**DESIGNER NOTES FOR PRECAST CONCRETE STRUCTURE**

No Dew shall be "three-sided precast concrete structure".

Precast bridges will be limited to spans not to exceed 42'-0".

Secure WisDOT and Geotechnical (Soils) Engineer's approval before incorporating precast bridges in any project.

Check foundation pressure, scour, and settlement to ensure that no foundation failure occurs.

Preferably provide footing on non-yielding foundation material. However, allowable differential settlement for footing on soil supporting the structure 5.002 per 341.6 of the general design structure components to resist forces caused by the differential settlement. Regularly reinforce the entire footing as required by the design.

When beam guard posts are to be embedded in fill above the precast arch unit, provide a depth of fill measured from top of arch crown to top of roadway, at least equal to the maximum embedment depth shown on S.D.D. 9-2 plus 1".

For shorter span culverts where beam guard crosses the length of the structure, consideration shall be given to the details shown on S.D.D. 9-3. Provide all requirements on the standard can be met.

When a concrete barrier single slope crosses the length of the structure the fill depth must be adequate to accommodate a minimum footing depth of 1.120.7 and 1.220.7 for concrete barrier details.

Provide a suitable drainage pipe along the culvert and precast walls to release hydrostatic pressure where significant seepage is detected. The accumulation of water is anticipated behind the wall, a satisfactory drainage system should be installed to carry the water under the concrete barrier to the exterior face of the wall or to the stormwater conveyances.

Place footings below scour, and frost depth, place bottom of footing at a minimum depth equal to the required depth of soil density not less than 4'-0" below ground elevation unless constructed on rock foundation or otherwise indicated.

Provide suitable joint system between vertical leg of the precast segment and footing as indicated on the standard detail drawings.

Sealing of reinforcement for precast bridge units - the outside and inside circumferential reinforcing steel for the corners of the bridge shall be bent to such an angle that is approximately equal to the configuration of the bridge's outside corner.

**LRFD DESIGN LOADS**

Live Load = Vertical Earth Pressure Unit Reinf. = 125 PCF
Vertical Earth Pressure Unit Weight = 120 PCF

**WALL BACKFILL REQUIREMENTS**

<table>
<thead>
<tr>
<th>APPROXIMATE/ Guideline</th>
<th>NUMBER OF ANCHORS PER WALL</th>
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<tbody>
<tr>
<td>LENGTH OF WALL</td>
<td>NO. ANCHORS</td>
</tr>
<tr>
<td>L = 14'-0&quot;</td>
<td>2</td>
</tr>
<tr>
<td>L = 20'-0&quot;</td>
<td>3</td>
</tr>
<tr>
<td>L = 24'-0&quot; + L</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: Adjacent segments shall be attached to each other to keep front faces in alignment. Place a filler at these joints with a membrane along the joint at the back face.