

Section 02603**FRAMES, GRATES, RINGS, AND COVERS****1.0 GENERAL****1.01 SECTION INCLUDES**

- A. Iron castings for manhole frames and covers, inlet frames and grates, catch basin frames and grates, meter vault frames and covers, adjustment rings and extensions.
- B. Ring grates.
- C. References to Technical Specifications:
 - 1. Section 01200 – Measurement and Payment Procedures
 - 2. Section 01350 - Submittals
- D. Referenced Standards:
 - 1. American Society for Testing and Materials (ASTM)
 - a. ASTM A 48, “Standard Specification for Gray Iron Castings”
 - b. ASTM A 615, “Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement”
 - c. ASTM C 270, “Standard Specification for Mortar for Unit Masonry”
 - 2. American Association of State Highway and Transportation Officials (AASHTO)
 - a. AASHTO M 306, “Drainage, Sewage, Utility, and Related Castings”
 - 3. American Welding Society (AWS)
 - a. AWS D12.1, “Reinforcing Steel Welding Code”
 - 4. Texas Commission on Environmental Quality (TCEQ)
 - a. Chapter 217.55 “Minimum Clear Opening”

1.02 MEASUREMENT AND PAYMENT

- A. Unless indicated as a Bid Item, no separate payment will be made for frames, grates, rings, covers, and seals under this Section. Include cost in Bid Items for which this Work is a component.
- B. If frames, grates, rings, covers, and seals are included as a Bid Items, measurement will be based on the Units shown in Section 00300 – Bid Proposal and in accordance with Section 01200 – Measurement and Payment Procedures.

1.03 SUBMITTALS

- A. Make Submittals required by this Section under the provisions of Section 01350 – Submittals.
- B. Provide copies of manufacturer's specifications, load tables, dimension diagrams, anchor details, and installation instructions. Manufacturer shall be East Jordan Iron Works, Inc. or as approved by public works.
- C. Provide Shop Drawings for fabrication and erection of casting assemblies. Include plans, elevations, sections and connection details. Show anchorage and accessory items. Include Setting Drawings for location and installation of castings and anchorage devices.

2.0 PRODUCTS**2.01 CASTINGS**

- A. Castings for frames, grates, rings and covers shall conform to ASTM A 48, Class 35B and AASHTO M 306. Provide locking covers if indicated on Plans.
- B. Castings shall be capable of withstanding the application of an AASHTO H-20 loading without permanent deformation.
- C. Fabricate castings to conform to the shapes, dimensions, and with wording or logos shown on the Plans.
- D. Castings shall be 75% post-consumer recycled material, clean, free from blowholes and other surface imperfections. Cast holes in covers shall be clean and symmetrical, free of plugs.

2.02 BEARING SURFACES

- A. Machine bearing surfaces between covers or grates and their respective frames so that even bearing is provided for any position in which the casting may be seated in the frame.

2.03 SPECIAL FRAMES AND COVERS

- A. Where indicated on the Plans, provide stainless steel inflow preventers and watertight manhole frames and covers with a minimum of four bolts and a gasket designed to seal cover to frame. Supply watertight manhole Frames and Covers, Model R-1916 manufactured by Neenah Foundry Company, Model V-2420 by East Jordan Iron Works, or as approved by public works.
- B. Where personnel entry is anticipated, minimum clear opening of 30-inches is required.

2.04 FABRICATED RING GRATES

- A. Ring grates shall be fabricated from reinforcing steel conforming to ASTM A 615.
- B. Welds connecting the bars shall conform to AWS D12.1.

2.05 MORTAR

- A. Conform to requirements of ASTM C 270, Type S using Portland cement.

3.0 EXECUTION

3.01 INSTALLATION

- A. All installations that have an elevation difference between the final elevation of the manhole cover and the surrounding finished grade greater than 18 inches will be required to be hinged, lift assist gasketed ring and cover.
- B. Install castings according to approved Shop Drawings, instructions given in related Sections, and applicable directions from the manufacturer's printed materials.
- C. Set castings accurately at required locations to proper alignment and elevation. Keep castings plumb, level, true and free of rack. Measure location accurately from established lines and grades. Brace or anchor frames temporarily in formwork until permanently set.
- D. Ring grates shall be fabricated in accordance with Plans and shall be set in mortar in the mouth of the pipe bell.

END OF SECTION