## A Living Shoreline Offers Sustainable Protection to Indian Island's Sensitive Artifacts

In 2014, Suffolk County authorized a plan to provide protection, resiliency and stabilization to the bluff, shoreline and marshlands of Indian Island, a 275-acre park at the mouth of Riverhead's Peconic River. The area was subject to chronic erosion that threatened infrastructure and navigation, and destroyed vital and productive marsh habitat. Additionally, early Native American burial grounds were exposed after a storm and there was concern that continual erosion would result in further loss of sensitive archeological resources.

Historically, the installation of shoreline bulkheading or other hardening structures has been the standard method for stabilizing shoreline property to prevent erosion. However, the excavation and digging needed to install a hardened structure would disturb sensitive ecological habitats and archeological/cultural resources, decrease fish habitat and biodiversity,

## cause seaward erosion, and prevent natural marsh migration.

The solution was to create a Living Shoreline using natural and nature-based features, including the strategic placement of living segmented emergent rock sills and restoration and enhancement of the marsh habitat. This highly effective and environmentally sustainable method of providing shoreline protection and erosion control used minimally invasive techniques to avoid disturbing the habitat and artifacts. It is proving to reduce bluff and shoreline loss, promote progression of the marsh, sustain the vital native marsh habitat and ecosystem of the region, protect ancient tribal burial grounds in the area, and allow visitors to enjoy this previously inaccessible area.



Chronic erosion caused soil loss to the bluff, shoreline and marshlands, endangering infrastructure, waterway navigation, marsh, and tribal burial grounds.



Enhancing the shoreline habitat while maintaining coastal processes was achieved by placing a variety of plants, stone (about 4,000 tons of granite), and fill (about 11,650 cubic yards of sand).



Small (100 to 300 pounds) and large (800 to 1,000 pounds) stones were interlocked to build a "living" rock sill structure. This provides productive rocky subaqueous marine habitat that has been seeded with filter-feeding oysters.





A new timber walkway, viewing point, and staircase were installed to allow park visitors to navigate the previously inaccessible beach area and enjoy the park's natural beauty.

To stabilize the marsh area, new marsh was created landward by planting native wetland vegetation (27,050 plugs of American Beachgrass and 15,000 plugs of Spartina Alterniflora). PROJECT TITLE & LOCATION Indian Island County Park Living Shoreline Project, Riverhead, New York

CLIENT'S NAME & LOCATION Suffolk County Department of Public Works, Suffolk County, New York

ENTRANT'S NAME & LOCATION D&B Engineers and Architects, DPC Woodbury, New York