

## COASTLINE PROTECTION &amp; EROSION, LAKE MCCONAUGHY, NEBRASKA

# Protecting shorelines from erosion



<b>Industry:</b>	Residential Infrastructure
<b>Application:</b>	Erosion protection
<b>Location:</b>	Lake McConaughy, Ogalla, Nebraska
<b>Product:</b>	<b>GEOTUBE® TC1200MB</b>

## Challenge

Erosion to the eastern bluff face had caused undercutting that was approximately 16 ft (4.9 m) high along the face and 550 ft (168 m) long. To reach the needed height of 16.5 ft (5 m), the erosion control structure required three levels of geotextile tubes.

## Overview

Private residential development has increased significantly over the past 50 years along the south shore of Central Nebraska Public Power and Irrigation District's (CNPPID) Lake McConaughy. Many of the homes are located near property boundaries close to the cliffs, and include structures that allow residents to enjoy the view over the lake.

The lake's shoreline consists of vertical cliffs, that have been subjected to decades of wind, wave, and ice erosion. Left unchecked, this erosion will progress beyond the property boundaries and eventually compromise the stability of homes built along the top of the cliffs. CNPPID has attempted to stop this erosion by constructing seawall and riprap revetments with limited success.

**CNPPID wanted a more robust solution that would prevent the procession of erosion.**





## CASE STUDY

Protecting shorelines from erosion

## Solution

**GEOTUBE** TC1200MB units were selected to provide erosion control because they can be filled using on site materials, making them a more efficient solution than importing stone.

Erosion to the eastern bluff face had caused undercutting that was approximately 16 ft (4.9 m) vertical along the face and 550 ft (168 m) long. To reach the needed height of 16.5 ft, the erosion control structure required three levels of geotextile tubes. Each layer was a minimum of 30 ft (9 m) in circumference and filled with a pumped sand slurry to a

minimum of 5.5 ft (1.7 m) high. The tubes were fabricated with flat ends to achieve a continuous level top surface of each level.

The geotextiles tubes are exposed to the elements most of the year, so the geotextile must be a high strength tri-composite that has high UV and abrasion resistance to withstand the impact of ice flow and debris.

Three layers of 30 ft (9 m) geotextile-tube units were installed to protect 572 ft (174 m) of shoreline. This project successfully stabilized the shoreline along the cliff, protecting at least three homes from collapsing into the lake.



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