1. SHEET PILING (revised 2-2-2022)

Description. This work consists of furnishing and placing sheet piling in accordance with these specifications and as shown on the plans.

Materials. Furnish hot rolled PZ27 sheet piles and sheet pile tip protectors meeting requirements of ASTM A572 grade 50.

All steel or iron materials permanently incorporated into this work must meet the requirements of Subsection 106.09.

Steel pile may be inspected at the rolling mill and will be inspected at the project site. Furnish 2 copies of the mill test reports showing the chemical and physical test results for each steel pile heat number included in the shipment. Store and handle steel piles to prevent damage. Bent, deformed, kinked, or otherwise damaged piles will be rejected.

Furnish pile quantities shown in the contract. The specified lengths are those required below cutoff. Adjust lengths for the difference between the cut off length and the pile position in the driving equipment. Remove and dispose of excess pile length after the pile is installed.

Construction.

Impact Hammer. Provide an impact pile hammer capable of driving the sheet pile to the bottom of wall elevation(s) shown on the plans. Provide hammer manufacturer’s recommended pile driving aides, guides, templates, and accessories.

Vibratory Hammer. A vibratory hammer is allowed for installation of sheet piling. If the pile does not meet design tip elevation(s) during vibratory installation finish the installation utilizing an impact hammer.

Evaluation of Pile Driving Equipment. The Department will evaluate pile driving equipment provided by the Contractor based on evaluation utilizing a wave equation analysis. The proposed equipment must be capable of driving the sheet pile to the bottom of wall elevation(s) shown on plans without damage to the pile as predicted by the wave equation analysis. Submit an electronic copy of the Pile and Drive Equipment Data Form (Form CSB559\_03\_2) for the proposed pile hammer(s) to the Project Manager 30 calendar days before driving.

The Department will evaluate the vibratory hammer information by wave equation analysis only to assess the potential for pile damage during driving operations.

The Department will evaluate impact hammer information by wave equation analysis to assess both the predicted driveability and potential pile damage during driving operations.

The Project Manager will notify the Contractor of results of the pile driving equipment evaluation within 14 calendar days after receipt of the Pile and Driving Equipment Data Form. If the evaluation indicates that pile damage may occur or that the proposed pile driving equipment cannot drive the pile to the specified bottom of wall elevation, re-submit a plan that modifies the equipment or the installation method to ensure the ability to drive pile to the specified bottom of wall elevation without pile damage as predicted by the wave equation analysis. The Project Manager will notify the Contractor of the results of the revised pile driving submission and wave equation analysis within 7 calendar days after receipt of the re-submittal.

Do not vary from the evaluated driving system without prior written approval from the Project Manager. The Department will not consider proposed changes to the pile driving equipment or methods without receipt of a revised submittal with updated information for a new wave equation analysis. The Project Manager will notify the Contractor of evaluation results of the pile driving system changes within 7 calendar days after receipt of the revised submittal. Delays and additional costs associated with developing, submitting, and obtaining evaluation results for pile driving proposals and resulting changes in the pile driving equipment and work methods are the sole responsibility of the Contractor.

Sheet Pile Cutoff Locations. The cutoff location of each sheet cannot be lower than the intersection with the slope above the sheet. The cutoff location of each sheet may be a maximum of 0.5 feet above the intersection with the slope above the sheet.

If practical driving refusal occurs before the sheet pile achieves design tip elevation, the Project manager will contact the Geotechnical Section. Practical driving refusal is determined by the Project manager in consultation with the Geotechnical Section and is defined as:

Damage to the sheet pile is observed during driving or

Wave equation analysis for the approved driving system predicts overstressing.

The following conditions do not constitute practical driving refusal:

The approved hammer system is not operating correctly or

The hammer is not operated to the maximum rated operating energy as recommended by the hammer manufacturer.

Horizontal Alignment Tolerances. Drive pile so the pile head at cutoff elevation is within 2 inches of the plan location.

Vertical Alignment Tolerances. The allowable alignment tolerance from a plumb line is 1/4 inch per 1 foot of pile length.

If a section of sheet pile comes out of interlock during driving, remove and inspect the sheet pile. If the pile is not damaged, re-drive the pile to bottom of wall elevation. Do not re-use damaged piles.

Laterally pulling on misaligned pile(s) or splicing a properly aligned section on misaligned pile(s) is prohibited.

The Project Manager may suspend driving if the either horizontal or vertical alignment is not maintained as the pile is driven.

Within 2 working days after driving is completed, submit an electronic copy of a written plan to the Project Manager for correcting pile(s) that do not meet the alignment or location tolerances.

Method of Measurement. Sheet Pile Material is measured by the square feet of wall face as calculated from the plan dimensions or ordered in writing from the Project Manager.

Basis of Payment. Accepted quantities of Sheet Pile Material are paid for at the contract unit price bid per square foot. Payment is full compensation for all labor, tools, equipment and other incidentals necessary to complete the work in accordance with the specifications and as directed by the Project Manager.