ITEM NO. 851
EXISTING MANHOLE ADJUSTMENTS

851.1 DESCRIPTION: This item shall govern the adjustment of all existing manholes, to include the replacing of existing manhole covers and rings regardless of type shown in the contract documents and in conformity with the provisions of these specifications or as directed by the Engineer. All material and construction work shall be in accordance with current Texas Commission on Environmental Quality (TCEQ) rules to include: Design Criteria for Sewage Systems (30 TCEQ § 217), or any revision thereto as applicable. All manholes shall be watertight and coated with a SAWS-approved sewer coating. The context of this specification is limited to adjusting the final elevation of the manhole by the maximum or minimum number of throat rings. Manhole rings and covers shall be in conformance with Item No. 852, “Sanitary Sewer Manholes”. Sewer manhole ring and cover castings shall meet the current requirements of the American Association of State Highway and Transportation Officials (AASHTO) Designation M306-10. All manholes requiring adjustments beyond the maximum or minimum number of throat rings (described herein), shall be subject to Item No. 855, “Existing Manhole Reconstruction.”

851.2 REFERENCED STANDARDS: The following standards are referenced herein or otherwise related to the project work and shall be the current edition:

1. AASHTO – American Association of State Highway and Transportation Officials:

2. ASTM – American Society for Testing and Materials:
San Antonio Water System Standard Specifications for Construction

3. COSA – City of San Antonio:

4. TCEQ – Texas Commission on Environmental Quality:

851.3 SUBMITTALS: Contractor shall submit manufacturer’s product data, instructions, recommendations, shop drawings, and certifications. All submittals shall be in accordance with Owner’s requirements and submittals shall be approved by the Owner prior to delivery.

851.4 MATERIALS:
   1. Manhole Rings and Covers (if replaced): Refer to Item No. 852, “Sanitary Sewer Manholes”.
   2. Concrete Throat Rings (if applicable): Refer to Item No. 852, “Sanitary Sewer Manholes”.
   3. Internal Liner for Use in Conjunction with Concrete Throat Rings: Refer to Item No. 852, “Sanitary Sewer Manholes”. UV stabilized polyethylene for the purpose of providing an infiltration/inflow (I/I) barrier. I/I barrier must meet the following ASTM standards: ASTM D790 for flexural properties; ASTM D1505 for density; ASTM D1238 for Melt Flow Index; ASTM D638 for tensile strength at yield (50mm/mm); ASTM D790 for flexural modulus; ASTM D648 for heat deflection temperature at IGEPAL; and ASTM D693 for EsCR, 100% IGEPAL/10% IGEPAL.
   4. Bitumastic Joint Sealant. To be applied between cones, risers, adjustment rings, flat tops, and between the ductile cast iron ring and the uppermost adjustment ring or flat top: RAM-NEK, as manufactured by Henry, Inc.; Kent Seal, as manufactured by Hamilton-Kent, Inc.; Encapseal, as manufactured by Miller Pipeline Corporation; or approved alternate.

851.5 CONSTRUCTION: Manholes shall be lowered below street subgrade before placing base materials, and openings shall be protected by temporary hatch covers. Manholes adjusted in non-paved areas shall be set per proposed final grade.

Existing manhole rings and covers which are determined by the Inspector to be in an unacceptable condition, will be removed and replaced with new rings and covers. If the cone section is removed, the Contractor is to upgrade it to a 30 inch opening as required by 30 TAC § 217. All manhole openings upgraded to 30 inches shall then be subjected to all provisions of Item No. 855, “Existing Manhole Reconstruction,” except for the “Manhole Ring and Cover” provisions, which are specified under Item No. 852, “Sanitary Sewer Manholes.”
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Contractor shall take all necessary measures to prevent damage to existing or new rings, covers, or cones from equipment and materials used in, or taken through, the work area. If an existing or new manhole cover, ring, or cone is damaged by the Contractor, it shall be replaced (as directed by the Inspector) by the Contractor at his own expense within 10 working days. If concrete throat rings are to be installed, they must be used in conjunction with a UV stabilized polyethylene liner and inflow/infiltration (I/I) barrier, as specified under No. 852, “Sanitary Sewer Manholes.”

Manholes shall be adjusted after the street’s base material has been laid and before placing of the final surface course. Manholes that are going to be adjusted on an existing surface course (not planned for replacement) will be in accordance to the City of San Antonio Utility Excavation Criteria Manual Standard Drawing No. 8.8, but must first be directed by the Engineer. All manholes shall then be raised, or lowered a sufficient height so as to be level with the finished surface course. Adjustment in height will be made by the addition or removal of “throat rings” above the manhole cone.

Note of Clarification: A minimum of two and a maximum of six “throat rings” may be used at each adjusted manhole. “Throat rings” are limited to a minimum of two and a maximum of four rings for new manhole construction.

The sets of rings and covers shall be marked in such a way that they can be matched for assembly in the field. All covers shall have the words "SAN ANTONIO WATER SYSTEM Sanitary Sewer" cast thereon. Ring and cover shall have the approved foundry’s name, part number, country of origin preceded by “Made in” (example: MADE IN USA) in compliance with the country of origin law of 1984, and production date (example: mm/dd/yy) for tracking purposes. Each casting must be marked with DI (ductile iron) and ASTM A536 or A536 80-55-06 or CI (cast iron) and ASTM A-48, Class 35B to verify the materials used. Castings without proper markings shall be rejected. Refer to Item No. 852, “Sanitary Sewer Manholes” for further details.

Joints between cones, risers, adjustment “throat rings”, flat tops, and between the ductile cast iron ring and the uppermost adjustment ring or flat top shall be thoroughly sealed in accordance with manufacturer’s recommendations with strongly adhesive bitumastic products: RAM-NEK, as manufactured by Henry, Inc.; Kent Seal, as manufactured by Hamilton-Kent, Inc.; Encaseal, as manufactured by Miller Pipeline Corporation; or approved alternate. Where precast concrete risers are used, any gaps in the outer joint surfaces shall be additionally coated with quick-set, non-shrink grout.
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Other Construction Requirements: Refer to Item No. 852 “Sanitary Sewer Manholes” for the following requirements:

1. The Contractor shall conform to detail DD-852-03 as modified herein and install concrete manhole ring encasements for manhole adjustments and for ring and cover replacements and re-installations when required by Engineer or Inspector.

Material excavation from around the manholes shall be replaced with flowable fill in accordance with these specifications, and select materials from the excavation (as shown in the contract documents). All excess materials shall be disposed of by the Contractor at his own expense and in an approved location. Disposal location to be approved by Engineer or Inspector. The Contractor also has the option of backfilling with approved secondary materials, subject to the provisions of Item No. 804, “Excavation, Trenching and Backfill.”

851.6 MEASUREMENT: Manholes completely adjusted, as prescribed above, will be measured by the unit of each manhole adjusted. The excavation and the amount of flowable fill, reinforced concrete, or any other material as necessary to fill the area excavated, will not be measured for payment.

851.7 PAYMENT: The work performed as prescribed by this item will be paid for at the contract unit price bid per manhole for “Existing Manhole Adjustment,” which price shall be full compensation for all excavation, including saw cutting of surfaces as required, reinforced concrete and disposal of material excavated; for furnishing and placing all materials and for all labor, tools, equipment, all testing and incidentals necessary to complete the work.

- End of Specification -