

**ITEM 06607.990101 M - PRECAST CONCRETE NOISE BARRIER SYSTEM,
EXPOSED AGGREGATE
FINISH, PIER MOUNTED**

DESCRIPTION:

This work shall consist of furnishing and erecting a noise barrier wall at the locations and to the elevations indicated on the plans.

MATERIALS:

The precast concrete noise barrier shall meet the material requirements of §704-03, Precast Concrete - General with the following modifications and additions:

- A. Precast Concrete: The concrete for precast panels, caps, and posts shall have a minimum compressive strength of 28 MPa at 28 days.
- B. Cast-In-Place Concrete: The concrete for cast in place piers and footings shall be Class A meeting the requirements of §501, Portland Cement Concrete - General.
- C. Reinforcing Steel: Reinforcing steel used in precast concrete panels, posts and caps shall be epoxy coated.
- D. Coarse Aggregate: The coarse aggregate, used in precast components with an exposed aggregate finish, shall be screened gravel with a size No. 1 gradation. A coarse aggregate gradation meeting the requirements of ASTM C33, size No. 67 may be used as an alternate to size No. 1. The screened gravel shall be brown in color. Noise barrier panels shall be a reasonable match in texture and color to the noise barrier system located in Elmira, N.Y., along the Elmira Arterial between Cedar Street and Miller Street. Samples, (4-liters each) shall be submitted to the Regional Design Engineer for approval prior to the start of production.
- E. Sealer Material: Sealer on all faces of wall panels shall be a transparent, non-glossy water based Aklylalkoxysilane to protect and waterproof the noise wall panels, posts and caps. Material used shall be Hydrozo® Enviroseal 40 as manufactured by Harris Specialty Chemicals, Inc., Jacksonville Florida (904-996-6000) or equivalent.
- F. Anchor Bolts: Anchor bolts, nuts and washers shall meet the requirements of §723-60, Anchor Bolts.
- G. Steel Base Plates: Steel base plates shall meet the requirements of §715-01, Structural Steel.

FABRICATION:

The fabrication, curing, and repair requirements for precast components shall meet the requirements of §704-03, Precast Concrete - General with the following modifications and additions:

- A. Fabrication. Panels shall be full height with no horizontal joints.

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Panels, caps, and posts shall be natural concrete color. Both faces of the wall panels shall have a completely covered, uniform surface of exposed aggregate. The depth of exposure shall be a minimum of 40% of the primary size dimension of the coarse aggregate exposed. The depth of exposure shall be measured by laying a straight edge across the plane of the wall faces and measuring back to the concrete matrix.

Three (3) 450 mm x 450 mm samples of the panel with the proposed surface treatments, including sealer, shall be submitted to the Regional Design Engineer for approval prior to production of the panels. One (1) additional sample panel will be produced with the same manufacturing process, have no sealer applied to it, and remain at the precast facility. No panels shall be fabricated until written approval of the sample is given. When the samples submitted to the Regional Design Engineer are approved, the unsealed sample that remained at the plant, will be used by the Department's precast plant inspector to evaluate the visual acceptability of the panels produced for the project. To be acceptable, the panels produced for the project must be a reasonable visual match to this sample, when viewed in good typical lighting at a 6 m distance. Acceptance of the panels will occur at the plant subsequent to delivery. Final Acceptance will be made on site, subsequent to placement, following a visual inspection made in good typical lighting at a 6 m distance by the E.I.C..

The concrete caps and posts shall have a smooth finish.

- B. Repair. The fabricator shall submit, to the Materials Bureau for approval, a procedure for repairing damaged areas in the exposed aggregate finish. No repairs to the exposed aggregate finish shall be made until a procedure has been approved.
- C. Delivery. Special precautions will be made so that the integrity and appearance of the panels, caps, and posts will remain unaltered due to transit. Panel faces must be protected to assure that there will be no loss of exposed aggregate.

ACCEPTANCE:

The sampling and testing, shipping and basis of acceptance requirements for precast components shall meet the requirements of §704-03, Precast Concrete - General.

CONSTRUCTION DETAILS:

The construction details from the following subsections shall apply:

Structure Excavation	§206-3
Structural Concrete	§555-3

Holes for post piers shall be pre-augered, true and plumb as approved by the Engineer In Charge, to the depth and diameter shown on the plans. Precautions shall be taken to protect the holes from collapse. Holes shall contain no free water at the time of concrete placement. Holes shall

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then be filled with Class A concrete in direct contact with soil, properly consolidated to a point 150 mm below the ground surface .

The Contractor shall lift, place, and secure precast concrete wall units in accordance with manufacturer's instructions and approved Shop Drawings and follow erection procedures and sequence of erection as recommended by the precast concrete wall manufacturer and as acceptable to the Engineer In Charge.

Units having any dimension smaller or large than required by panel, post and cap tolerances or damaged during installation, will be rejected if the appearance or function of the structure is adversely affected. Repair of damaged exposed surfaces shall be made at the Contractor's expense in accordance with the Manufacturer's recommendations, or at the Engineer's direction.

Posts shall be true and plumb within 15 mm of the total height. Top of posts and panel caps shall be within 15 mm of the elevations noted on the Plan profiles. The Contractor shall perform any required grading between the posts to provide a continuous and smooth ground line, which will meet the tolerances shown on the drawings for the distance between the bottom of the panel and the ground surface.

Sealing of all panel faces, caps and posts using an approved sealer shall be performed in the field. Two coats of sealer material shall be provided in accordance with all of the manufacturer's recommendations.

METHOD OF MEASUREMENT:

Noise barrier wall erected on land will be measured for payment by the number of square meters of barrier satisfactorily completed in accordance with this specification. The number of square meters will be computed in accordance with the payment lines shown on the plans. Payment lines are as follows:

Upper payment lines shall be set at the theoretical top of noise wall elevations as shown on the noise barrier profiles or as ordered by the Engineer.

Lower payment lines shall be set at the finished grade elevations as shown on the noise barrier profiles or as ordered by the Engineer.

Longitudinal payment lines shall be the outer extremities of the wall, along the break point lines as shown on the plans or noise barrier profiles.

Payment lines will be based on one side of the proposed wall only.

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BASIS OF PAYMENT:

The unit bid price per square meter shall include the cost of furnishing all labor, materials, equipment and tools necessary to perform the work; and all excavation, refilling and disposal of surplus materials, and the cost incurred in the event of royalties except that for barriers mounted on bridge structures, retaining walls or approach slabs the structures supporting the noise barrier shall be paid for under their respective items. The unit price shall also include all anchor bolts connecting concrete columns to the foundations.

Payment will be made under:

<u>Item No.</u>	<u>Item</u>	<u>Pay Unit</u>
06607.990101 M Meter	Precast Concrete Noise Barrier System, Exposed Aggregate Finish, Pier Mounted	Square

Progress payments will be made for satisfactory work done, as follows:

- 40% after foundations have been installed.
- 50% after posts, panels, caps, and coping are erected.
- 10% after all remaining work is completed.