



## Port of Vancouver, Block D

Vancouver, Washington

The Port of Vancouver was established in 1912. A new development of Terminal 1 is underway to transform the Port into a waterfront destination with new retail, commercial, and residential elements adjacent to the Columbia River.



## The project

The first development at the Port property includes the construction of an AC Hotel by Marriott. The hotel will be a 7-story structure with three levels of above-ground parking and available retail space built on a 2 ft thick mat foundation. Due to liquifiable subsurface soils, the site is subject to lateral spreading and differential settlement following a seismic event. Therefore, a seismic mitigation program was required to stabilize soils and facilitate hotel construction.

## The challenge

There were various obstructions throughout the site, including utilities and timber piles from WWI shipbuilding activities.

## The solution

The owner selected Keller to design and construct the seismic mitigation program and full site preparation for hotel construction, including deep soil mixing, a shoring wall, spoil removal, and final grading.

The project began with general grading and the installation of a cantilevered soldier pile and lagging wall to protect an existing duct bank and sidewalk along the site's north perimeter. Keller installed approximately 1,000 SF of shoring. The initial soil mixing began shortly after but within a few weeks work was halted due to the discovery of a significant amount of subsurface timber pilings. Over 700 timber piles were removed from across the site; however, some of the piles could not be removed due to space or property limits.

Following timber pile removal, Keller performed deep soil mixing, installing over 600 columns up to depths of 55 ft to stabilize the soils. In areas where timber piles remained, Keller designed and installed an alternative system of low-strength continuous flight auger (CFA) secant piles.

Despite the obstructions, Keller was able to work efficiently with the project team and successfully turn the project site over for the next phase of construction in a timely manner.

## Project facts

### Owner(s)

Port of Vancouver, Vest Hospitality (T1 Hotel LLC)

### Keller business unit(s)

Keller

### Main contractor(s)

Keller

### Engineer(s)

Keller

### Solutions

Ground improvement  
Liquefaction mitigation  
Support of excavation

### Markets

Commercial

### Techniques

CFA (auger cast) / ACIP piles  
Soldier piles and lagging  
Wet soil mixing

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