

Dune Reconstruction and Beach Nourishment Town Neck Beach, Sandwich, Massachusetts

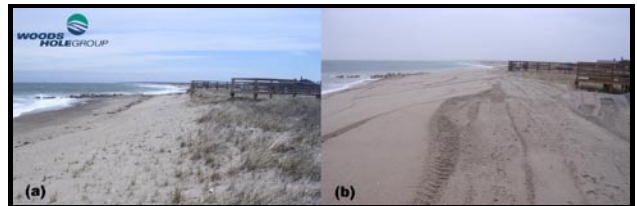
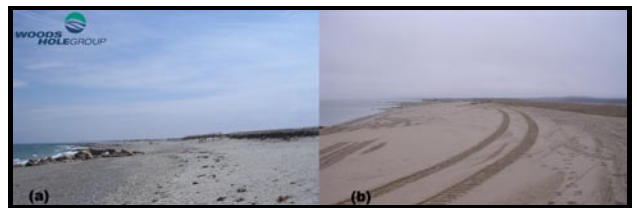
Project Characteristics

- *Beneficial Re-use of Dredged Material*
- *Wave and Sediment Transport Modeling*
- *Dune Reconstruction Design*
- *Habitat Restoration*
- *Environmental Permitting*
- *Construction Oversight*
- *Stilling Basin Design*

The beaches in the Town of Sandwich have a history of erosion. In 1909, two jetties were constructed at the east end of the Cape Cod Canal causing an interruption in the natural longshore sediment transport from northwest to southeast. This interruption is the primary source of coastal erosion along Sandwich beaches. By taking dredged material from the east end of the Canal and placing it on downdrift beaches, a portion of the sediment that would have been transported naturally will be restored to the “starved” littoral system of the Sandwich shoreline. Woods Hole Group is currently developing a detailed, long-term, comprehensive beneficial re-use plan for the Town of Sandwich to implement this, as well as additional solutions to the historic erosion.

This component of the project consisted of use of the dredged materials from the Mirant Canal, LLC berthing areas (within the Cape Cod Canal) to restore eroding beach and dune resources and wildlife habitat on Town Neck Beach in Sandwich. The project consisted of approximately 40,000 to 50,000 cubic yards of clean sandy material that nourished approximately 2,000 linear feet of shoreline in a region above Mean High Water (MHW).

A temporary stilling basin was created on the Coastal Beach and Coastal Dune prior to placement of the dredged sediments. The stilling basin was used to contain the dredged sediments as they naturally dewatered. The beach compatible dredged sediments were hydraulically pumped into the stilling basin from a barge located offshore. The basin allowed the



sediment to settle out and the remaining non-turbid water to infiltrate the ground or return to the ocean at the far end of the basin.

After placement of the dredge material was complete, the beach and dune region was reshaped such that the toe of the reconstructed dune extended landward at a slope of 1V:7H to a crest elevation of approximately 20.0 ft NGVD. The crest was continued landward and was graded to marry with the natural existing grade of the native dune. The dune reconstruction has greatly enhanced the Sandwich Town beaches as a buffer to storm waters, while providing a continual sediment source to the beaches, and enhanced wildlife habitat.