SECTION 02610
PRECAST CONCRETE INLETS, JUNCTION BOXES, HEADWALLS AND WINGWALLS

PART I: GENERAL

1.1 GENERAL REQUIREMENTS
- A. Precast concrete inlets for storm sewers, including cast iron frame and plate or grate.
- B. Precast concrete headwalls and wingwalls for storm sewers.
- C. Precast junction box with lid or grate top.

1.2 MEASUREMENT AND PAYMENT
- A. Unit Prices:
  1. Payment for precast concrete inlets is on a unit price basis for each inlet installed.
  2. Payment for precast concrete headwalls and wingwalls is on a unit price basis for each headwall and wingwall installed.
  3. Payment for precast concrete junction box with lid or grate top is on a unit price basis for each junction box installed.
  4. Payment for inlets, junction boxes, headwalls, and wingwalls includes connection of lines and furnishing and installing frames, grates, rings and covers.
  5. Refer to Section 01270 – Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum):
  1. If 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 C76 – Standard Specification for Reinforced Concrete Culvert, Storm Drain and Sewer Pipe.
- B. CFTS – City of Friendswood Technical Specifications..

1.4 SUBMITTALS
- A. Conform to requirements of Section 01330 – Submittal Procedures.
- B. Submit shop drawings for approval of design and construction details for precast concrete inlets, junction box headwalls and wingwalls. Precast units differing from standard designs shown on the Drawings shall be rejected unless shop drawing submittals are approved. Clearly show proposed substitution is equal or superior in every aspect to standard designs.
- C. Submit manufacturers' data and details for frames, grates, rings and covers.

1.5 STORAGE AND SHIPMENT

A. Store precast units on level blocking. Do not place loads until design strength is reached. Shipment of acceptable units may be made when twenty-eight day (28 D) strength requirements have been met.

1.6 QUALITY ASSURANCE

A. Provide manufacturer's affidavits that material was manufactured in compliance with standards and Technical Specifications referenced in this Section.

PART II: PRODUCTS

2.1 MATERIALS

A. Concrete: Provide concrete for precast machine-made units meeting requirements of ASTM C76 regarding reinforced concrete, cement, aggregate, mixture and concrete test. A minimum twenty-eight day (28 D) compressive strength shall be four thousand pounds per square inch (4000 psi).

B. Reinforcing Steel: Place reinforcing steel to conform to details shown on the Drawings and as follows:

1. Provide positive means for holding steel cages in place throughout production of concrete units. A maximum variation in reinforcement position is plus or minus ten percent (±10%) of wall thickness or plus or minus one-half inch (±1/2 In), whichever is less. Regardless of variation, maintain a minimum cover of concrete over reinforcement as shown on the Drawings.
2. Welding of reinforcing steel is not permitted unless noted on the Drawings.

C. Mortar and Hydraulic Cement: Conform to requirements of Section 03100 – Mortar.

D. Miscellaneous Metal: Cast-iron frames and plates conforming to requirements of Section 02315 – Frames, Grates, Rings and Covers.

2.2 SOURCE QUALITY CONTROL

A. Tolerances: Allowable casting tolerances for concrete units are plus or minus one-quarter inch (1/4 In) from dimensions shown on the Drawings. Concrete thickness in excess of that required shall not constitute cause for rejection provided that excess thickness does not interfere with proper jointing operations.

B. Precast Unit Identification: Mark date of manufacture and name or trademark of manufacturer clearly on inside of inlet, headwall or wingwall.

C. Rejection: Precast units rejected for non-conformity with these specifications and for following reasons:

1. Fractures or cracks passing through shell, except for single end crack that does not exceed depth of joint.
2. Surface defects indicating honeycombed or open texture.

3. Damaged or misshaped ends, where damage would prevent making satisfactory joint.

D. Replacement: Immediately remove rejected units from the Work site and replace with acceptable units.

E. Repairs: Occasional imperfections resulting from manufacture or accidental damage may be repaired if, in opinion of the Project Manager, repaired units conform to requirements of these specifications.

PART III: EXECUTION

3.1 EXAMINATION

A. Verify lines and grades are correct.

B. Verify compacted subgrade shall support loads imposed by inlets, junction boxes, headwalls and wingwalls.

3.2 INSTALLATION

A. Install units complete in place to dimensions, lines and grades as shown on the Drawings.

B. Excavate in accordance with requirements of Section 02125 – Excavation and Backfill for Utilities.

C. Bed precast concrete units on foundations of firm, stable material shaped to conform to shape of unit bases.

D. Provide adequate means to lift and place concrete units without damage.

3.3 FINISHES

A. Use hydraulic cement to seal joints, fill lifting holes and as otherwise required.

B. When box section of inlet or junction box has been completed, shape floor of inlet or junction box with mortar to conform to the Drawing details.

C. Adjust cast iron inlet plate frames to line, grade and slope shown on the Drawings. Grout frame in place with mortar conforming to Section 03000 – Mortar.

3.4 QUALITY CONTROL

A. Verify that inlets and junction boxes are free of leaks. Repair leaks in approved manner.

3.5 CONNECTIONS

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

3.6 BACKFILL

A. Backfill area of excavation surrounding each completed inlet, junction box, headwall or wingwall according to requirements of Section 02125 – Excavation and Backfill for Utilities.

END OF SECTION