Index 455-060 60" Prestressed 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>PILE</th>
<th>PILE 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 PRELOAD (tons)</th>
<th>FACTORED DESIGN UPLIFT LOAD (tons)</th>
<th>FACTORED DESIGN LOAD (tons)</th>
<th>TOTAL DRIVING RESISTANCE (tons)</th>
<th>NET SCOUR RESISTANCE (tons)</th>
<th>NO-YEAR SCOUR ELEVATION (ft.)</th>
<th>MINIMUM COMPRESSION</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>

### Notes

- **UPLIFT RESISTANCE**: The design pile friction capacity that must be obtained below the 100-year flood elevation to resist uplift of the pile, based on test pile uplift capacity.
- **TOTAL SCOUR RESISTANCE**: An estimate of the ultimate static pile friction resistance provided by the foundation soil.
- **NET SCOUR RESISTANCE**: An estimate of the ultimate static pile friction resistance provided by the foundation soil.
- **NO-YEAR SCOUR ELEVATION**: Estimated elevation of scour due to the 100-year storm event.

### PILE INSTALLATION NOTICE

Contractor to verify location of all utilities prior to any pile installation activities.

Minimum Elevation is required for lateral stability. When a required pile capacity is shown, the pile shall be driven to the elevation indicated or greater. Elevation shall be measured from the top of the pile or from the elevation indicated in the contract plans. The elevation shall be checked and verified by the Engineer.

For new structures, the 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 (60” Diameter)</td>
<td>LF</td>
</tr>
</tbody>
</table>