

# Vegetated Geoweb® Channel Protection System

CASE STUDY

## *The Problem:*

Design and install a channel protection system and new sewer line in a creek prone to flooding while maintaining the natural appearance of the surrounding neighborhood.

### **Project:**

Cirby Creek Channel

### **Consulting Engineers:**

Spink Corporation

### **General Contractor:**

Olebe Construction

### **Location:**

Roseville, California

### **Time frame:**

August to late October 1992

## *The Solution:*

### **Presto Geoweb® Cellular Confinement System**

Residents and Flood Control personnel of the city of Roseville, California are firm believers in cellular confinement technology. Presto Geoweb® cellular confinement system was used to build a series of channel embankments and vehicle access ramps, service roads and scour aprons along seven miles of the city's Cirby Creek. Construction involved widening the channel and placing an 18 inch sewer line in the invert of the creek closely bordered by residences.

Finding an effective solution that offered cost savings and aesthetics was critical to the government officials and residents of Roseville. The Presto Geoweb system provided the solution, and remains in strong, stable condition even after weathering ferocious flooding and being under more than 10 feet of water during January 1995 storms.



**The Right Solution!**

# Presto Geoweb® Cellular Confinement System

The channel design selection was subject to visual review by surrounding homeowners during the design process. Ultimately, the decision to use the Geoweb® system was based on its ability to perform with right-of-way constraints, saturated foundation soils, potentially high flow velocities and a short installation time frame. The system's load-bearing characteristics support vehicular weight and allow channel access. Chosen as the desired alternative to gabion baskets, the Geoweb system resulted in a \$45,000 savings and the opportunity to construct a vegetated bank protection system which preserved the neighborhood's aesthetically pleasing appearance.

Cirby Creek's original side slopes varied from 4h:1v to greater than 1h:1v with channel water-flow velocities as high as 2.7 mps (9 fps). Near vertical cuts were required to widen the channel and place an 18 inch sewer line in the invert of the creek. An expandable, honeycomb-like structure, the Geoweb system is used to confine and improve the performance of specified infill materials. In the stacked configuration, channel embankments can withstand high flows and associated hydraulic stresses and tolerate differential settlement without loss of structural integrity.

The area received extensive flood damage during January 1995 flooding, but the Geoweb channel system performed as expected with no damage and has not required follow-up maintenance.

The system's open, outer cells support vegetative growth, a requisite to maintain the natural creek setting. The Cirby Creek project is unique in that it is the first channel to use the tan fascia material, lending a more natural appearance to the exposed system face. In addition, the project utilizes the Geoweb system for all four of its traditional applications: load support, channel protection, slope protection, and earth retention.



**The Right Solution!**

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Geoweb gravity wall construction.



Geoweb creek bed fortification.

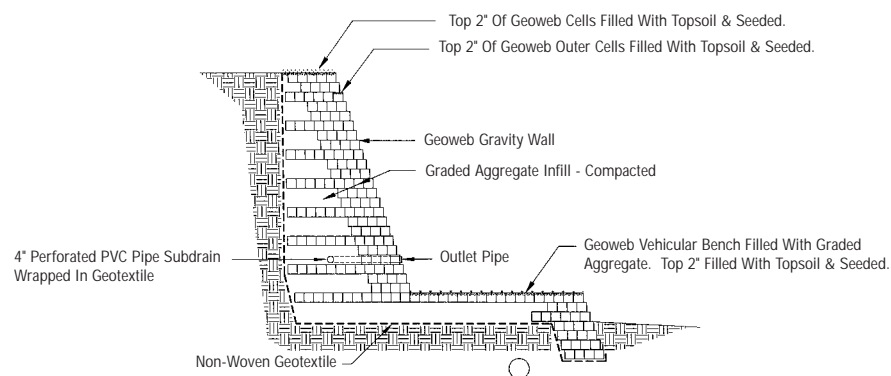


Vehicle access ramp construction.



Completed project with vegetation to maintain the neighborhood's pleasing appearance.

## Geoweb Gravity Wall



## Geoweb Scour Apron

