ITEM 607.0101 11 - CABLE SAFETY RAILING FOR PARK FACILITIES
ITEM 607.0102 11 - CABLE SAFETY RAILING FOR PARK FACILITIES WITH HANDRAIL

DESCRIPTION This work shall consist of furnishing and installing Cable Safety Railing For Park Facilities or Cable Safety Railing With Guiderail For Park Facilities, which will include steel posts, cable wire rope, component parts and steel top rail along walkways, steps, or ramps where shown in the contract documents or where directed by the Engineer.

MATERIALS The materials for this work shall meet the requirements of the New York State Steel Construction Manual and the following subsections of NYSDOT Standard Specification Section 700- Materials:

Cable and Components: The cable shall be 10mm 1x19 stainless steel wire rope provided by manufacturer as shown on in the contract documents. All cable rail assembly materials and fittings including, but not limited to, turnbuckles, rubber grommets, terminal fittings, washers, lock nuts and end caps shall meet the standards as specified by manufacture. Cables shall be as manufactured by:

Termination Stud System Manufactured by Hayn Enterprises, LLC 51 Inwood Road Rocky Hill, CT 06067	System 2105 stud to turnbuckle Manufactured by Secosouth, Inc. 2111 34th Way Largo, FL 33771	Type 3 turnbuckle with end terminals Manufactured by Ronstan International Inc. 45 Highpoint Avenue, #2 Portsmouth RI, 02871

or equal as approved by the Regional Landscape Architect.

Steel Top Rail, Posts & Components: The rails, posts, and connection sleeve shall be steel ASTM A575, grade M 1020 galvanized to conform to section 719-01 of the NYSDOT Standard specifications and have dimensions as specified on the plans. All galvanized surfaces shall provide an acceptable substrate for applied powder coatings. Embedded posts shall be stainless steel bars and meet the requirements of ASTM A666, Type 316. Anchor bolts shall meet the requirements of Section 723-60 of the NYS DOT Standard Specification.

Galvanizing: All posts, connection sleeve and shall receive Galvanized Coatings Type 5 Flame Spray Coating System to conform to Section 719-01 of the NYSDOT Standard Specifications. All fabrication and welding shall be completed prior to application of this corrosion resistant coating. All material as delivered shall be in condition for erection without field fitting or cutting.

Powder Coating: All surfaces of the all posts, connection sleeve, blots and rods shall be powder coated with TGIC Polyester Powder Coating, the coating shall be applied to galvanized steel in such a manner that the coating will not peel off. The TGIC Polyester shall be applied at a film thickness of 0.075mm to 0.15mm by electrostatic spray process and bake finished per manufacturer's directions. The TGIC-Polyester shall be applied without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point. Color shall be black semi-gloss, unless otherwise specified in the contract documents.

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At the discretion of the Engineer, a sample TGIC-Polyester powder coated items may be laboratory tested for bonding of the powder coating to the metal. Test shall be the Cross Hatch test per ASTM D3359, method B. Failure to satisfactorily pass this test shall be a basis for rejection.

Hardware: Type and dimensions of all bolts, nuts, and washers shall be as indicated on the plans and conform to section 710-23 Steel Bridge and Cu1vertg Railing of the NYSDOT Standard Specifications. Threads of all bolts shall have the ends upset after installation of nuts so as to render the connection vandal resistant.

Grout: Epoxy Polysulfide Grout to conform to Section 721-03 of the NYSDOT Standard Specifications. Color of grout shall match surrounding pavement, curb, or wall.

Submittals. For each component, submit product data indicating they meet ASTM standards referred under "materials" above. Shop drawings shall be submitted to the Regional Landscape Architect for review and approval. Show fabrication and installation of railings. Include plans, elevations, sections, component details, and attachments to other work. Submit assembled sample of railing system, made from full-size components, including top rail, post, and cables. Show method of finishing members at intersections. Sample need not be full height.

Fabrication. The railing shall be fabricated to the dimensions and configurations shown on the contract plans and in compliance with these specifications. Assemble railings in the shop to greatest extent possible to minimize field splicing and assembly. Fabrication and welding shall comply with NYSDOT Steel Construction Manual. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces. Fabricate anchorage devices capable of withstanding loads imposed by railings. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges. Ease exposed edges to a radius of approximately 1mm, unless otherwise indicated.

Finishing. All rail post components, except stainless steel cable and embedded posts, shall receive flame spray coating to improve the adhesion of the powder coating. All rail post components, except stainless steel cable and embedded posts, shall then be powder coated on all surfaces. Powder coatings shall be applied to the galvanized surfaces in such a manner that the coating will not peel off. Surfaces to be coated shall be clean, dry, free of grease, dust, rust, etc.

CONSTRUCTION DETAILS

Installation of Cable Railing. Embedded post or anchor bolts shall be anchored to granite coping and concrete walls or bridge deck as indicated on plans. Anchor bolts and studs embedded or grouted in concrete for securing post and railing base plates shall meet the requirements of §723-60. Holes for embedded posts shall be surface dry and shall have had all foreign and loose material removed immediately prior to grout placement. Epoxy Grout shall be mixed and placed in strict accordance with the manufacturer's instructions. No grout shall be placed at a temperature below that recommended by the grout manufacturer. Prior to embedded post placement in the grouted hole, all material which might interfere with bond between embedded post and the grout shall have been removed. This includes, but is not limited to: moisture, grease, dirt, mill scale and rust. The embedded post shall be inserted full depth into the hole and shall be manipulated to ensure complete coverage by the grout. After insertion of the post, all excess grout shall he struck-

off flush with the coping face. Should the grout fail to fill the hole after embedded post insertion, additional grout shall be added to the hole to allow a flush strike-off.

Immediately prior to erection, the railing shall be inspected for damage. Significant bend or kinks in the railing not specifically called for in the contract plans and documents shall constitute sufficient cause of rejection. Straightening of such bends or kinks shall not be allowed. All railing shall be erected in accordance with approved shop drawings prepared and submitted as specified in the New York State Steel Construction Manual. Posts shall be set vertical, set posts plumb within a tolerance of 2mm in 1m.

The top rails and cables shall be erected so that they are parallel to each other and to the top of the wall coping. Cable maximum runs shall not exceed 12m without a transition post. The cables shall be tensioned minimize the deflection of the cable so as to not allow a .1m sphere to pass between the cables when they are properly tensioned in the frame. The contractor shall follow manufactures instructions for cable installation.

Do not weld, cut or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting. Align rails so variations from level for horizontal or from parallel with wall slope do not exceed 5mm in 3m. Adjust railings before anchoring to ensure matching alignment at abutting joints. Space posts at intervals indicated, but not less than that required by structural loads. Railing posts shall be bolted to embed posts for securing railing and for properly transferring loads to in-place construction.

Touch-up & Repair will be required for minor damage at bolted connections, and at abrasions sustained during transportation and installation. The Contractor shall apply organic zinc repair paint to damaged galvanized surfaces. Thickness of repair paint shall be not less than that required by ASTM A123. The Contractor shall repair damaged powder coated surfaces in accordance with the manufacturer's recommendations. The repair shall not visible from a distance of 1.8 meters.

METHOD OF MEASUREMENT

This work will be measured as the number of meters of Cable Safety Railing for Park Facilities or Cable Safety Railing with Handrail for Park Facilities satisfactorily furnished and installed.

BASIS OF PAYMENT

The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.

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