NOTES TO DESIGNER

1. PREPARE CONTRACT DRAWINGS IN ACCORDANCE WITH THE DESIGN MANUAL, PART 4 AND THE DESIGN PARAMETERS.

2. THE FOLLOWING NOTE MUST BE PLACED ON THE PLANS FOR SIGNATURE OF THE DISTRICT ENVIRONMENTAL MANAGER AND ACCEPTED BY THE DISTRICT ENVIRONMENTAL MANAGER.

3. SPECIFY IF THE REINFORCEMENT MINS ARE UNCOATED, EPOXY-COATED, OR GALVANIZED.

4. SPECIFY IF THE REINFORCEMENT MINS ARE UNCOATED, EPOXY-COATED, OR GALVANIZED.

5. PROVIDE A CONSTANT POST SPACING FOR THE ENTIRE LENGTH OF WALL.

6. PROVIDE A CONSTANT POST SPACING FOR THE ENTIRE LENGTH OF WALL.

7. INDICATE IF LOW-DENSITY (LIGHTWEIGHT) CONCRETE IS REQUIRED TO CONSTRUCT THE PRECAST CONCRETE PANELS.

8. PROVIDE COMPLETE DETAILS WHERE A GROUND MOUNTED SOUND BARRIER IS CONNECTED TO A RETAINING WALL, THUS THE BASE PLATE IS NOT INDUCED TO ANY ADDITIONAL LOADING.

9. PROVIDE COMPLETE DETAILS WHERE A GROUND MOUNTED SOUND BARRIER IS CONNECTED TO A RETAINING WALL, THUS THE BASE PLATE IS NOT INDUCED TO ANY ADDITIONAL LOADING.

10. PROVIDE COMPLETE DETAILS WHERE A GROUND MOUNTED SOUND BARRIER IS CONNECTED TO A RETAINING WALL, THUS THE BASE PLATE IS NOT INDUCED TO ANY ADDITIONAL LOADING.

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20. PROVIDE COMPLETE DETAILS WHERE A GROUND MOUNTED SOUND BARRIER IS CONNECTED TO A RETAINING WALL, THUS THE BASE PLATE IS NOT INDUCED TO ANY ADDITIONAL LOADING.

ARCHITECTURAL SURFACE TREATMENTS

1. THE FOLLOWING ARCHITECTURAL SURFACE TREATMENTS ARE PERMITTED ON THE FACE OF THE PRECAST CONCRETE PANELS.

2. THE FOLLOWING ARCHITECTURAL SURFACE TREATMENTS ARE PERMITTED ON THE FACE OF THE PRECAST CONCRETE PANELS.

3. THE FOLLOWING ARCHITECTURAL SURFACE TREATMENTS ARE PERMITTED ON THE FACE OF THE PRECAST CONCRETE PANELS.

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20. THE FOLLOWING ARCHITECTURAL SURFACE TREATMENTS ARE PERMITTED ON THE FACE OF THE PRECAST CONCRETE PANELS.
BARRIER MOUNTED/RETAINING WALL MOUNTED SOUND BARRIER ELEVATION (TOP OF WALL LEVEL)

- **Steel Post:**
  - Truly Vertical
  - PS = Post Spacing: 12'-0" Max.
  - Steel Cable Connection, See Details on Sheet 9

- **Anchor Bolt:**
  - Truly Vertical
  - C = Anchor Bolt
  - Edge of Panel
  - Top of Post
  - 6" Min.

- **Panel Joint:**
  - Type: EXP. JT., OR CONSTR. JT.
  - Level: (Typ.)
  - Edge of Panel

- **Panel Joint:**
  - Type: EXP. JT., OR CONSTR. JT.
  - Level: (Typ.)

- **Limit of Architectural Surface Treatment (On Walls):**
  - Upon Approval of Quality Assurance
  - See Details on Sheet 9

- **Steel Cord Connection:**
  - See Details on Sheet 9 of BC-779M

- **Bottom of Panel:**
  - Parallel to Top of Retaining Wall or Exceed Acoustical Profile (Typ.)
  - Panel Joint (Typ.)
  - Level: (Typ.)

- **Top of Wall:**
  - Matching or Exceeding Acoustical Profile (Typ.)

**Notes:**
1. For additional information, refer to Notes on Sheet 1 and 2.
2. Minimum Post Spacing: 12'-0" (Pref. 8'-0"")
3. Sound Barrier Panel Thickness: 2'-0" Min.
4. Steel Cable Connection, See Details on Sheet 9 of BC-779M
5. Panels: Permitted, Type: EXP. JT., OR CONSTR. JT.
6. Panel Joint: Type: EXP. JT., OR CONSTR. JT.
7. Top of Post: Matching or Exceeding Acoustical Profile (Typ.)
8. Panel Joint: Type: EXP. JT., OR CONSTR. JT.
9. Panel Joint: Type: EXP. JT., OR CONSTR. JT.
10. Panel Joint: Type: EXP. JT., OR CONSTR. JT.

**Commonwealth of Pennsylvania Department of Transportation**

**Bureau of Project Delivery**

**Standard:**

**Structure Mounted Sound Barrier Walls Geometry and Layout**

**Recommended:**

APR. 29, 2016

**BD-679M**
TYPICAL C.I.P. MOMENT SLAB AND BARRIER SECTION

SECTION IN CUT
SECTION IN FILL

PROTECTION OF RETAINING WALLS WITH ROADWAY BARRIER

STRUCTURE MOUNTED SOUND BARRIER
DIMENSION TABLE

<table>
<thead>
<tr>
<th>POST NUMBER</th>
<th>POST DESIGN</th>
<th>GROUND DEPTH</th>
<th>H. WT.</th>
<th>H. WT.</th>
<th>E. PLATE</th>
<th>ANCHOR BOLTS</th>
<th>BUMPER PLATE</th>
<th>HOLE</th>
<th>3&quot;</th>
<th>4&quot;</th>
<th>6&quot;</th>
<th>8&quot;</th>
<th>10&quot;</th>
<th>12&quot;</th>
<th>14&quot;</th>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

DIMENSION TABLE NOTES:
1. DESIGNER MUST INCLUDE ALL DETAILS REQUIRED FOR THE MOMENT SLAB AND BARRIER ON THE CONTRACT DRAWINGS.
2. FOR ADDITIONAL MOMENT SLAB DETAILS, REFER TO BC-799M.
3. CONCRETE SHOULDER SHOWN, BITUMINOUS CONCRETE SHOULDER SIMILAR, REFER TO BC-799M FOR ADDITIONAL DETAILS.
4. FOR CONCRETE SHOULDER AT GRADE, CONSTRUCT ROADWAY PAVEMENT PRIOR TO THE MOMENT SLAB, BARRIER, AND SOUND BARRIER WALL.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF PROJECT DELIVERY

STANDARD
STRUCTURE MOUNTED SOUND BARRIER WALLS
MISCELLANEOUS DETAILS

LEGEND:
- ROADWAY ITEM
- MIN. SIZE SHOWN, PROVIDE SIZE REQUIRED PER DESIGN

NOTES:
1. FOR ADDITIONAL INFORMATION REFER TO NOTES ON SHEETS 1 AND 2.

MOMENT SLAB NOTES:
1. DESIGNER MUST INCLUDE ALL DETAILS REQUIRED FOR THE MOMENT SLAB AND BARRIER ON THE CONTRACT DRAWINGS.
2. FOR ADDITIONAL MOMENT SLAB DETAILS, REFER TO BC-799M.
3. CONCRETE SHOULDER SHOWN, BITUMINOUS CONCRETE SHOULDER SIMILAR, REFER TO BC-799M FOR ADDITIONAL DETAILS.
4. FOR CONCRETE SHOULDER AT GRADE, CONSTRUCT ROADWAY PAVEMENT PRIOR TO THE MOMENT SLAB, BARRIER, AND SOUND BARRIER WALL.
<table>
<thead>
<tr>
<th>PANEL HEIGHT (FT.)</th>
<th>PANEL SPACING (FT.)</th>
<th>WELDED WIRE FABRIC</th>
<th>AREA OF STEEL</th>
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<tr>
<td></td>
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<td>PC-779M</td>
</tr>
<tr>
<td></td>
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<td>WWF 4x4-W8xW8</td>
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</tr>
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<td>6.0</td>
<td>WWF 4x6-W8xW8</td>
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<tr>
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<td>WWF 6x4-W8xW12</td>
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<td>WWF 6x6-W8xW4</td>
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<td>WWF 4x4-W4xW12</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td>10.0</td>
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<td>0.12</td>
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<tr>
<td></td>
<td>12.0</td>
<td>WWF 6x6-W4xW4</td>
<td>0.08</td>
</tr>
</tbody>
</table>

**WELDED WIRE STEEL**

Where:
- A = Spacing of Horizontal Bars (in)
- B = Spacing of Vertical Bars (in)
- C = Horizontal Wire Size
- D = Vertical Wire Size
- WWF = Welded Wire Fabric

**REFERENCE**

Commonwealth of Pennsylvania
Department of Transportation
Bureau of Project Delivery

Standard Structure Mounted Sound Barrier Walls
Precast Concrete Panel Details - 2

**BD-679M**
### Design Tables and Details

#### Section

**Barrier Mounted Sound Barrier on Bridges**

<table>
<thead>
<tr>
<th>Steel Post</th>
<th>Base Plate</th>
<th>Anchor Bolt</th>
</tr>
</thead>
<tbody>
<tr>
<td>W8x48</td>
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<td>W8x48</td>
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<tr>
<td>W8x48</td>
<td>10.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

**Notes:**

1. For additional information refer to notes on Sheets 1 and 2.
2. Refer to Sheet 4 for dimension table to be shown on the contract drawings.

**Commonwealth of Pennsylvania**

**Department of Transportation**

**Bureau of Project Delivery**

**Standard**

**Structure Mounted Sound Barrier Walls**

**Barrier Mounted on Bridges**

**Design Tables and Details**

**BD-679M**

APR. 29, 2016
**WALL MOUNTED SOUND BARRIER**

**STEEL POST, BASE PLATE, ANCHOR BOLT, AND ANCHOR PLATE GEOMETRY**

**WIND PRESSURE = 37 PSF**

### Table - Anchor Bolts and Anchor Plates

<table>
<thead>
<tr>
<th>Post Spacing (FT.)</th>
<th>Steel Post</th>
<th>Base Plate</th>
<th>Anchor Bolts</th>
<th>Anchor Plates</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
<td>W8x48</td>
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<td>W8x48</td>
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<td>30</td>
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<tr>
<td></td>
<td>W8x48</td>
<td>$\frac{5}{16}$</td>
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<td></td>
<td>W8x48</td>
<td>$\frac{1}{2}$</td>
<td>25</td>
<td>40</td>
</tr>
</tbody>
</table>

### Notes:
1. For additional information refer to notes on sheets 1 and 2.
2. Dimensional length of anchor bolts must extend to a depth where the vertical wall reinforcement is fully developed. Increase embedment length as required.
3. Refer to sheet 4 for dimension table to be shown on the contract drawings.

---

**COMMONWEALTH OF PENNSYLVANIA**

**DEPARTMENT OF TRANSPORTATION**

**BUREAU OF PROJECT DELIVERY**

**STANDARD**

**STRUCTURE MOUNTED SOUND BARRIER WALLS**

**WALL MOUNTED DESIGN TABLE AND DETAILS**

**RECOMMENDED APR. 29, 2016**

**RECOMMENDED APR. 29, 2016**

**SHEET NO. OP-11**
PLAN - STRUCTURE MOUNTED SOUND BARRIER
TO GROUND MOUNTED SOUND BARRIER
(BARRIER/RETAINING WALL WITH 10° FLARE)

SECTION A-A

DETAIL J

NOTE E

IF ANGLES ARE PROVIDED)

NOTE:

1. FOR ADDITIONAL INFORMATION REFER TO NOTES ON SHEETS 1 AND 2.

2. DETAILS SHOWN ARE FOR INFORMATION AND REFERENCE ONLY. ALTERNATE DETAILS ARE PERMITTED AND MUST BE APPROVED BY THE CHIEF BRIDGE ENGINEER.

3. DESIGNER MUST PROVIDE DESIGN CALCULATIONS FOR COMPONENTS NOT DESIGNED IN THE STANDARDS.

4. DESIGNER MUST INCLUDE ALL DETAILS REQUIRED FOR THE CONTRACT DRAWINGS.

5. FOR GROUND MOUNTED CORNER POST DETAILS REFER TO BD-677M AND BD-678M.

6. DESIGNER MUST CONSIDER HOW INSPECTION ACCESS TO BD-677M AND BD-678M.}

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF PROJECT DELIVERY

STANDARD
STRUCTURE MOUNTED SOUND BARRIER WALLS
STRUCTURE MOUNTED TO GROUND MOUNTED DETAILS

RECOMMENDED APR. 29, 2016
RECOMMENDED APR. 29, 2016
SHEET 10 OF 11
SHEET 10 OF 11
BD-679M
NOTES:
1. FOR ADDITIONAL INFORMATION REFER TO NOTES ON SHEETS 1 AND 2.
2. DETAILS SHOWN ARE FOR INFORMATION AND REFERENCE ONLY. ALTERNATE DETAILS ARE PERMITTED AND MUST BE APPROVED BY THE CHIEF BRIDGE ENGINEER.
3. DESIGNER IS TO DETERMINE TOTAL MOVEMENT REQUIRED.
4. DESIGNER MUST INCLUDE ALL DETAILS REQUIRED IN ACCORDANCE WITH THESE STANDARDS.
5. DESIGNER TO DETERMINE TOTAL MOVEMENT PERMITTED AND MUST BE APPROVED BY THE ENGINEER.
6. Dimensions shown in the design tables on sheets 7.8 and 9 for the required post spacing and wall height.
7. Remaining dimensions to be determined by the Engineer.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF PROJECT DELIVERY
STANDARD
STRUCTURE MOUNTED SOUND BARRIER WALLS
EXPANSION PANEL DETAILS

NOTE A:
* Joint Opening as required for Bridge Expansion and Contraction at 60 Degrees F.
* Joint opening for drainage or Pavement Relief Joint = 1'-0" (REFER TO RC-20M AND RC-24M).

NOTE B:
* Joint opening (SEE NOTE A)
* Joint Opening in Concrete

NOTE C:
* Joint Opening (SEE NOTE A)