Index 455-054  54" Precast / Post-Tensioned Concrete Cylinder Pile

Design Criteria

AASHTO LRFD Bridge Design Specifications; Structures Detailing Manual (SDM); Structures Design Guidelines (SDG)

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 FDM 115 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.)".
### PILE DATA TABLE

<table>
<thead>
<tr>
<th>PIER or BAY NUMBER</th>
<th>PILE SIZE (in)</th>
<th>NOMINAL BEARING RESISTANCE (tons)</th>
<th>NOMINAL UPLIFT RESISTANCE (tons)</th>
<th>MINIMUM TIP ELEVATION (ft)</th>
<th>TEST PILE LENGTH (ft)</th>
<th>REQUIRED UPLIFT ELEVATION (ft)</th>
<th>REQUIRED PEER ELEVATION (ft)</th>
<th>FACTORED DESIGN UPLIFT LOAD (tons)</th>
<th>FACTORED DESIGN PEER LOAD (tons)</th>
<th>TOTAL SCOUR RESISTANCE (tons)</th>
<th>NET SCOUR RESISTANCE (tons)</th>
<th>IN-YEAR SCOUR ELEVATION (ft)</th>
<th>P.COMPRESSION (ft)</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>
</tr>
</thead>
</table>

**PILE INSTALLATION NOTICE (Notes Date: 7-2021):**

1. Contractor to verify location of all utilities prior to any pile installation activities.
2. Minimum Elevation is required for lateral stability.
3. Where required, piling materials to consist of the grades in accordance with the specification.
4. Net scour resistance plus additional scour resistance provided by the pile should be added to the ultimate static pile friction resistance required. The Engineer shall be responsible for determination of the required friction resistance. The pile piling will be allowed without the approval of the Engineer.
5. For new groups, pile driving is to commence at the center of the group 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-AB</td>
<td>Concrete Cylinder Piles, Furnished &amp; Driven (54” Diameter)</td>
<td>LF</td>
</tr>
</tbody>
</table>