Section 02633

PRECAST CONCRETE INLETS, HEADWALLS, AND WINGWALLS

PART 1 GENERAL

1.01 SUMMARY

A. Precast concrete inlets for storm or sanitary 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.

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. Payment for inlets is on unit price basis for each inlet installed.

2. Payment for headwalls and wingwalls is on unit price basis for each headwall and wingwall installed.

3. Payment for junction box with lid or grate top is on unit price basis for each junction box installed.

4. Payment for inlets, headwalls, wingwalls, and junction boxes 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). If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price

1.03 REFERENCES

ASTM C 76 Rev A- Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.

1.04 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 Plans will 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

1.05 RELATED REQUIREMENTS

A. Section 01270 – "Measurement and Payment"

B. Section 01330 – "Submittal Procedures"

C. Section 02084 – "Frames, Grates, Rings and Covers"

D. Section 02317 – "Excavation and Backfill for Utilities"

E. Section 04061 – "Mortar"

1.06 – 1.07 NOT USED

1.08 DELIVERY, STORAGE, AND HANDLING

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

1.09 – 1.13 NOT USED

PART 2 PRODUCTS

2.01 MANUFACTURER(S) (NOT USED)

2.02 MATERIALS AND/OR EQUIPMENT

A. Concrete: Provide concrete for precast machine-made units meeting requirements of ASTM C 76 regarding reinforced concrete, cement, aggregate, mixture, and concrete test. Minimum 28-day compressive strength shall be 4,000 psi.

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

1. Provide positive means for holding steel cages in place throughout production of concrete units. Maximum variation in reinforcement position is plus or minus 10 percent of wall thickness or plus or minus ½ inch, whichever is less.

Regardless of variation, maintain minimum cover of concrete over reinforcement as shown on Plans.

2. Welding of reinforcing steel is not permitted unless noted on Plans.

C. Mortar and Hydraulic Cement: Conform to requirements of Section 04061 – "Mortar".

D. Miscellaneous Metal: Cast-iron frames and plates conforming to requirements of Section 02084 – "Frames, Grates, Rings, and Covers".

2.03 FABRICATION (NOT USED)

2.04 SOURCE QUALITY CONTROL

A. Tolerances: Allowable casting tolerances for concrete units are plus or minus ¼ inch from dimensions shown on Plans. Concrete thickness in excess of that required will 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 Work site and replace with acceptable units.

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

PART 3 EXECUTION

3.01 GENERAL / MANUFACTURER(S) (NOT USED)

3.02 PREPARATION

A. Verify lines and grades are correct.

B. Verify compacted subgrade will support loads imposed by inlets

3.03 ERECTION/INSTALLATION APPLICATION AND/OR CONSTRUCTION

A. Install units complete in place to dimensions, lines, and grades as shown onPlans.

B. Excavate in accordance with requirements of Section 02317 – "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.

E. FINISHES

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

2. When box section of inlet has been completed, shape floor of inlet with mortar to conform to the Plans .

3. Adjust cast iron inlet plate frames to line, grade, and slope shown on Plans. Grout frame in place with mortar

F. Inlet Watertightness

Verify that inlets are free of leaks. Repair leaks in manner approved by Project Manager .

G. CONNECTIONS

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

H. BACKFILL

Backfill area of excavation surrounding each completed inlet, headwall, or wingwall according to requirements of Section 02317 – "Excavation and Backfill for Utilities".

3.04 – 3.10 NOT USED

END OF SECTION