

SECTION 02463 - TIMBER AND STEEL PIPE PILES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Wood piles, with steel tip.
- B. Steel Pipe Piles

1.3 RELATED REQUIREMENTS

- A. Section 02451 - Pile Load Tests: Requirements for pile load tests.(For wood piles only)

1.4 REFERENCE STANDARDS

- A. ASTM D 25 - Standard Specification for Round Timber Piles; 1999 (Reapproved 2005).
- B. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 2005.
- C. AWPA M4 - Standard for the Care of Preservative-Treated Wood Products; American Wood-Preservers' Association; 2006.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

1.6 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate details and schedule of pile installation sequence. Identify recommended pile length and diameter to suit design requirements.
- C. Product Data: Provide details of collars.
- D. Submit evidence of preservative treatment certification.
- E. Certificate of compliance from authority having jurisdiction indicating approval.
- F. Project record documents. Accurately record the following:
 - 1. Sizes, lengths, and locations of piles.
 - 2. Sequence of driving.

3. Make and model of hammer, driving time, delays during driving, blows per minute, number of blows per foot for entire length of piles, number of blows for each inch during final 6 inches of penetration, unusual driving, and any other pertinent information.

1.7 QUALITY ASSURANCE

- A. Installer: Company specializing in performing the work of this section with minimum 5 years documented experience.

1.8 PROJECT CONDITIONS

- A. Refer to geotechnical report of additional information.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Piles: ASTM D 25; Douglas Fir, clean peeled, one piece, non-spliced, friction type.
 1. Length: As indicated.
 2. Minimum Butt Diameter:
 - a. As indicated.
 3. Minimum Tip Diameter:
 - a. As indicated.
- B. Piles: ASTM A 36/A 36M; structural steel, rolled Pipe sections, minimum 36 ksi yield strength; sizes and lengths indicated.
 1. Length: As indicated

2.2 SOURCE QUALITY CONTROL

- A. Provide shop testing and inspection of wood piles under provisions of Section 01400.

PART 3 EXECUTION

3.1 PREPARATION

- A. Use pile installation methods that are acceptable to the structural and geotechnical engineers and that will not cause damage to nearby structures. Non-impact hammers, such as vibratory hammers, or driving aids such as jets, followers and prebored holes shall not be used unless specifically permitted in writing by the structural and/or geotechnical engineers.
- B. Notify adjacent and affected land owners and building occupants with 90 days notice before proceeding with the Work.
- C. Protect structures near the work from damage.
- D. Prepare to place piles from existing site elevations.

- E. Survey: A Registered Professional Land Surveyor or Registered Civil Engineer shall establish lines and levels and stake pile locations.
 - 1. After all piles are driven, Registered Professional Land Surveyor or Registered Civil Engineer shall make field survey of completed piling work. Submit drawing to Engineer of Record showing actual pile locations with respect to planned pile locations and indicating plumbness of piles.
- F.

3.2 INSTALLATION

- A. Protect pile head during driving using collar, with full bearing on pile butt for even distribution of hammer blow.
- B. Deliver hammer blows to central axis of pile.
- C. Re-drive piles that have lifted due to driving adjacent piles, or by soil uplift.
- D. Do not damage piles during driving operations. If a pile is deemed to be damaged during driving, one or more additional piles shall be driven as directed by the Owner's Representative at no additional cost to the Owner.
- E. Cut off tops of piles to elevations indicated and prepare pile top to receive pile cap.
- F. Monitor and record ground vibrations during pile installation operations. If sustained peak particle velocities of 0.25 in./sec or more are measured at a structure, pavement system, or utility of concern, the construction operation(s) causing these vibrations shall stop and the structural and geotechnical engineers shall be notified to allow evaluations to be made. If necessary, the contractor shall make changes in the construction procedures at no additional cost to the owner.
- G. Order of Driving: Install piles in such an order and with sufficient spacing to ensure against distortion or injury to piles already in place.

3.3 TOLERANCES

- A. Maximum Variation From Vertical For Plumb Piles: 1 in 48.
- B. Maximum Variation From Required Angle For Batter Piles: 1 in 24.
- C. Maximum Variation From Design Cut-off Elevation: 4 inches.
- D. Maximum Out-of-Position: 2 inches.

3.4 FIELD QUALITY CONTROL

- A. Field inspection will be performed under provisions of Section 01400.
- B. Perform load tests on timber piles to requirements of Section 02451.

3.5 UNACCEPTABLE PILES

- A. Unacceptable Piles: Piles that fail tests, are placed out of position, are below cut-off elevations, or are damaged.

- B. Provide additional piles or replace piles to conform to specified requirements at no additional cost to owner.

END OF SECTION