

RESIDENTIAL DRAINAGE CHANNEL GRAND RAPIDS, MI



Problem



Solution



Result

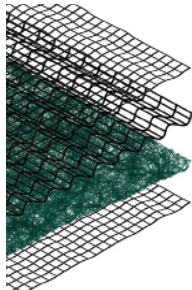
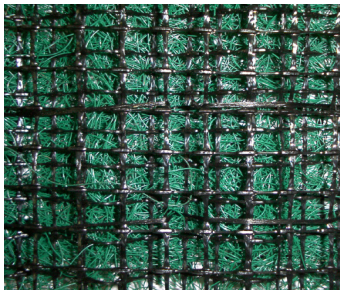
Application: Channel Stabilization
Product: P550 TRM

Site Issues: Residential expansion • Flood control • Previous failed hard armor • Aesthetic concerns for homeowners

Problem: A new residential subdivision in Comstock Park near Grand Rapids, Michigan was to be built adjacent to an existing neighborhood. With the addition of new housing developments, the need for expanded stormwater runoff plans was required. The Comstock Park development needed additional resources to accommodate the added stormwater generated from the new development. Initially the stormwater runoff from the new development was to be diverted into an existing channel currently serving the established neighborhood. While this plan elevated the need to construct a new drainage channel, the developers had concerns as to whether the existing channel could sustain the additional runoff quantities.

Solution: With the additional volume of stormwater that would be generated from the new subdivision, the engineers recommended reshaping the existing channel within its original location and removing the broken concrete. It was also recommended that a new flexible channel liner be installed where the concrete remnants had been. Two options were considered as adequate. The first option would be to install a layer of large 30" rock riprap over a geosynthetic liner. The second option included installing a TRM to obtain a permanently reinforced vegetated swale. After consulting with North American Green's P550, a polypropylene fiber filled TRM, was chosen for the project. The P550 is designed to provide both long-term, pre-vegetated erosion protection and permanent vegetation reinforcement.

Result: The use of the P550 TRM demonstrated the ability to utilize a green soft-armour alternative to solve problems that previously depended on designing with hard-armour materials such as rock riprap and concrete. By employing P550 reinforced vegetation, the project designers were able to enjoy a 40% cost savings compared to using rock riprap. The high performance of the P550 became apparent soon after installation as just before vegetation had established, three large rain events occurred each dumping several inches of water. The P550 withstood excessive discharge rates, and protected both the soil and seed from erosion. By the end of the first growing season the vegetation had matured in the channel.



PRODUCT HIGHLIGHTS

- The VMax P550 quickly establish vegetation through the mat, providing both an anchor for vegetation and the ability to filter fines during inclement weather.
- The unique design creates a shear plane that deflects flowing water away from the soil surface will still allowing ground cover and moisture retention aspects from natural fiber mulch covers.