

Case Study

Permanent Tiedowns



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Date: December 1999

Job Name: Orcas Island Ferry Dock Project

Owner: Washington State Ferries

Location: San Juan Islands, Washington

General Contractor: Manson Construction

During the winter of 1999-2000 a passenger ferry traveling from Anacortes to Orcas Island lost control while docking. The resulting collision with the Friday Harbor Dock destroyed one side of the approach wing walls. The community living on the island was left stranded without any convenient way to get to the mainland. The Washington State Department of Ferries had to act quickly to repair the structure. Manson Construction was awarded the contract to replace the wing wall.

Manson planned on completing this project without any subcontractors by simply driving 24" steel piles into the bedrock. Unfortunately, Manson could not achieve the uplift required by the State's specifications. They turned to Northwest Cascade, Inc's Geotechnical Division for a solution to this problem. NWC proposed drilling tiedowns through the 24" cans, deep into the bedrock. Manson and the state liked the idea and in January of 2000 work commenced.

The work was accomplished by craning NWC's drill rig onto a platform at the top of the can, 20' above the water. Service equipment and materials were based on barges surrounding the platform. NWC drilled through a 12" pipe, which had been driven inside the larger 24" can. Drilled lengths varied from 80-100' from the work platform with each tiedown having 10 strands each. A total of ten tiedowns were drilled with complete success. While this was a comparatively small job, the logistics of the working environment combined with the emergency schedule made it an extremely challenging project.



Northwest Cascade Inc.
www.nwcascade.com
800/ 444 - 2371