



REVTMENT CONSTRUCTION

Revetments are used as a low-cost solution for coastal erosion defense in areas where crashing waves may otherwise deplete the coastline. Many different material types can be used for revetment construction; however large rock is frequently the preferred solution. This rock has a size gradation and is placed in a specific engineered fashion to protect shorelines from wave energy and storm events. Northwest Demolition has experience in construction and maintenance of these engineered features. The final design of these features is determined by the wave energy at the particular location, the available materials, the nature of the material the rock will be placed on and the condition of the slope that the revetment will be constructed against.

EXAMPLE REVETMENT CONSTRUCTION PROJECTS

Landfill Revetment Re-Construction (Midway Island – US Navy)

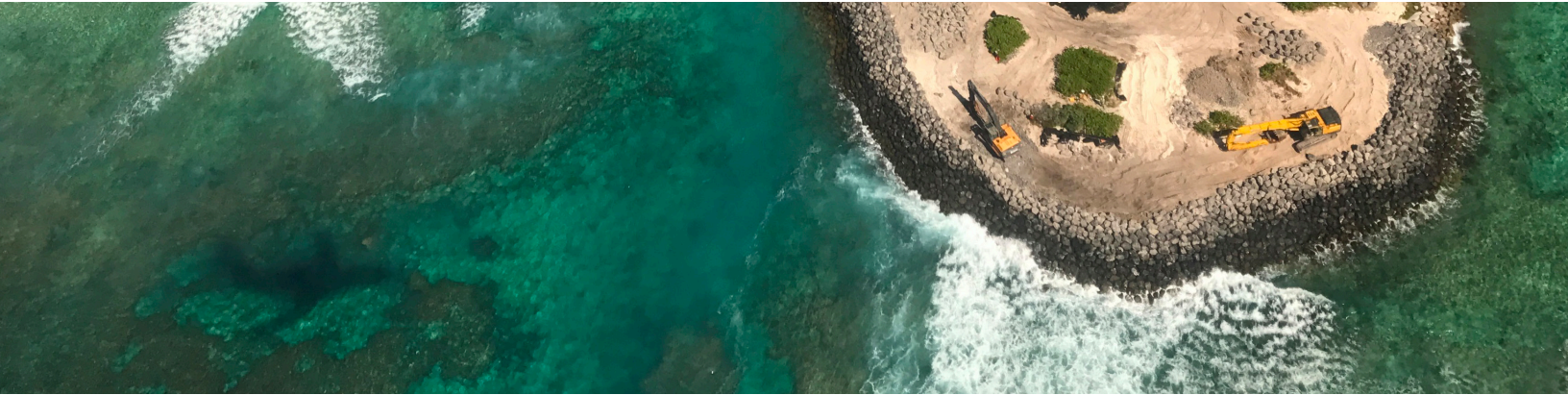


The “Bulky Dump” at Midway Atoll was created between 1969 and 1985, when 64,000 cubic-yards of bulky metal waste, construction debris, and scrap metal were deposited in the ocean forming an exposed ‘peninsula’ of debris. In 1985, the exposed, ocean-side perimeter was armored with concrete debris. However, two consecutive storm events in January and February 2011, followed by a tsunami in March 2011, necessitated repairs to maintain the integrity of the revetment.

Northwest Demolition was selected as the primary subcontractor for the repair of the deteriorated revetment to reduce risk to human health and the environment. The repair and maintenance activities include stabilization and reinforcement of the existing shoreline, protection, and filling and grading sinkholes.



Equipment, supplies, and over 4,000 tons of ‘armor stone’, weighing approximately one ton each, were barged from Hawaii to Midway. Aggregate was unloaded and stockpiled, then hauled 2-miles across the atoll to the Bulky Dump site using 30-ton off-road trucks. The revetment was prepped by sorting and sizing the existing materials. Then a long-reach excavator was used to place the armor stone.



This project shows our ability to coordinate tight schedules with subcontractors, including barges, armor stone procurement, and various others (stevedores, trucking/hauling, etc.). In addition, quality control had to be extremely diligent in order to comply with strict specifications for material, armor stone placement, and surveying. Each stone had to be washed, individually weighed, and keyed in a configuration to provide a tightly placed, stable stone mass in accordance with engineered drawings.

Metals Removal / Revetment Construction Project – (Remote Pacific Atoll – Marshall Islands – US DOD)



Northwest Demolition was contracted for a metals removal and revetment construction project on a remote atoll close to the equator. The revetment includes over 1,850 LF of exposed shoreline adjacent to several historic Navy dump sites. Due to the remote location of the project site, over 28,000 tons of armor stone has been barged onto the island for placement with a specialized long-stick excavator. The robust engineered design involves the notching or cutting of a 'keyway' into the reef substrate to anchor the stabilization structure in place.



The metals removal component has presented additional challenges. Much of the metals debris was burned after dumping, causing it to fuse together in a thick 'slag' material. Additionally, materials of explosive concern (MEC) and materials potentially presenting an explosive hazard (MPPEH) have been found during excavation operations. To perform the work safely and efficiently, Northwest Demolition mobilized a specialized fleet of excavators, equipped with ballistic glass and steel reinforcement. As work proceeded into more dangerous areas, the excavators were operated remotely from a safe distance via a complex system of mounted cameras, GPS systems, and a custom-installed remote conversion kit.