**Item 530 Special - Retaining Wall, Precast Concrete Lagging**

This work consists of furnishing and placing precast reinforced concrete panels between the soldier piles to function as lagging for the retaining wall. Provide precast concrete lagging from a precast concrete manufacturer certified according to Supplement 1073. Provide Class QC 1 concrete according to C&MS 499. Provide epoxy coated reinforcing steel according to C&MS 709.00. In lieu of epoxy coating, a corrosion inhibiting concrete admixture may be used at the specified dosage rate. A qualified product list of corrosion inhibiting admixtures is on file at the Laboratory. Manufacturers should recognize that the corrosion inhibitor may affect the strength, entrained air content, workability, etc. of their concrete mixes. The manufacturer’s choice to use one of these corrosion inhibitors does not alleviate meeting all design requirements. Do not allow the dimensions of the lagging or location of the reinforcing steel to vary by more than 1/4-inch. Cast threaded inserts into the top of each panel for lifting and placing.

Fill all cavities produced by form ties and other single defects or defected areas and with a prequalified trowelable mortar in accordance with Supplemental Specification 843.02 and 843.06. Likewise fill cavities for lifting inserts in the top row of precast concrete lagging panels. Provide a broom/brush finish to all trowelable mortar patches. Cure the trowelable mortar according to Supplemental Specification 843.07. Air dry for at least 10 days after completion of the manufacturer’s recommended cure time for trowelable mortar. Brush abrasive blast, followed by air brooming or power sweeping, to remove dust and sand from the surface and opened pores.

Finish the faces of the precast concrete lagging panels that will not be exposed to a uniform surface, free of open pockets of aggregate. Finish the exposed face of the panels to a smooth surface. \*Seal the front (exposed) face, sides, top, bottom, and 3” minimum of the back face of the concrete panel with Item 512, Sealing of Concrete Surfaces (Epoxy-urethane). The color of the urethane shall be Federal Color Number 17778 (Light Neutral). Cost of sealing shall be incidental and included with the precast concrete lagging panels for payment.

Permanently mark each precast concrete lagging panel to indicate which face will be placed against the soil. Place the panel between the flanges of the soldier piles and bearing against the flanges on the exposed side of the wall so that the soldier pile flange overlaps the end of the lagging by at least one inch more than the concrete cover over the reinforcing steel at both ends of the lagging.

Handle, store, and ship the precast concrete lagging panels to avoid chipping, cracking and fracturing the panels. Support the panels on firm blocking while storing and shipping. Do not ship panels until concrete has attained a minimum 3000 psi compressive strength. Submit shipment documentation to the Engineer as the panels are delivered to the project, including the Precaster’s record of final inspection, the measurements and tolerances, strength, and dimensions of each panel, along with the TE-24 shipping document.

Inspect all precast concrete lagging panels and reject panels having any of the following:

1. Defects that indicate imperfect molding.
2. Defects that indicate honeycombed or open texture concrete.
3. Defects in the physical characteristics of the concrete, or damage to the sealing of concrete surface treatment or to aesthetic surface treatments.
4. Concrete chips or spalls that are larger than 4 inches wide or 2 inches deep. Repair all chips and spalls that are smaller.
5. Stained form faces, due to form oil, curing, or other contaminants.
6. Signs of aggregate segregation.
7. Cracks wider than 0.01 inches, penetrating more than 1 inch or longer than 20 percent of the length of the face containing the crack. Repair all cracks that are smaller.
8. Panels that do not meet the specified dimensional tolerances.
9. Unusable lifting inserts.
10. Exposed reinforcing steel.
11. Insufficient concrete compressive strength.

Either replace damaged precast concrete lagging panels or document the damage and propose to the Engineer a repair method for the damaged panel; perform repairs with the acceptance of the Engineer. Provide acceptable replacement panels for any that are rejected.

When installing the precast concrete lagging panels, place hardwood wedges near the top and bottom on each side to hold the lagging panels against the front inside flange of the steel piles.

Payment for all labor, equipment, and material required to fabricate, transport, and install the precast concrete lagging panels shall be made at the contract unit price per square foot for Item 530 Special - Retaining Wall, Precast Concrete Lagging.

**NOTE TO DESIGNER:**

* For panels that will be covered over with a permanent cast-in-place concrete facing, eliminate sealing with epoxy-urethane. Federal Color Light Neutral may be replaced with any other color according to the aesthetics of the project.