PRODUCTS

2.1 CLARIFIER LAUNDER COVER:

A. Manufacturers:

- 1. IEC.
- 2. Or Engineer approved equivalent.

B. Description:

- 1. System covering clarifier launder to inhibit growth of algae on the launder troughs by minimizing sunlight on these surfaces.
- 2. Fabricated from flexible geomembrane, stainless steel support brackets, and anchoring as specified herein.
- 3. Outer edge of each of the launder cover panels is coupled to the outer wall via one or more straps.
- 4. Fully designed to allow operators to tension the covers.
- 5. Designed to enable the removal of the flexible geomembrane panels without wrenches or specialized tools.
- 6. Designed for ease of installation in an operating clarifier.
- 7. Manufactured in the minimum number of sections required to allow convenient installation.

C. Performance and Design Criteria:

1. Launder Cover:

- a. Custom designed and factory prefabricated.
- b. Manufactured and delivered to the site in a state of completion such that no further fabrication is required other than to connect individual completed sections and attachment hardware required for installation.
- c. Manufacturer: Utilize only virgin quality elastomeric geomembrane materials.
- d. All Seaming: Completed at the Manufacturer's facility.
- e. Material: Industrial grade XR-5® geomembrane with individual panel seams dielectrically sealed and a UV protective membrane, compounded for maximum resistance to fluids encountered in an industrial or municipal waste treatment environment.
- f. Include an upper and a lower reinforcement member at the interior and exterior edge from which tension is placed by the ratchet system.
- g. Stainless steel hardware, no galvanized allowed.

h. Conform to the following minimum properties:

- 1) Material: Polyester, meets or exceeds ASTM D751.
- 2) Weight: 6.5 oz/syd nominal.
- 3) Thickness: 45 mils nominal, meets or exceeds ASTM D751.
- 4) Weight: 42.0 (+/-) 2.0 oz/syd, meets or exceeds ASTM D751.
- 5) Tear Strength: 40/55 lb. min, meets ASTM D751 trap tear.
- 6) Breaking Yield Strength: 550/550 lb. min, meets ASTM D751 grab tensile.
- 7) Low Temperature Resistance: -30° F, meets ASTM D2136 4 hour 1/8in mandrel.
- 8) Dimensional Stability: 0.5% max. each direction, meets ASTM D1204 212° F C-1 hr.
- 9) Hydrostatic Resistance: 800 psi min, meets ASTM D751 Method A.
- 10) Blocking Resistance: #2 rating max, meets ASTM D751 at 180° F.
- 11) Adhesion-Ply: 15 lb./in. min. or film tearing bond, meets ASTM D413 Type A.
- 12) Adhesion-Heat Welded Seam: 40 lb./2 in. min, ASTM D751 Dielectric Weld.
- 13) Dead Load Seam Strength: Pass 240 lb./in. at 70° F and 120 lb./in. at 160° F, ASTM D751 4-hour test.
- 14) Bonded Seam Strength: 550 lb. min, ASTM D751 Procedure A, grab test method.
- 15) Abrasion Resistance: 2,000 cycles min. before fabric exposure, 50 mg/100 cycles max. weight loss, meets ASTM D3389 H-18 Wheel, 1 kg load.
- 16) Weathering Resistance: 8,000 hours min. with no appreciable change, stiffening, or cracking of coating. Meets ASTM G153.
- 17) Water Absorption: 0.025 kg/m² max. at 70° F and 0.14 kg/m² max at 212° F, meets ASTM D471, Section 12, 7-day test.
- 18) Wicking: 1/8 in max, meets ASTM D751.
- 19) Bursting Strength: 750 lb. min, ASTM D751 ball tip.
- 20) Puncture Resistance:
 - a) 275 lb. min, meets ASTM D4833.
 - b) 350 lb. (approx.), FTMS 101C Method 2031.
- 21) Coefficient of Thermal Expansion/Contraction: 8x10⁻⁶ in/in/°F max, meets ASTM D696.
- 22) Environmental/Chemical Resistance Properties: NSF 61 approved for potable water, meets ASTM D741 for 7-day total immersion with exposed edges.

2. Anchoring System:

a. Laundry Cover Anchors:

- 1) Installed in the location shown on the plans.
- 2) Each Laundry Cover Anchor: Consist of a stainless-steel concrete anchor bolts with epoxy as determined by Manufacturer and installer.
- 3) Outer Side of the Cover: Secured with a strap and ratchet.

- 4) Interior of the Cover: Secured within a stainless-steel bracket.
3. Ratchets and Strapping:
 - a. Refer to plan for design size and location.

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. Verify that existing Site conditions and substrate surfaces are acceptable for installation of the launder covers – beginning of installation signals acceptance of existing conditions.
- B. Verify that the existing launder and clarifier equipment is capable of structural support and/or attachment of the launder covers.
- C. Verify that all fabrication and welding of the launder cover was performed in a climate-controlled building and that all straight welds are thermal welded.

3.2 INSTALLATION:

- A. Contractor: Install the launder covers in accordance with the Contract Drawings, Manufacturer's installation instructions and drawings, and the recommendations of the Manufacturer.
- B. Supplier: Provide installation supervision services as a part of overall launder cover supply.

3.1 FIELD TESTING:

- A. Prior to final acceptance.
- B. Promptly make changes and additions required to provide acceptable testing results.

3.2 CLEANING:

- A. Thoroughly clean all installed materials and products and related areas: Prior to acceptance of the Work of this Section.

END OF SECTION 46 43 00