ITEM 409
PRESTRESSED CONCRETE PILING

409.1. Description. Furnish and place prestressed concrete piling.

409.2. Materials. Use materials that meet the requirements of the following Items:
- Item 420, “Concrete Structures”
- Item 421, “Hydraulic Cement Concrete”
- Item 426, “Prestressing”
- Item 440, “Reinforcing Steel.”

Fabricate prestressed concrete piling in accordance with the following Items:
- Item 424, “Precast Concrete Structures (Fabrication)”
- Item 425, “Precast Prestressed Concrete Structural Members.”

Furnish piling in the lengths indicated on the plans when test or test-loaded piling is not required. When test or test-loaded piling is required, the Engineer will approve lengths based on test driving data or test load data. Do not cast regular piling until the Engineer has determined the approved lengths based on the test or test-loaded piling.

409.3. Construction. Handle and store piling in a way that minimizes the risk of damage by impact or bending stress. Store piling above ground on adequate blocking. Do not use chain slings to handle piling. For any damaged piling, immediately review and correct conditions causing the damage. Drive piling in accordance with Item 404, “Driving Piling.” Test-load, when required, in accordance with Item 405, “Foundation Test Load.”

A. Defects and Breakage. Damage to piling due to faulty materials or construction methods may be cause for rejection. Piling cracked in the process of fabrication, handling, storing, hauling, or driving is subject to the following provisions:
- Piling with 1 or more cracks transverse to the longitudinal reinforcement or strand, 1/16 in. or wider, will be rejected if the crack occurs in a portion that will be below ground or water level after driving. If the crack will be located above ground or water level when driving is complete, the piling may be used if it is cut back to the crack and rebuilt to grade. No additional payment will be made for this buildup.
- Piling with 1 or more cracks transverse to the longitudinal reinforcement or strand that is less than 1/16 in. wide may be used if the crack is repaired in accordance with Item 780, “Epoxy Injection.” If cracks develop during driving in the portion that will be below ground, stop driving and repair the cracks before continuing.
- Piling with one or more cracks parallel or diagonal to the longitudinal reinforcing steel or strand and extending to the determined plane of reinforcement may be rejected. If cracks are found acceptable, repair them in accordance with Item 780, “Epoxy Injection.”
- Fine hairline cracks or surface checks that do not extend to the plane of the nearest reinforcing steel, as determined by the Engineer, will not require repair and will not be cause for rejection.
B. **Buildups and Cutoffs.** Construct buildups in accordance with plan details and Item 420, “Concrete Structures.” For cutoffs, make the final cut of the concrete square to the longitudinal axis.

C. **Test Piling.** Test piling must meet requirements for prestressed concrete piling. The Engineer may adjust the number of test piles to secure desired information.

409.4. **Measurement.**

A. **Concrete Piling.** Prestressed concrete piling and prestressed concrete test piling will be measured by the foot of acceptable piling in place after all cutoffs and buildups have been made. When the Contractor elects to drive piling deeper than required to meet the specified length and bearing requirements, no measurement will be made on that portion below the elevation at which length and bearing requirements were first obtained.

B. **Buildups.** Buildups will be measured by each authorized, completed buildup made necessary by driving beyond the plan pile length to obtain required bearing resistance. No measurement will be made for a buildup made necessary by improper casting, handling, or driving.

C. **Cutoffs.** Cutoffs for both regular and test piling will be measured by the foot of cutoff above required grade.

409.5. **Payment.** The price bid is full compensation for jetting, pilot holes, alignment holes, repairs, materials, tools, equipment, labor, and incidentals. Test-loaded piling and associated anchor piling will be paid for as provided in Item 405, “Foundation Test Load” except that any test load ordered by the Engineer that is not provided for in the Contract will be paid for in accordance with Article 9.4, “Payment for Extra Work.”

A. **Concrete Piling.** The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid for “Prestressed Concrete Piling” or “Prestressed Concrete Test Piling” of the size specified.

B. **Buildups.** An additional payment for each completed authorized buildup splice for both regular and test piling, regardless of buildup length, will be made at a price equal to 10 times the unit price bid for “Prestressed Concrete Piling.” Where piling is broken back for constructing buildups, payment for the breakback is included in the payment for buildups.

C. **Cutoffs.** Payment for cutoff lengths of both regular piling and test piling will be made at a price equal to 1/2 the unit price bid per foot for “Prestressed Concrete Piling.”