

Special Specification 4016

Noise Walls



1. DESCRIPTION

Furnish materials and construct noise walls as shown on the plans and required by this Item.

2. MATERIALS

Conform to the pertinent requirements of the following standard specification Items:

- Item 420, "Concrete Structures"
- Item 421, "Hydraulic Cement Concrete"
- Item 425, "Precast Prestressed Concrete Structural Members"
- Item 426, "Prestressing"
- Item 427, "Surface Finishes for Concrete"
- Item 440, "Reinforcing Steel"
- Item 441, "Steel Structures"
- Item 442, "Metal For Structures"
- Item 445, "Galvanizing"
- Item 446, "Cleaning and Painting Steel"
- Item 449, "Anchor Bolts"

Provide concrete noise wall panels unless otherwise shown on the plans. Provide steel noise wall posts.

Provide Class "F" Concrete for precast and cast-in-place components with a compressive strength of 4000 psi minimum.

Provide Class "H" Concrete for prestressed components with a compressive strength of 5000 psi minimum.

Galvanize anchor bolts, nuts and washers for corrosion protection. Galvanize or paint all with the protection system shown on the plans.

Provide joint fillers, grout, and other incidental materials as shown on the plans or as approved by the Engineer.

- 2.1. **Options.** Contractor has the option to furnish any proprietary noise wall system, which meets the requirements of this specification and complies with the design criteria shown on the plans. All noise wall systems will utilize drilled shafts with the same spacing, diameter, length and reinforcing steel as shown on the plans. Provide for the use of these systems in accordance with Article 7.5, "Patented Devices, Material and Processes."

- 2.2. **Working Drawings.** Prior to fabrication, prepare and submit working drawings and design calculations for the proposed noise wall system to the Engineer for approval. Submit drawings on 11 in. x 17 in. size sheets. Submit 7 sets of casting drawings for precast segments and shop drawings for each detail of the plans requiring the use of structural steel, 7 sets of construction drawings and 2 sets of design calculations. Upon completion of construction, submit 1 set of reproducible as-built drawings to the Engineer.

Include all information necessary for precasting wall elements in the casting drawings. Casting drawings must reflect the shape and dimension of precast components, the size, quantity, and details of the reinforcing

steel, the quantity, type, size, and details of connection and lifting hardware, the size and location of drain openings, and any additional details necessary.

Include a numbered wall component layout reflecting field verified horizontal and vertical alignment of the wall. Also include all information needed to erect the wall, including the proposed drilled shaft elevations and length, limits of riprap, the type, details, and construction procedure for connecting the wall to the drilled shafts, details necessary to account for change of grade, all existing and proposed utilities, and any additional details necessary to complete the work.

Provide design calculations that include a summary of all design parameters used, including material types, strength values, allowable stresses, assumed loads and load combinations. Submit calculations covering the range of heights and loading conditions on the project.

Provide drawings and design calculations that bear the seal of a licensed professional Engineer who is registered in the State of Texas.

3. CONSTRUCTION

Construct noise walls conforming to the design and details shown on the plans and to the pertinent requirements of the following Items:

- Item 424, "Precast Concrete Structures (Fabrication)"
- Item 429, "Concrete Structure Repair"
- Item 447, "Structural Bolting"
- Item 448, "Structural Field Welding"

Set all posts plumb and firm to the line and grade shown on the plans.

Do not exceed a 3/4 in. horizontal alignment tolerance from post to post. The overall vertical tolerance of the wall (plumb from top to bottom) must not exceed 1/2 in. per 10 ft. of wall height.

4. MEASUREMENT

This Item will be measured by the square foot of front surface area of the noise wall, complete in place.

This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal and unless modified by Article 9.2. "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

5. PAYMENT

The work performed and material furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Noise Wall," of the height specified. This price is full compensation for furnishing and installing all noise wall materials including anchorage into the drilled shaft; for noise wall preparation, hauling and erection; and for all equipment, labor, tools, and incidentals.