MICHIGAN

DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

FOR

**SPECIAL PATTERN RAILING REHABILITATION**

BRG:MGB 1 of 2 APPR:MJF:JAB:05-14-24

**a. Description.** This work consists of furnishing, fabricating, and installing architectural aluminum bridge railing as shown on the plans. Construct railing in accordance with section 711 of the Standard Specifications for Construction, except as shown on the plans and specified herein.

**b. Materials.** Construct the architectural railing from aluminum plate of alloy 5052-H34 and aluminum pipe of alloy 6061-T6 using appropriate weld filler. Ensure materials are in accordance with *ASTM B209/B209M*.

Furnish elastomeric leveling pads in accordance with subsection 914.12.B of the Standard Specifications for Construction.

**c. Construction.** Prior to fabrication, field verify dimensions furnished on the plans and shop drawings for the replacement panels.

Fabricate railing in accordance with 20SP-707A-02 - Structural Steel and Aluminum Construction. Furnish shop drawings, erection drawings, and catalog data in accordance with subsection 104.02 of the Standard Specifications for Construction.

● Welding will be GTAW-TIG process.

● Finish material in accordance with the Standard Designation for Mechanical Finishes as defined by the National Association of Architectural Metal Manufacturers (NAAMM) and the National Ornamental & Miscellaneous Metals Association (NOMMA). Finish material to a: Buffed Aluminum Mechanical Finish M21 Smooth Specular.

● Finish joints to NOMMA Finish No. 3, Partially Dressed Weld with Splatter Removed.

Fabricate and erect replacement panels as shop made units.

Fabricate and assemble all posts and intermediate vertical connectors to be plumb to level grade when the bridge is in the closed position. Ensure top and bottom pipe rails and the top and bottom lines of the railing infill are tangent to the vertical curve of the bridge deck or parallel to sloping grade at the midpoint of a given railing panel. Connect adjacent panels to each other using slip connections in the top pipe rail as shown on the plans. Weld slip connections one side only as shown on the plans.

For the replacement railing units, ensure the infill is laser or water-jet cut from a single sheet of plate aluminum. MDOT will furnish to the Contractor electronic CAD files of infill patterns to assist in laser or water-jet cutting set-up. Ensure cuts are smooth and without burrs, sharp edges, or sharp reentrant corners. Prepare infill with 3 inches of additional pattern on each end so that when aligned with the top and bottom tubes, the pattern will abut the posts. Rotate the infill pattern about a given panel’s midpoint to accommodate the bridge profile.

Miter pipe rails and infill panels as required. Ensure all mitered corners are partial penetration welds ground smooth all around.

Anchor railing posts to the bascule span using stainless steel bolts of the size and grade shown on the plans. Anchor railing posts to concrete as shown on the plans, using a 1/8 inch thick elastomeric leveling pad between the aluminum base plate and the adjacent concrete.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

**Pay Item Pay Unit**

Spec Pattern Railing Rehabilitation Foot

**Spec Pattern Railing Rehabilitation** includes all material, labor, and equipment required to furnish, fabricate, and erect the architectural railing as shown on the plans. Payment includes all costs associated with performing field measurements. The measured length of the railing will be at the sidewalk surface along the centerline of the railing, including bump-outs.