

Case Study

Heavy Civil

Emergency Utility Tunnel Replacement After Nisqually 2001 Earthquake

DATE: June, 2001

PROJECT: Highline Community College Emergency Tunnel Replacement

OWNER: The Highline Community College

LOCATION: Des Moines, Washington

GENERAL CONTRACTOR: Construction Enterprises & Contractors, Inc.

UTILITY/SHORING SUBCONTRACTOR: Northwest Cascade, Inc.

ENGINEER: Ground Support, PLLC

The Highline Community College Emergency Tunnel Replacement project involved the construction of a new section of utility tunnel. Highline Community College faced serious damages after the magnitude 6.8 Nisqually Earthquake on February 28, 2001. A single aging utility tunnel carrying water, gas, electric, sewer, and fiber optics was damaged as lateral ground movement ruptured the tunnel. Its immediate replacement was imperative if the school year was to continue on schedule and looming safety threats were to be alleviated.



The project consisted of construction of 450' of 15' deep, 9' wide tunnel supported by drilled W6x25 soldier piles and shored with 4" thick timber lagging. The project also included three 20'x18'x12' connection nodes between the tunnel sections, resulting in 3500 SF of shoring wall supported by W14 drilled soldier piles, 6" thick timber lagging, and covered with shotcrete.

Soon after digging began it was also discovered that the existing utility maps were only general estimates of actual location. Some utilities were not listed on the existing maps and others were off by as much as 8 feet. NWC had to excavate and relocate existing utilities to take care of this problem.



Pete Babbington, Director of Facilities for Highline Community College stated "It was a joy to watch Northwest Cascade handle each obstacle in a timely and professional fashion."

The timing and location of this project also posed a few challenges. First, the construction took place in a corridor which students often walked through on their way to the library and it is also a location where many would spend time in-between classes. Secondly, many students passing by became curious about the purpose of the large scale project and its impact on the school.

To handle these challenges, NWC placed a security guard at the entrance of the site. This person was available to answer questions, redirect foot traffic to pathways around the site and also assure the safety of those who may wander on the site. Updated informational signs were also placed around the campus to inform students and faculty of the progress on the job and other concerns relative to the project. Pete Babbington commented about NW Cascade's proactive approach to preventing problems, "NW Cascade's professionalism is second to none."



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