**GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE**

**STEEL PIPE PILE SPLICE**

- Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 792.

**CRUCIFORM PILE POINT**

**ELEVATION B-B**

**MANUFACTURED CONICAL PILE POINT**

- (Omit closure plate)

**SECTION A-A**

**SECTION C-C**

**DETAIL OF SEISMIC STIRUP BAR**

**Notes:**
- Welded or seamless steel shell (pipe) shall be ASTM A252 Grade 3 (fy = 45,000 psi).
- Concrete for cast-in-place pile shall be Class B-1.
- Steel for cruciform pile point reinforcement shall be ASTM A709 Grade 50.
- Steel for closure plate shall be ASTM A709 Grade 50.
- Steel casting for conical pile point reinforcement shall be ASTM A709 Grade 50.

- The minimum wall thickness of any spot or local area of any type shall not be more than 12.5% under the specified nominal wall thickness.
- The contractor shall determine the pile wall thickness required to avoid damage from all driving activities, but wall thickness shall not be less than the minimum specified. No additional payments will be made for furnishing a thicker pile wall than specified on the plan.
- The minimum wall thickness of any spot or local area of any type shall not be more than 12.5% under the specified nominal wall thickness.
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- Satisfactory weldments may be made by bevelling tip end of pipe or by use of inside backing rings. In either case, proper gaps shall be used to obtain weld penetration of full thickness of pipe. Payment for furnishing and installing closure plate shall be considered completely covered by the contract unit price for Galvanized Cast-In-Place Concrete Piles.
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Standard Drawing Guidance (do not show on plans):

Do not use 20” and 24” diameter closed ended cast-in-place (CECIP) concrete pile without approval of Structural Project Manager or Liaison.

<table>
<thead>
<tr>
<th>D (O.D.), CECIP Pile (by design)</th>
<th>14”</th>
<th>16”</th>
<th>20”</th>
<th>24”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Nominal Wall Thickness (by design)</td>
<td>3/4” (See EPG 751.36.2.2.2 for commonly available nominal wall thicknesses.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Closure Plate Thickness</td>
<td>3/4”</td>
<td>1”</td>
<td>1 1/2”</td>
<td></td>
</tr>
<tr>
<td>Pile Point Reinforcement</td>
<td>“Cruciform”, “Conical” or “None”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical Bars</td>
<td>6-#5-Vxxx, 6-#6-Vxxx, 8-#5-Vxxx, 12-#6-Vxxx</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1, Length of Vertical Bars</td>
<td>5-3”</td>
<td>7-3”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Stirrup Bars</td>
<td>6-#4-Pxxx, 6-#6-Pxxx</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Stirrup Bars</td>
<td>8-#4-Pxxx, 10-#6-Pxxx</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For LFD seismic performance category (SPC) A and LRFD seismic design category (SDC) A, minimum number of vertical bars, size and length and seismic stirrup bar information is provided in Galvanized Closed Ended Cast In Place (CECIP) Concrete Pile Data. Modify reinforcement size, length of vertical bars (L1), number of vertical bars, number of stirrup bars, and bar mark information as needed for specific project.

Min. L1 = 5’-3” for 14”Ø and 16”Ø CECIP & 7’-3” for 20”Ø and 24”Ø CECIP

Min. Lower Stirrup Bars = 5-#4 for 14”Ø and 16”Ø CECIP & 7-#4 for 20”Ø and 24”Ø CECIP

Min. Vertical Bars = 6-#5 for 14”Ø CECIP, 6-#6 for 16”Ø CECIP, 8-#6 for 20”Ø CECIP & 12-#6 for 24”Ø CECIP

For SPC B, C and D, modify reinforcement as needed to meet AASHTO 17th edition (LFD) and for SDC B, C and D, modify reinforcement as needed to meet AASHTO Guide Specification for LRFD Seismic Bridge Design (SGS).

For hard driving conditions consider ASTM A148 Grade 90-60. If conical pile points are not used, this note may be removed.

Use appropriate note based on seismic category (See EPG 751.50, Notes G5a9a & G5a9b)

These details of bar array 6, 8 and 12 count, can be used as needed in sheet details “Section A-A” & “DETAIL OF SEISMIC STIRRUP BAR” by using centroid as the handle.