

ITEM 10551.0410 M - TREATED TIMBER PILES FOR DOLPHINS AND FENDER SYSTEM

DESCRIPTION

This work shall consist of furnishing and placing treated timber piles for use in the pier protection system including wire rope and hardware as indicated on the plans and in accordance with these specifications. Furnishing equipment for driving the piles shall also be included in this item.

MATERIALS

A. Treated Timber Piles

The treated timber piles shall conform to the requirements of Subsection 720 - 02, except that they shall be Southern Yellow Pine Dense Structural Grade 65 in accordance with ASTM D245. Butt diameter shall be 305 mm minimum and dimension shall be in conformance with ASTM D25.

All piles shall be impregnated with creosote oil by the full cell process, and shall comply with the current American Wood Preservers Association Standard N0. C18 for Standard for Pressure Treated Piles and Timbers in Marine Construction. The amount of preservative retained shall not be less than 400 kg per cubic meter of timber.

Pile shoes shall conform to the requirements of Subsection 720-05.

B. Wire Rope

The pile dolphins shall be wrapped with 25.4 mm diameter 6 x 19 IRWC, Type 316 stainless steel wire rope conforming to the requirements of ASTM A492. Wire rope shall be fastened with stainless steel staples as per ASTM A580 M, Type 316 as shown on the plans.

C. Copper Caps

The pile dolphins shall be capped with copper sheeting fastened with copper roofing nails as shown on the plans.

CONSTRUCTION DETAILS

A. General

1. The locations of the dolphins and the number of piles required for each are as shown on the Plans. The piles required for the fender system are located as shown on the Plans.

B. Treated Timber Piles

1. All treated timber piles shall be carefully handled, and properly stored so as to avoid damaging the pile. Any tool that will break the surface of pile, i.e. Canthooks, pikepoles etc., shall not be used.
2. All cutting, framing, and borings of creosoted timber shall be done before treatment whenever practicable. All tops of piles, cuts surfaces, bolt holes and all surface breaks that do not warrant the rejection of the timber pile shall be thoroughly brush coated with

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three successive applications of a mixture of 60% creosote oil and 40% roofing pitch. Any unfilled bolt holes, after being treated, shall be plugged with creosote plugs.

3. Timber piles shall be driven to a penetration depth of 4.6 m below the existing bottom. Full length piles shall be used and no splicing will be permitted.
4. Piles shall be driven with a single or double-acting steam hammer having a rated energy of 1.63×10^4 Joules per blow. Resistance to penetration shall not exceed 30 blows per 300 mm.
5. Water jets shall only be used when, in the opinion of the Engineer, it is necessary to do so in order to obtain the required penetration.
6. The heads of all timber piles shall be protected during driving by caps of approved design. When the area of any timber pile is greater than that of the face of the hammer, a suitable cap shall be provided to distribute the blow of the hammer throughout the cross-section of the pile and thus, avoid, as far as possible, the tendency to split or shatter the pile. Collars or bands, to protect timber piles against splitting and brooming, shall be provided where necessary.
7. The piles shall be shod with metal pile shoes, as needed, for the installation of the timber piles and shall be paid for under this item. The points of the piles being carefully shaped to secure an even and uniform bearing on the shoes.
8. Piles shall be driven with a variation of not more than two percent (2%) from the vertical or from the batter shown on the Plans. If the tops of the wooden piles are driven below the elevation fixed by the Plans, the piles shall be withdrawn and replaced by new and, if necessary, longer piles at no additional expense to the State or the Nassau County Bridge Authority.
9. The piles pushed up by the driving of adjacent piles or by any other cause shall be driven down again.
10. The tops of all piling shall be sawed to a true plane, as shown on the Plans. The cut tops shall be dressed with three coats of a mixture consisting of 60% creosote oil and 40% roofing pitch. The pile dolphins shall also be capped with copper sheeting fastened with copper roofing nails and roofing tar as shown on the Plans.

C. Wire Rope

1. Those piles used as dolphins shall be wrapped with stainless steel wire rope with one staple per perimeter pile per turn of wire rope. The number of wraps of wire rope required for each dolphin and the number of turns needed for each wrap is as shown on the Plans.

METHOD OF MEASUREMENT

The quantity to be paid for Treated Timber Piles will be the actual length in meters of all piles placed in the completed work. No allowance will be made for waste or for broken or rejected piles. No payment will be made for any timber piles delivered to the site which are not incorporated in the project.

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BASIS OF PAYMENT

The unit price bid per meter shall include the cost of furnishing all labor, materials (including wire rope and hardware) and equipment including pile driving equipment necessary to complete the work.