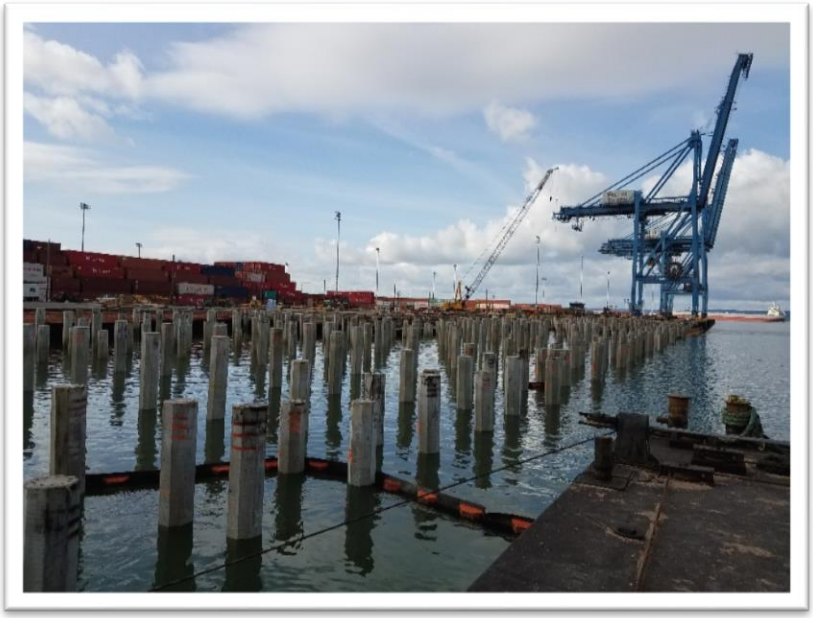
Pier 4 Reconfiguration

Tacoma, Washington



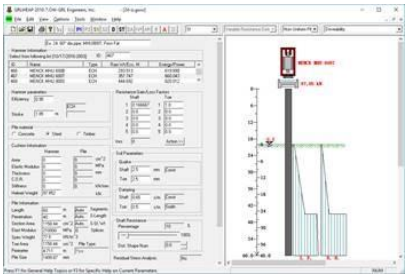
Project Information
Owner: Port of Tacoma
Client: Manson Construction Co.
Project Name: Pier 4 Reconfiguration
Pile Type: 24-inch Octagonal Prestressed Concrete
Completion Date: Ongoing

GRL Services Provided
▪ Preliminary GRLWEAP Analysis ▪ Dynamic Pile Monitoring ▪ CAPWAP Analysis

The Port of Tacoma has numerous Piers for the loading and unloading of ships carrying containers. The original configuration of Pier 4 is at an angle with Pier 3. Reconfiguring Pier 4 to be aligned with Pier 3 will create a straight, continuous wharf of almost 3,000 feet, and allow for the simultaneous working of two mega ships (carrying containers 24 rows wide and stacked up to 10 high on deck) at these two Piers. At the same time, the reconfiguration will strengthen Pier 4 and allow for the addition of super post-Panamax cranes with a height of 165 feet.

Manson Construction Co. is driving approximately 174,000 linear feet of 24 inch octagonal prestressed concrete piles for the pier foundation. GRL Engineers performed preliminary **Wave Equation Analysis** on selected hammers for the job.

GRL Engineers also performed **dynamic pile monitoring** on selected piles, during initial driving, and again during restrikes. This quality assurance provides the geotechnical engineers, Hart Crowser, Inc., with the confidence that the installation of the piles is suitable, and that the ultimate pile capacity after set-up is sufficient.



GRLWEAP Analysis

Individual piles range in length from 69.5 to 170.5 feet, and the required ultimate capacities range from 1,016 to 1,720 kips. It is estimated that 1,519 jobs in Washington State are somehow connected to the movement of cargo through this container terminal. The upgrades to Pier 4 will increase the cargo throughput, providing an opportunity to increase the number of jobs associated with the terminal over time.

For additional information, please contact info@grlengineers.com.