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. All material and construction work shall be in accordance with the Texas Commission on Environmental Quality (TCEQ) rules to include: Design Criteria for Sewerage Systems (30 TAC § 217) and Chapter 213 ("Edwards Aquifer Recharge Zone"), or any revisions thereto as applicable.

851.2 REFERENCED STANDARDS: Reference standards cited in this Specification Item No. 851 refer to the current reference standard published at the time of the latest revision date logged at the end of this Specification Item No. 851, unless a date is specifically cited.

1. San Antonio Water System (SAWS):
   a. Specifications for Water and Sanitary Sewer Construction
   b. SAWS Materials Specifications
2. City of San Antonio (COSA) Standard Specification for Construction
3. Texas Commission of Environmental Quality (TCEQ)
   a. 217 Design Criteria for Domestic Wastewater Systems
   b. Chapter 213 ("Edwards Aquifer Recharge Zone")
4. AASHTO – American Association of State Highway and Transportation Officials:
   a. AASHTO M306: Standard Specification for Drainage, Sewer, Utility, and Related Castings.
5. ASTM – American Society for Testing and Materials:
   a. ASTM A536: Standard Specification for Ductile Iron Castings.
   b. ASTM D638: Test Method for Tensile Properties of Plastics.
   c. ASTM D648: Standard Test Method for Deflection Temperature of Plastics under Flexural Load in the Edgewise Position.
   d. ASTM D790: Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
   e. ASTM D1238: Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer.
   f. ASTM D1505: Standard Test Method for Density of Plastics by the Density-Gradient Technique.
   g. ASTM D1693: Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics.
6. Texas Commission on Environmental Quality (TCEQ)
   a. Design Criteria for Sewage Systems (30 TCEQ § 217)
   b. Edwards Aquifer Recharge Zone (30 TCEQ § 213)

851.3 SUBMITTALS: Contractor shall submit manufacturer's product data, instructions, recommendations, shop drawings, and certifications. All submittals shall be in accordance

with Engineer's requirements and submittals shall be approved by the Engineer prior to delivery.

1. Submit proposed methods, equipment, materials and sequence of operations for sewer construction.
2. Plan operations so as to minimize disruption of utilities to occupied facilities or adjacent property.
3. Submit test reports and inspection pre and post construction.
4. Submit pre and post construction videos. Videos become property of SAWS.

851.4 MATERIALS:

1. 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) and Edwards Aquifer Recharge Zone (30 TCEQ § 213), or any revision thereto as applicable.
2. All manholes shall be watertight and include SAWS Approved Infiltration/Inflow (I&I) barrier. See SAWS APL
3. High Density Polyethylene (HDPE) Throat Rings (if applicable): Refer to Specification Item No. 852, Sanitary Sewer Manholes. No concrete throat rings shall be used.
   a. HDPE Throat rings are to be no more than 2 inches in thickness.
4. Manhole rings and covers shall be in conformance with Specification Item No. 852, "Sanitary Sewer Manholes".
5. Internal Liner for use in Conjunction with HDPE Throat Rings: Refer to Specification 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.
6. Bitumastic Joint Sealant. To be applied on any ungasketed mating surfaces at the discretion of the Inspector. 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.

851.2 CONSTRUCTION: Manholes shall be lowered below street subgrade before placing base materials, and openings shall be protected by temporary hatch covers.

1. Manholes adjusted in non-paved areas shall be set per proposed final grade.
2. All manholes requiring adjustments beyond the maximum or minimum number of throat rings (described herein), shall be subject to Specification Item No. 855, Existing Manhole Reconstruction.
3. 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.

4. If the cone section is removed, the Contractor is to upgrade it to a 30 inch opening as required by 30 TAC § 217, at no cost to SAWS.
5. All manhole openings upgraded to 30 inches shall then be subjected to all provisions of Specification Item No. 855, Existing Manhole Reconstruction, except for the "Manhole Ring and Cover" provisions, which are specified under Specification Item No. 852, Sanitary Sewer Manholes.
6. 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 three (3) working days.
7. Manholes shall be adjusted after the street's base material has been laid and before placing of the final surface course.
8. Manholes that are planned for adjustment 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.
9. All manholes shall then be raised, or lowered a sufficient height so as to be level with the finished surface course.
10. Adjustment in height will be made by the addition or removal of "throat rings" above the manhole cone.
11. Note of Clarification: A minimum of two and a maximum of six "throat rings" may be used at each adjusted manhole.
12. "Throat rings" are limited to a minimum of two and a maximum of four rings for new manhole construction.
13. Throat rings shall not exceed 2 inches in thickness.
14. The sets of rings and covers shall be marked in such as way that they can be matched for assembly in the field.
15. All covers shall have the words "SAN ANTONIO WATER SYSTEM Sanitary Sewer" cast thereon,and shall be in accordance with SAWS Specification Item No. 852, Sanitary Sewer Manholes for further details.
16. At the direction of the Inspector, all ungasketed mating surfaces shall be thoroughly sealed in accordance with manufacturer's recommendations with adhesive bitumastic products: See SAWS APL.
17. Where precast concrete risers are used, any gaps in the outer joint surfaces shall be additionally coated with quick-set, non-shrink grout
18. Other Construction Requirements: Refer to Item No. 852 "Sanitary Sewer Manholes" for the following requirements:
    a. The Contractor shall conform to detail DD-852 drawing series as modified herein and install manhole ring encasements for manhole adjustments and for ring and cover replacements and re-installations
19. Material excavation from around the manholes shall be replaced with flowable

fill in accordance with these specifications.

20. 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.

851.3 MEASUREMENT: Manholes completely adjusted, as described 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.

851.4 PAYMENT: The work performed as described 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, and incidentals necessary to complete the work.

- End of Specification -