

## **Non-bridge Structure Plan Preparation Requirements**

Shop Drawings may be used to supplement the design and details of non-bridge structures. However, the design review plans shall contain adequate information to clearly indicate the overall structure concept including aesthetic features.

### **1.0 Retaining Walls**

Include retaining wall plans within the set of roadway plans and number the sheets using an “S” prefix. However, if retaining walls are used as vertical bridge abutments, include the wall plans in the bridge plans. Include the following information in the wall construction plans:

#### 1.1 Design Information

Indicate the design parameters.

#### 1.2 Plan View

Provide a plan view that includes the following information and details:

- proposed wall location,
- centerline of roadway,
- stationing,
- stations and offsets of beginning and end of wall,
- length of wall,
- guard rail (if required),
- drainage basins/flumes,
- construction staging (if required),
- north arrow,
- existing structures, features, and utilities in vicinity of the wall if they impact construction,
- temporary shoring (if required), and
- boring locations.

#### 1.3 Elevation View

Provide an elevation view that shows the top of the wall elevations, footing elevations (when applicable), and the existing ground line. In the elevation view, also show the final ground line along each face of the wall.

#### 1.4 Details

Include details of each wall component and requirements of the architectural or finish treatment.

## 1.5 Cross Sections

Provide section views of the wall.

## 1.6 Reinforcing Steel Schedule and Quantities

If the construction of the wall includes reinforcing steel, include a reinforcing steel schedule that lists the reinforcing steel required for the wall. In this schedule, include the mark, number of bars required, and dimensions for each reinforcing bar. Also, provide a table of estimated quantities for each wall. For projects requiring stage construction, break the reinforcing steel schedule and quantities down by stage.

Reinforcing steel schedules and quantities are not required for median barriers acting as retaining walls or for roadside barrier walls.

## 1.7 Special Details

Include details for construction of walls around buried foundations, drainage facilities, pipe penetrations, and utilities.

## 1.8 Boring Logs

Include copies of the boring logs.

## **2.0 Box Culverts and Box Culvert Extensions**

Include culvert plans within the set of roadway plans and number the sheets using an “S” prefix. Include the following information in the culvert plans:

### 2.1 Title Blocks.

In the title blocks of the culvert sheets, include the fill height used to design the culvert, the culvert opening size (span x rise), the station at centerline of culvert, and the slope of fills.

### 2.2 Location Sketch.

Provide a location sketch that includes the following information and details:

- proposed culvert outline,
- existing culvert outline as a light, dashed line,
- centerline of roadway,
- direction of stationing,
- station of intersection of roadway centerline and culvert centerline,
- dimensions of culvert barrels,
- length of each end of culvert measured from the roadway centerline,

- skew angle,
- construction staging (if required),
- temporary shoring locations (if required for construction),
- permissible types of temporary shoring (if restricted),
- stream name,
- direction of flow,
- limits of riprap or note that riprap is in accordance with SCDOT Standard Drawing No. 804-205-00 (if required),
- north arrow,
- existing structures, features, utilities in vicinity of culvert if they impact culvert construction,
- invert elevations at each end of new culvert or both ends of each side being extended,
- boring locations, and
- hydraulic data.

### 2.3 Design Information.

Indicate the design specification and live load in the plans.

### 2.4 Plan View.

Provide a plan view that details the culvert, apron, cut-off wall, wing wall, and footing dimensions; the reinforcing bars, bar callouts, and bar spacing; and the location of any required transverse construction joints.

### 2.5 Cross Section

Provide section views of the barrel(s), wing walls, head walls, aprons, cut-off walls, and footings detailing the dimensions; the reinforcing bars, bar callouts, and bar spacing; the weep holes and french drains; and the location of construction joints.

### 2.6 Reinforcing Steel Schedule and Quantities

For each culvert, include a reinforcing steel schedule that lists the reinforcing steel required for the culvert. In this schedule, include the mark, number of bars required, and dimensions for each reinforcing bar. Immediately below the reinforcing steel schedule, include a list of estimated quantities for the culvert. Include all quantities required for construction of the culvert (e.g., reinforcing steel, concrete, piling, excavation, riprap, geotextile, etc.). For projects requiring stage construction, break the reinforcing steel schedule and quantities down by stage.

### 2.7 Boring Logs

Include copies of the boring logs in the plans.

### 3.0 **Sound Barrier Walls**

Sound barrier wall plans are typically included within the set of roadway plans and the sheets are numbered using an “S” prefix. Include the following information on the sound barrier wall construction plan sheets:

#### 3.1 Design Information

Indicate the design parameters in the plans.

#### 3.2 Plan View

Provide a plan view that includes the following information and details:

- proposed sound barrier wall location,
- centerline of roadway,
- horizontal clearance to edge of adjacent travel lane,
- stationing,
- stations of beginning and end of wall,
- length of sound barrier wall,
- post spacing,
- guard rail,
- drainage basins/flumes,
- locations and types of openings,
- construction staging,
- north arrow,
- existing structures, features, and utilities in vicinity of the sound barrier wall if they impact construction,
- boring locations, and
- benchmark data.

#### 3.3 Elevation View

Provide an elevation view that shows the top of the wall elevations and the existing ground line. In the elevation view, also show the final ground line along each face of the wall.

#### 3.4 Details

Include details of each wall component (concrete panels, panel connections, posts, and foundation elements) and details of the architectural or finish treatment.

#### 3.5 Cross Sections

Provide section views of the wall, posts, and foundations.

### 3.6 Reinforcing Steel Schedule

For each wall, provide a reinforcing steel schedule that lists the reinforcing steel required for the wall. Include in this schedule the mark, number of bars required, and dimensions for each reinforcing bar. For projects requiring stage construction, break the reinforcing steel schedule down by stage.

### 3.7 Special Details

Include details in the plans for construction of walls around buried foundations, drainage facilities, pipe penetrations, and utilities. Also, include details for special features such as access doors and wall bends.

### 3.8 Boring Logs

Include copies of the boring logs.