

STEEL GRID FLOORING

*From Dummerston BHO 1442(28)

- xx. DESCRIPTION. This work shall consist of designing, fabricating, transporting, and installing steel grid flooring.

The work under this Section shall be performed in accordance with these provisions, the Plans, and the manufacturer's recommendations.

- xx. MATERIALS. Materials shall meet the requirements of the following Subsections:

General Requirements for Structural Steel.....	714.01
Structural Steel.....	714.02
High Strength Bolts, Nuts, and Washers.....	714.05

Steel used in the work shall conform to Section 506 and the AASHTO *Standard Specifications for Highway Bridges* and shall be galvanized after fabrication in accordance with the requirements of AASHTO M 111M/M 111.

Stainless steel bolts and fasteners shall be Type 304 and shall be supplied with a Type A certification.

The following manufacturers are capable of supplying a steel grid flooring system that meets these specifications:

Alabama Metal Industries Corporation (AMICO)
3245 Fayette Avenue
Birmingham, AL 35208
Tel.: (800) 238-0322
Fax: (815) 932-4557
www.amico-stayform.com

Bailey Bridges, Inc.
119 40th Street N.E.
Fort Payne, Alabama 35967
Tel.: (800) 477-7320
Fax: (256) 845-7775
www.baileybridge.com

IKG Industries
675 Line Road, Suite 3B
Aberdeen, NJ 07747
Tel.: (732) 705-9001
Fax: (732) 441-2701
www.ikgindustries.com

McNichols Co.
45 Power Road
Westford, MA 01886-4111
Tel.: (800) 237-3820
Fax: (978) 692-0044
www.mcnichols.com

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Requests for substitutions for the above shall be submitted to the Agency's Office of Contract Administration a minimum of 10 days in advance of the bid opening date. Substitutions for the above after award shall be approved by the Resident Engineer.

xx. GENERAL FABRICATION REQUIREMENTS. Material furnished under this Section shall conform to the requirements of Section 506.

xx. SUBMITTALS. The Contractor shall submit Working Drawings, including all connection details, manufacturer's specifications, erection procedures, load tables, and calculations to the Structures Engineer for approval in accordance with Section 105.

The Contractor shall include the information required under Subsection 506.18(a) pertaining to erection or installation, including design and details for lifting attachments.

xx. DESIGN REQUIREMENTS. The design and structural details of the steel grid flooring system shall be prepared, signed, stamped, and dated by a licensed Professional Engineer (Structural or Civil).

The steel grid flooring shall be designed for M-13.5 (H-15) live loading. Deflections shall meet the AASHTO L/800 requirement for M-9 (H-10) live loading. The grid flooring system shall not weigh more than 170 kg/m² (35 lb/ft²). All grid flooring panel components shall be designed by the manufacturer's engineer, shall be fabricated with a non-serrated plain surface, and shall be connected by rivets and/or welded.

The grid depth shall be as detailed on the Plans. The minimum thickness of main steel bearing bars in steel grid flooring shall be 9 mm (1/4 inch). The maximum opening in the steel grid flooring shall be 50 mm (2 inches) and the minimum opening in steel grid flooring shall be 19 mm (3/4 inch). Grid panels shall be provided with load banding on all sides.

xx. CONSTRUCTION REQUIREMENTS.

(a) General. The Contractor shall take care to protect the steel grid flooring from damage prior to installation. Any damaged steel shall be touched up with an approved zinc rich primer at no additional cost to the State.

(b) Grid Panels. Grid panels shall be fastened to a minimum of three floorbeams. Panels shall be connected to the floorbeams by intermittent welds along the floorbeams. The grid deck shall be attached to the top flange of each floorbeam with 6 mm x 40 mm (1/4 inch x 1.5 inch) fillet welds, spaced at 300 mm (12 inches) maximum along the floorbeam. Each grid deck panel shall have a minimum of four attachments to each floorbeam.

The bottom plates of concrete-filled grid panels shall be 11 gage minimum. The bottom plates shall be perforated on a 50 mm (2 inch) grid with 9 mm (1/4 inch) diameter holes. The bottom plate shall be tack welded to main grid panel

bars at 150 mm (6 inches) on center. An alternative fastening system connecting the bottom plate to the steel grid flooring may be submitted to the Engineer for consideration and approval.

(c) Concrete. The entire width of steel grid deck shall be filled with Concrete, High Performance Class AA in areas at each end of the bridge as shown on the Plans. The concrete shall be struck smooth with the top of the steel grid deck and shall be level with the top of the grid flooring +/- 2 mm (1/16 inch). Concrete shall be mixed, placed, and cured according to procedures for bridge decks specified in Section 501.

xx. METHOD OF MEASUREMENT. The quantity of Special Provision (Steel Grid Flooring) to be measured for payment will be the number of square meters (square yards) installed in the complete and accepted work.

xx. BASIS OF PAYMENT. The accepted quantity of Special Provision (Steel Grid Flooring) will be paid for at the Contract unit price per square meter (square yard). Payment will be full compensation for preparing and submitting Working Drawings as specified; furnishing, detailing, handling, transporting, and placing the materials specified in accordance the manufacturer's recommendations; preparing the surfaces of new steel to be galvanized; galvanizing of surfaces; furnishing and implementing the erection plan; and for furnishing all labor, tools, equipment, materials, and incidentals necessary to complete the work.

All nondestructive testing and required quality control activities will be considered incidental to fabrication, and no separate payment will be made.

Concrete for filling steel grid decking will be paid under the appropriate Section 501 item in the Contract.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.675 Special Provision (Steel Grid Flooring)	Square Meter (Square Yard)