Index 20654 54" Precast / Post-Tensioned Concrete Cylinder Pile (Rev. 07/13)

Design Criteria

AASHTO LRFD Bridge Design Specifications, 6th Edition; Structures Design Guidelines (SDG); Structures Detailing Manual (SDM)

Design Assumptions and Limitations

Standard piles are designed to have 1000 psi uniform compression after prestress losses without any applied loads.

The piles are designed to have 0.0 psi tension using a load factor of 1.5 times the pile self weight during pick-up, storage and transportation as shown in the "Table of Maximum Pile Pick-Up and Support Lengths" on the standard.

Plan Content Requirements

In the Structures Plans:

Show and label the piles on the Foundation Layout, End Bent, Intermediate Bent, Pier, Footing, Typical Section and other sheets as required.

Complete the following "Data Table" in accordance with SDG 3.5 and SDM 11.4 and include it in the contract plans with the "Foundation Layout" sheets. Modify table and notes as required to accommodate the required number of piles, piers and/or bents and use of Test Piles. When not enough space is available on one plan sheet, continuations of the Data Table and/or separate pile cut-off elevation tables are acceptable. See Introduction I.3 for more information regarding use of Data Tables.

For projects without Test Piles change column heading "TEST PILE LENGTH (ft.)" to "PILE ORDER LENGTH (ft.)".
## Instructions for Design Standards

### Topic No. 625-010-003-j

**Index 20654 54” Precast / Post-Tensioned Concrete Cylinder Pile (Rev. 07/13) 2014**

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### PILE DATA TABLE

<table>
<thead>
<tr>
<th>PIER or BENT NUMBER</th>
<th>PILE SIZE (in.)</th>
<th>NOMINAL DRIVING RESISTANCE (tons)</th>
<th>NOMINAL SPLIT RESISTANCE (tons)</th>
<th>MINIMUM TYP ELEVATION (ft.)</th>
<th>TEST POLE LENGTH (ft.)</th>
<th>REQUIRED SET ELEVATION (ft.)</th>
<th>REQUIRED PROFORM ELEVATION (ft.)</th>
<th>FACTORED DESIGN LOAD (tons)</th>
<th>FACTORED DESIGN UPLIFT LOAD (tons)</th>
<th>DOWN DRAIN (tons)</th>
<th>TOTAL SCOUR RESISTANCE (tons)</th>
<th>NET SCOUR RESISTANCE (tons)</th>
<th>50-YEAR SCOUR ELEVATION (ft.)</th>
<th>200-YEAR SCOUR ELEVATION (ft.)</th>
<th>LONG TERM SINKING ELEVATION (ft.)</th>
<th>ELEVATION COEFFICIENT</th>
<th>PILE 1</th>
<th>PILE 2</th>
<th>PILE 3</th>
<th>PILE 4</th>
<th>PILE 5</th>
<th>PILE 6</th>
<th>PILE 7</th>
<th>PILE 8</th>
<th>PILE 9</th>
</tr>
</thead>
</table>

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**Factored Design Load = Net Scour Resistance + Down Drain**

- **Driving Resistance**
  - Reduced by the scour resistance.
- **Net Scour Resistance**
  - Required for pile installation.

**PILE INSTALLATION NOTES (Notes Date 7/04/13)**

- Contractor to verify location of all utilities prior to any pile installation activities.
- Minimum Tip Elevation is required for lateral stability.
- When jetting elevation is shown, the jet shall be lowered to the elevation and continue to operate at this elevation until the pile driving is completed. Jetting or preheating elevations differ from those shown on the plans. The Engineer shall be responsible for determination of the required driving resistances.

**Additional Notes**

- No Jetting will be allowed without the approval of the Engineer.
- The Contractor should not anticipate being allowed to jet piles below the 100-year scour elevation or required jet elevations, whichever is deeper.
- At each Bent, pile driving is to continue at the center of the Bent and proceed outward.
## Payment

<table>
<thead>
<tr>
<th>Item number</th>
<th>Item description</th>
<th>Unit Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>455-36-1</td>
<td>Concrete Cylinder Piles Furnished &amp; Driven (54&quot; Diameter)</td>
<td>LF</td>
</tr>
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</table>