SECTION 02615
CONCRETE BRICK MANHOLES FOR STORM SEWERS

PART I: GENERAL

1.1 GENERAL REQUIREMENTS
- A. Concrete Brick masonry Work in utility construction for permanent or temporary installation of storm sewer manholes or vaults.
- B. Concrete Brick masonry in repair and rehabilitation of storm sewer lines and associated structures.

1.2 MEASUREMENT AND PAYMENT
- A. Unit Prices:
  1. Payment for concrete brick manholes is on a unit price basis for each manhole installed.
  2. No payment shall be made for concrete brick masonry work for repair and rehabilitation of storm water lines. Include payment in the unit price for applicable structure section.
  3. Refer to Section 01270 – Measurement and Payment for Unit Price Procedures.
- B. Stipulated Price (Lump Sum):
  1. When Contract is Stipulated Price Contract, payment for Work in this Section is included in Total Stipulated Price.

1.3 REFERENCES
- A. ASTM – American Society for Testing and Materials.
  1. ASTM D698 – Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3)).
- B. City of Friendswood Technical Specifications.

1.4 SUBMITTALS
- A. Conform to requirements of Section 01330 – Submittal Procedures.
- B. Submit certifications required by Section 03100 – Mortar.
- C. Submit certifications required by this Section.

1.5 HANDLING AND STORAGE
- A. Handle and store concrete brick to prevent damage.
- B. Store concrete brick and mortar mix off ground and keep dry. Cover mortar mix to protect from weather.

1.6 QUALITY ASSURANCE
- A. Provide manufacturer's affidavits that material was manufactured in compliance with standards referenced in this section.

PART II: PRODUCTS

2.1 CONCRETE BRICK MASONRY UNITS
- A. Concrete manhole bricks.
  - 1. Concrete brick masonry units conforming to requirements of this Section.

2.2 MORTAR
- A. Conform to requirements of Section 03100 – Mortar.

2.3 CONCRETE AND REINFORCING STEEL
- A. Conform to requirements of Section 03300 – Structural Concrete.
- B. Provide Class A concrete with a minimum compressive strength of 4000 psi unless otherwise indicated on the Drawings.

PART III: EXECUTION

3.1 EXAMINATION
- A. Verify lines and grades are correct.
- B. Determine if subgrade, when scarified and recompacted, can be compacted to be ninety-five percent (95%) of a maximum Standard Proctor Density according to ASTM D698 prior to placement of foundation material and base section. When it cannot be compacted to that density, moisture condition subgrade until that density is reached or treat as unstable subgrade.
- C. Concrete brick manhole to be used only as indicated on the Drawings or as approved by the City.
- D. Do not build manholes of concrete brick in or under paving, in rights of way, easements, on any public land or on private land that may be deeded over to or under City maintenance in the future.
- E. Do not build manholes in ditches, swales or drainage ways unless approved by the Project Manager.

3.2 MANHOLES
- A. Construct manholes to dimensions shown on the Drawings. Commence construction as soon as possible after pipes or boxes are laid. On monolithic storm sewers, construct manholes at same time storm sewer is being constructed.
- B. Unstable Subgrade Treatment: When unstable subgrade is encountered, notify the Project Manager for examination of subgrade to determine if subgrade has heaved upwards after being excavated. When heaving has not occurred, over-excavate subgrade to allow for twenty-four inch (24 in) thick layer of crushed stone wrapped in filter fabric as foundation material under manhole base. When there is evidence of heaving, provide pile-supported concrete foundation, as detailed on the

Drawings, under manhole base.

C. Construct manhole on concrete slab in accordance with requirements of this Section.
D. The top and throat section on curb style inlets shall be concrete and as per the City of Friendswood Standard Details Sheet.
E. Concrete brick manholes and inlets shall be grouted inside and out, leaving no trace of brick, and as per Section 3100 – Mortar.

3.3 PIPE CONNECTIONS

A. Use non-shrink grout to seal pipe or box connections to manholes unless otherwise shown on the Drawings.

3.4 FRAME AND COVER

A. Install frame and cover in accordance with Section 02315 – Frame, Grates, Rings and Covers.

3.5 BACKFILL

A. Place and compact backfill materials in area of excavation surrounding manholes in accordance with requirements of Section 02120 – Excavation and Backfill for Structures. Use embedment zone backfill material, as shown in the City of Friendswood Standard Details over each pipe connected to manhole. Provide trench zone backfill, above embedment zone backfill for each pipe or box connected to manhole.
B. Backfill under existing storm sewer up to springline of pipe or mid-point of boxes with Class B concrete or flowable fill in accordance with Section 03300 – Structural Concrete.
C. In unpaved areas, provide positive drainage away from manhole frame to natural grade. Provide a minimum of four inches (4 in) of topsoil conforming to requirements of Section 02905 – Topsoil. Seed in accordance with Section 02910 – Hydromulch Seeding or sod disturbed areas in accordance with Section 02915 – Sodding.

3.6 QUALITY CONTROL

A. Visually inspect manhole for leakage. Repair leaks in an approved manner.

3.7 CONNECTIONS

A. Connect storm sewer leads to manholes as shown on the Drawings. Seal connections inside and outside with hydraulic cement. Make connections watertight.

3.8 PROTECTION

A. Protect manholes from damage until subsequent work has been accepted. Repair or replace damaged elements of manholes at no additional cost to the City.

END OF SECTION