Index 22660 60" CFRP & SS Prestressed Concrete Cylinder Pile (Rev. 11/16)

Design Criteria

*AASHTO LRFD Bridge Design Specifications*, 6th Edition; *Structures Design Guidelines (SDG); Structures Detailing Manual (SDM); Fiber Reinforced Polymer Guidelines (FRPG)*

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.)".
**PILE DATA TABLE**

| PILE or BENT NUMBER | PILE SIZE (in.) | NOMINAL BEARING RESISTANCE (tons) | NOMINAL UPLIFT RESISTANCE (tons) | MINIMUM TIP ELEVATION (ft.) | TEST PILE LENGTH (ft.) | REQUIRED WIP ELEVATION (ft.) | REQUIRED PRELOAD ELEVATION (ft.) | FACTORED DESIGN UPLIFT LOAD (tons) | FACTORED DESIGN DOWN DRAM (tons) | TOTAL SCOUR RESISTANCE (tons) | NET SCOUR RESISTANCE (tons) | 100-YEAR SCOUR ELEVATION (ft.) | COMPRESSION 

| PILE 1 | PILE 2 | PILE 3 | PILE 4 | PILE 5 | PILE 6 | PILE 7 |

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**Factorized Design Load = Net Scour Resistance × Drag Drag**

**UPLIFT RESISTANCE** – The ultimate side friction capacity that must be obtained during the 100 year scour elevation to resist pullout of the pile.

**TOTAL SCOUR RESISTANCE** – An estimate of the ultimate static side friction resistance provided by the scourable soil.

**NET SCOUR RESISTANCE** – An estimate of the ultimate static side friction resistance provided by the soil from the required performed or jetted elevation to the scour elevation.

**100-YEAR SCOUR ELEVATION** – Estimated elevation of scour due to the 100 year storm event.

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**PILE INSTALLATION NOTES** (Notes Code 7-0031):

- Contractor to verify location of all utilities prior to any pile installation activities.
- Minimum Tip Elevation is required for lateral stability.
- When a required jetting elevation is shown, the jet shall be lowered to the elevation and continue to operate at this elevation until the required jetting is completed. Jetting in preloading elevations differ from those shown on the table, the Engineer shall be responsible for determination of the required driving resistance.
- No jetting will be allowed without the approval of the Engineer.
- The Contractor shall not anticipate being allowed to jet piles below the 100-year scour elevation or required jet elevation, whichever is deeper.
- At each Bents, pile driving is to commence 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-AB</td>
<td>Concrete Cylinder Piles Furnished &amp; Driven (60&quot; Diameter CFRP or SS)</td>
<td>LF</td>
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</tbody>
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