

## Shoreline Stabilization

### Using Geotextile Tube

*Private Client*

*Cohansey River, Fairton, NJ*

Princeton Hydro was contracted by a homeowner to design, permit, and oversee the construction of a 500 foot long failing coastal bluff. The bluff was 25 feet high and collapsing due to the undermining of its toe from ship traffic and a recent dredging completed on the river. Due to the environmental sensitivity of the Cohansey River and the need to find a cost effective solution, Princeton Hydro thought “outside of the box”. Costs for a rip rap or bulkhead solution were expected to be between \$900 to \$1000 per linear foot of protection measure. However, recent developments in geotextile tube technology provided an alternative to strictly hard armoring solutions. The costs for construction using geotextile tubes could be reduced to \$300 per linear foot of protection. The client agreed to have us design and permit the geotextile tube solution.

Princeton Hydro calculated design wave heights using the methods outlined in the US Army Corps of Engineers (USACE) Shore Protection Manual and developed variations and extremes in tide elevations to design the structure. The design used a 16 foot circumference geotextile tube made by Synthetic Industries. The tube was outfitted with an abrasion layer that protected the tube from puncture damage and an apron to mitigate against the undermining of the tube. The contractor was able to mine local sands to fill the tubes to create a planting layer between the structure and the bluff.

Following design, Princeton Hydro prepared the necessary NJDEP and USACE permit applications and also prepared the County Soil Conservation District approval application.

Princeton Hydro provided procurement services and oversaw the construction. The project was completed in less than three weeks.

