

Wall Township Gabion Wall Protection
MONMOUTH COUNTY, NJ

COASTAL EROSION

Product: Gabions and Geotextile

Problem

Damage and destruction done by Sandy to the existing concrete retaining wall along the rear of the homeowners property. With the failure of that retaining wall a portion of the backyard was lost and exposed to further erosion with any future storm events.

In the nearby beach town of Belmar, the recently completed a boardwalk along their beach and found it was destroyed. The northern half of the boardwalk was severely damaged and the southern half was completely destroyed. Debris from the boardwalk damaged cars, houses and utility poles, and could be found two blocks off Ocean Avenue. The Shark River Inlet allowed this debris flow to reach the water side of Wall Township.

Solution

Gabions were installed from the beach elevation up to the yard elevation. The wall is 13' high with 3' buried at the bottom to act as a scour protection so that the wall can't be undermined by tides, future storm events etc.... so the wall has an exposed height of 10'. So the solution solved the problem of protecting the homeowners property as well as reestablishing the yard and giving the homeowner a flat backyard area again



Damage caused by Sandy in October 2012



Post installation- completed wall



View of completed project approximately 1 year after installation.



View of return wall

Client:

PRIVATE HOMEOWNER

Main contractor:

LOCAL LANDSCAPER/CONTRACTOR

Designer:

E. M. WATERBURY & ASSOCIATES, P.A.

Products used:

GABIONS AND GEOTEXTILE

Date of construction

AUGUST 2013 TO OCTOBER 2013

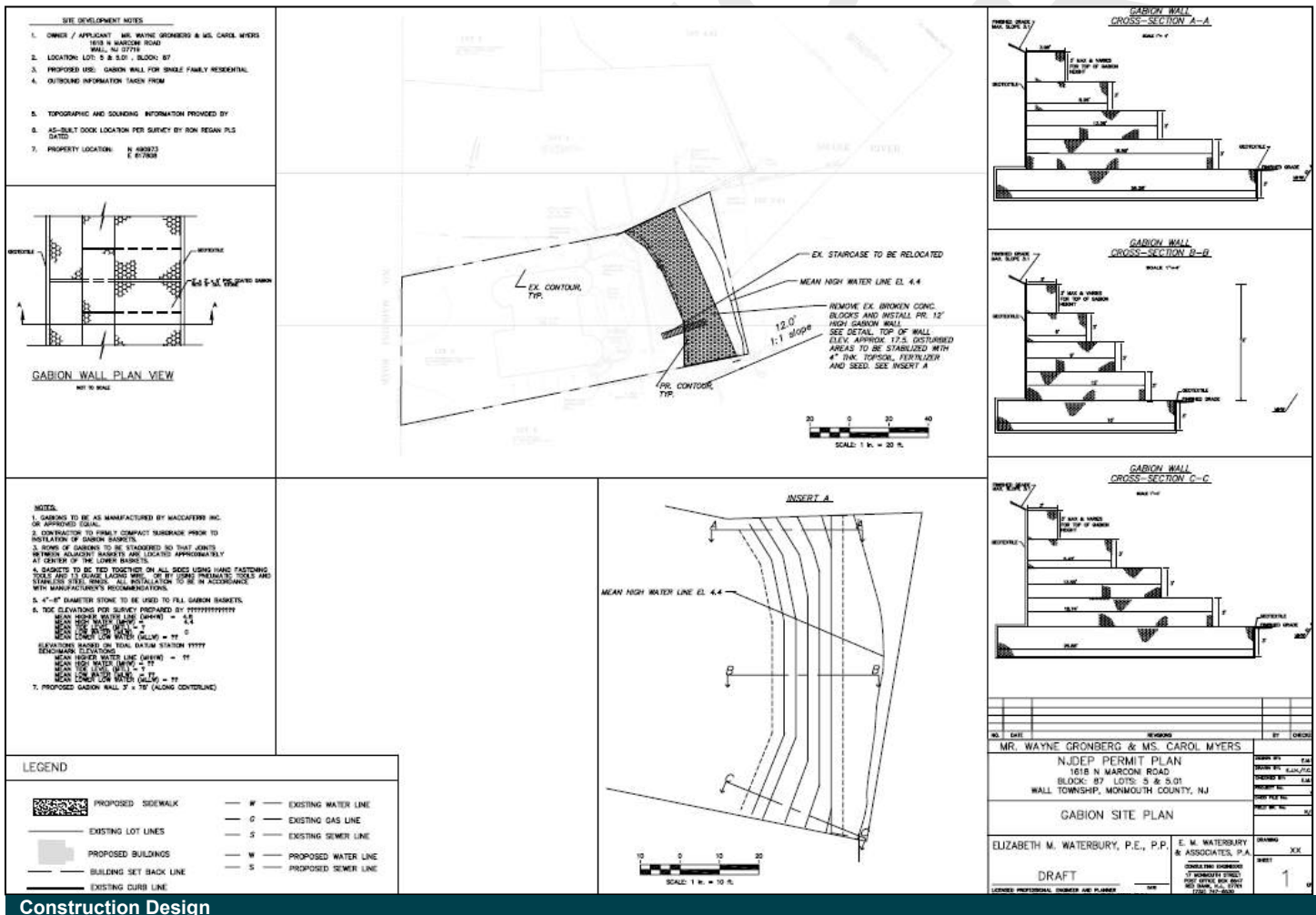
The first step in the project was to clear the debris consisting of broken concrete from the patio area which collapsed due to the slope failure as well as drift wood and other debris brought in by the storm surge. The removal of this material from the slope failure was performed using an excavator. With the in-situ material mainly consisted of sand, the compaction of each level was necessary to maintain the strength of the back fill and enable each layer to have a strong base in which to build. Once cleared, the base of the gabion wall was installed with an 8oz. non-woven geotextile attached to the back of the wire basket.

The new structure was installed approximately 40' from the back of the home. The only other stabilization measures done in the past were plantings placed along the slope to try and stabilize the

soil/sand material. This failed due to undermining of the slope due to the surge and wave action at the base of the slope.

The geotextile is used to prevent the fines of the backfill from migrating into the wall but still allow the water to flow through to prevent a hydrostatic charge from building up behind the wall. Once the initial row of gabions and the fabric were placed, the area was backfilled using in situ material.

Due to the limited room to work due to the landscape, construction began on one corner of the wall, the gabion was built to a height of two courses (6' high), and approximately 24' long with the return wall. After backfilling this section, this created a platform by which the excavator could be used and work could continue on the rest of the wall.



Construction Design

Maccaferri Inc.

10303 Governor Lane Boulevard, Williamsport, MD 21795
T: 301.223.6910 F: 301.223.4590
E: info@us.maccaferri.com
www.maccaferri.com/us

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