

### 2-2.21 Sound Wall Plans, Profiles, Details, and Quantities

#### General

Details for standard masonry block sound walls are included in Standard Plans. Other approved sound walls are described in Section 1100 of the Highway Design Manual.

A foundation investigation should be made for all locations at which a sound wall is being considered. Foundation investigations are made by the Division of Engineering Services – Geotechnical Services. Foundations recommendations should be included in the project history file. When log of test boring information is developed, it shall be included with the sound wall plans as Log of Test Boring sheets.

Sound walls are to be shown on the project typical cross sections when they are within the majority of the station limits given. Sound wall layout lines should be shown on the project layout sheets to show their location in relation to the roadway alignment.

The plan set for each sound wall should include:

- Wall plan view
- Typical wall cross section
- Wall profiles
- Wall details
- Wall quantities
- Log of test borings

#### Plans

The plan view should include:

- Wall layout line
- Controlling roadway stationing, tangent bearings and equations
- Begin and end stations of wall layout line, including offsets
- Horizontal curve data (delta, radius curve, tangent, and length), if applicable to wall layout line
- Varying width of footing (if used)
- Surface and subsurface drainage structures or utilities that could affect or be affected by wall construction
- Right of way lines and easements
- Elevation and location of existing facilities to remain in place during sound wall construction

#### Typical Wall Cross Section

The typical wall cross section, in most cases, is shown on first sheet of wall plans and should include:

- Designation of wall type
- Wall layout line
- Wall stem
- Wall support (footing, barrier, or piles)
- Original ground line
- Finished grade on both sides of wall
- Wall drainage features (if used)

Additional wall cross sections shall be included for those locations where the wall layout line in relation to the right of way line is critical.

Each sheet of the sound wall plans shall have this note included on them: "APPROVED FOR SOUND WALL WORK ONLY."

### Profiles

The wall profile should include:

- Datum for vertical alignment
- Overall wall length
- Wall length for each segment of differing wall heights
- Locations of expansion joints
- Location of steps on top of sound wall
- Location of footing steps (if wall on spread or trench footing)
- Location of pile cap steps (if piles used)
- Existing ground line at the wall layout line
- Finished grade
- Top of wall elevations
- Top of footing elevations (if wall on spread or trench footing)
- Top of barrier elevation (if wall on top of concrete barrier)
- Top of retaining wall elevations (if sound wall on top of retaining wall)
- Pile cap elevation (if piles used)
- Pile size, spacing and depth (if piles used)
- Locations of access gates in wall (if used)
- Architectural treatment of wall (if used)

### Details

Special wall details, as applicable to wall construction, such as utility openings, drainage features, and concrete barriers should be included on the wall plan sheet of the wall concerned or included on a separate detail sheet with the wall plans.

If a special wall detail is developed by the Division of Engineering Services-Office of Structure Design for a district designed wall, then the detail provided by Office of Structure Design is to be included with the district designed plans for that specific wall.

If aesthetic features are to be incorporated in the sound wall, include detail sheets for the aesthetic features. For additional design criteria refer to Topic 1102 of the Highway Design Manual.

### Quantities

Sound walls are measured and paid for by the square foot of the type of wall designated in the Engineer's Estimate. Sound wall footings, pile caps and grade beams are measured and paid for by the cubic yard of minor concrete (sound wall). The price paid per cubic yard of minor concrete (sound wall) includes excavation, backfill, and reinforcement. Cast-in-drilled-hole concrete piling and concrete barrier are separate bid items.

Quantities should be tabulated on the plans for each wall.

Where the construction of more than one sound wall is shown on the road portion of the project plans, a cumulative quantity summary identifying quantities for the same wall types shall be included on the project summary of quantities sheets. If only one type of sound wall is to be constructed on the project, then the wall quantities for that wall are only to be included with the sound wall plans.

If the same type of wall with the same bid items are shown on the road portion and the structure portion of the project plans, include the following information on the wall quantity table for the road portion of the project:

- Add an asterisk in each column heading of the table which have bid items common to both road work and structure work
- Include a note on the wall summary of quantities sheet below the quantity table that reads:

"\*SEE STRUCTURE PLANS FOR  
ADDITIONAL QUANTITIES"

If the walls included in the project have been designed by both the district and the Office of Structure Design, care should be exercised in combining these wall quantities for the Engineer's Estimate to make sure the bid items for the work are compatible.

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