

**606.3110--11 M - REVERSE SLOPE LOW PROFILE PRECAST CONCRETE BARRIER
WITH INTEGRALLY CAST STONE MASONRY VENEER**

**606.3111--11 M - TWO-SIDED REVERSE SLOPE LOW PROFILE PRECAST CONCRETE
BARRIER WITH INTEGRALLY CAST STONE MASONRY VENEER**

DESCRIPTION

This work shall consist of furnishing and installing a reinforced portland cement concrete barrier with stone masonry facings as indicated in the contract documents.

The Barrier shall consist of single or two-sided fabricated precast concrete units with integrally cast masonry stone facing of the type, color, dimension, and pattern as shown in the contract documents. Only minor masonry repair and masonry work at the unit end sections and in constructing joints will be allowed at the site where the barrier is installed. The barrier has been successfully crash tested under NCHRP 350 standards at a minimum of Test Level 2 and parts of the barrier may be under patent protection by the Texas Transportation Institute, College Station, Texas. If required, the Contractor/Fabricator shall purchase a license from TTI prior to fabrication and installation of the barrier. Also note that certain apparatus and methods for forming stone veneer barriers may be protected by patents.

MATERIALS

Materials shall meet the following requirements of the Standard Specifications:

Stone Masonry	560-2
Cement Based Grout Materials for Shear Keys	701-06
Precast Concrete - General	704-03
Epoxy Coated Bar Reinforcement, Grade 420	709-04
Penetrating Type Protective Sealer	717-03
Steel back-up posts and soil plate	ASTM A-36

Stone Masonry shall be from a Department approved source or approved stockpile, and of the type and color indicated on the plans. The stone dimensions shall be as follows:

- Design depth - 150 mm, minimum allowable depth of 100 mm
- Height shall be greater than or equal to 1.5 multiplied by the depth, minimum height - 150 mm
- Minimum length - 200 mm, not to exceed three times the depth

Stone faces shall have no spalls or excessive pitting. The finish shall be split face as defined by Table 560-1 of the Standard Specifications. The degree of roughness of exposed faces shall be measured with a straight edge supported between adjacent projections on the stone face. The maximum joint face and depth between stones shall be 25 mm.

The minimum 28 day concrete compressive strength for the barrier core shall be 28 MPa.

Epoxy coated reinforcement shall be as shown on the plans.

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The Basis of Acceptance and unit tolerance requirements of §704-03 shall apply to the precast components.

The stone masonry shall be placed in the specified pattern and integrally cast into each precast unit. The stones shall be offset to prevent continuous vertical joints. The stones shall be placed in a neat and skillful manner.

The exposed concrete surfaces on the top of the barrier shall be sealed to prevent water ingress using an approved material meeting the requirements of § 717-03.

CONSTRUCTION DETAILS

The Contractor shall submit shop drawings of the proposed barrier for approval in accordance with §704-03. The shop drawings shall include but not be limited to barrier layout plans, typical details, and details of special end sections.

Provide visual standards approval in accordance with §704-03. Minimum length shall be 4.5 meters unless otherwise approved by the Engineer. Upon approval of the sample barrier, the Contractor shall furnish and install barrier to conform with the approved sample barrier.

Inspection, Storage and Handling of Barrier Sections. The precast sections will be inspected for the following:

- Damage during shipment
- Conformance to the material requirements
- Quality of the placement of the stone masonry
- Dimensional tolerances.

An additional inspection will be made prior to placement of the barrier sections to determine any damage during storage.

Installation of Barrier Sections

A. Excavation and Backfill. The requirements specified in §206-3 Construction Details under Section 206 Trench, Culvert and Structure Excavation, shall apply. The bottom of the barrier shall have a full and even bearing on the surface under it. After the barrier is in place, the excavation shall be backfilled in accordance with §203-3.15 Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables.

B. Placement of Barrier. Sections shall be installed to form a longitudinal barrier, true to line and grade on prepared, compacted subbase, as specified in the contract plans.

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Appropriate back-up posts shall be installed as shown in the contract documents.

If required on plans, weep holes for drainage shall be provided.

- C. Joints.** Individual sections of the barrier shall be connected in accordance with the detail shown on the drawings. Barrier sections shall be connected and sealed as per the details furnished by the Manufacturer and approved by the Engineer.

Repair of Damaged Sections. Barrier sections that are damaged or disturbed prior to acceptance of the Contract shall be repaired, realigned or replaced as directed by the Engineer. Sections which cannot be satisfactorily repaired or do not meet dimensional tolerance as determined by the Engineer will be rejected and shall be replaced with acceptable sections. The party responsible for bearing the cost of repair or replacement work will be determined by the Department according to Subsection 107-09 Damage.

METHOD OF MEASUREMENT

This work will be measured as the number of meters, to one tenth of the meter, of the single or two-sided reverse slope low profile precast concrete barrier with integrally cast stone masonry veneer actually furnished and installed, as specified in the contract documents. The measurement will be taken along the front face of the barrier measured at the finished ground line. Measurement will not include any sample barrier sections not incorporated into the work.

BASIS OF PAYMENT

The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work, including the cost of back-up posts, shear keys and the purchase of the patent license.