

**SECTION 00520 - DRIVEN PILES**

*(Follow all instructions. If there are no instructions above a subsection, paragraph, sentence, or bullet, then include them in the project. The specifications may be modified to include project specific specifications, but all additions, deletions, or modifications must be sent to the ODOT Technical Resource and Senior Specifications Engineer for review and approval.)*

Comply with Section 00520 of the Standard Specifications modified as follows:

*(Use the following subsection .11 on projects that require steel piles. Insert bridge structure number and bent number under "Location". Insert the number of piles in each bent under "No.". Insert the estimated length of the individual piles in each bent under "Length". Insert the type and dimensions of the pile under "Kind". Obtain information from the Geotechnical Designer.)*

**00520.11 Engineer's Estimated Length List** - Add the following to the end of this subsection:

The Engineer's estimated lengths of steel piling are:

Location	No.	Length (Feet)	Kind
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*(Use the following subsection .12 on projects that require prestressed concrete piles or timber piles. Delete "(timber piling)" or "(concrete piling)" if not on project. Insert bridge number and bent number under "Location". Insert the number of pile in each bent under "No.". Insert the order length of the individual piles in each bent under "Length". Insert the type and dimensions of the pile under "Kind". For timber piling, include butt or tip size and whether they are friction or bearing pile under "Kind". Obtain information from the Geotechnical Designer.)*

**00520.12 Pile Order List** - Add the following to the end of this subsection:

The pile order list for precast prestressed (concrete piling) (timber piling) is:

Location	No.	Length (Feet)	Kind
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*(Use the following subsection .13 on projects that require test piles. Insert bridge structure number and bent number under "Location". Insert the number of piles*

*in each bent under "No.". Insert the estimated length of the individual piles in each bent under "Length". Insert the type and dimensions of the pile under "Kind". Obtain information from the Geotechnical Designer.)*

**00520.13 Test Piles** - Add the following to the end of this subsection:

The required test piles are:

Location	No.	Length (Feet)	Kind
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*(Use the following subsection .20(c-4) when required by the Geotechnical Designer.)*

**00520.20(c-4) Followers** - Add the following to the end of this subsection:

Followers are permitted.

*(Use the following subsection .20(d-3) when WEAP input values are required. Include further explanations if necessary. More than one table may be required to assess pile driving stresses through upper hard or dense soils layers or other conditions. Consult with the Geotechnical Designer regarding the appropriate input(s) to use. Typically supply the highest  $R_n$  value and the worst-case driving conditions that the contractor should use in the WEAP analysis to determine hammer requirements. Supply WEAP input data for a complete "drivability analysis" if appropriate. Obtain information from the Geotechnical Designer.)*

**00520.20(d-3) Wave Equation Method** - Add the following paragraph and table(s) at the end of this subsection:

The input values for the wave equation analyses are:

Bent	Pile Type	Pile Length * (Feet)	Quake (Inches)		Damping (sec./ft.)		% skin (ITYS)	$R_n$ (kips)
			Skin	Toe	Skin	Toe		

\* These pile lengths are based on the top of the pile being at the finished cutoff elevation. All additional pile length above the cutoff elevation, that may be required to accommodate the Contractors pile installation method or site conditions, shall be added to the lengths listed above and appropriate changes made to the skin friction distribution input listed below.

*(Use one of the following two options. Delete the one that does not apply.)*

*[ Option 1 - Use this option when either triangular or rectangular distribution is required. Delete the one (triangular or rectangular) that does not apply. ]*

Use (triangular) (rectangular) skin friction distribution.

*[ Optional 2 - Use this option when providing relative skin friction values in table form. Insert Relative Skin Friction Distribution values in the table. Fill in the bent number. Add or delete rows and columns as appropriate. ]*

Use the relative skin friction distribution values listed below in the WEAP analysis:

Bent _____		Bent _____		Bent _____	
Depth (Feet)	Relative Distribution	Depth (Feet)	Relative Distribution	Depth (Feet)	Relative Distribution

*(Use the following subsection .41(d) when augering or wet-rotary drilling is allowed by the Geotechnical Designer.)*

**00520.41(d) Preboring** - Add the following sentence to the end of this subsection:

Use augering, wet-rotary drilling or other approved methods of preboring as directed.

*(Use the following subsection .41(e) when jetting is allowed by the Geotechnical Designer.)*

**00520.41(e) Jetting** - Add the following sentence to the end of this subsection:

Jetting is permitted.

*(Use the following subsection. 42(d) when a minimum "set period" of longer than 24 hours is required or if piles are required to set before redriving. Check with the Geotechnical Designer.)*

**00520.42(d) Set Period and Redriving** -

*(Use the following two paragraphs when a minimum "set period" of longer than 24 hours is required. Fill in the blank. Use days or hours as appropriate and delete whichever doesn't apply.)*

Replace the sentence that begins "The "set period" shall be..." with the following sentence:

The "set period" shall be a minimum of \_\_\_\_\_ days/hours unless otherwise approved by the Engineer.

*(Use the following two paragraphs when piles are required to set before redriving.)*

Add the following sentence to the end of this subsection:

Piles are required to set before re-driving.

*(Use the following subsection .43(c) on projects with steel pipe piles that do not require reinforced tips. Delete the end treatment that does not apply and remove the parentheses. Obtain information from the Geotechnical Designer. If reinforced tips are required, do not use this subsection; instead use subsection .43(d) below.)*

**00520.43(c) End Treatment** - Add the following sentence to the end of this subsection:

Drive steel pipe piles (open) (closed)-ended with tip treatment as shown.

*(Use the following subsection .43(d) on projects with steel pipe piles that require reinforced pile tips. Delete "inside" or "outside" as appropriate and remove the parentheses. Obtain information from the Geotechnical Designer.)*

**00520.43(d) Reinforced Pile Tips** - Add the following sentence to the end of this subsection:

For steel pipe piling, provide (inside) (outside) fit, open end cutting shoes meeting the requirements of 02520.10(e).