Case Study

A.S.P. ENTERPRISES, INC.
Your GeoSource Distributor

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Channel Stabilization Project
27Th Street & Dan Avenue
Lincoln, NE

One major impact from increased urbanization is the impact on the drainage basin in the area. Roads, parking lots, and rooftops increase the runoff dramatically. This increase can cause serious problems in the channels and swales in the effected area. As property values continue to increase, owners strive to maximize the use of the land. One way this has been done is by moving channels and swales, increasing the steepness of the banks, and utilizing a deeper, narrower profile.

This was the case of the channel near 27th Street and Dan Avenue in Lincoln, Nebraska. This drainage channel had been moved to its current location a few years back, apparently to maximize usable property space. Its alignment follows the adjacent property lines. A large section of the channel banks had been eroding away leaving many of the slopes steeper than 1:1 causing a stabilization problem. The owner had been attempting to stabilize the slopes using concrete rubble, but that was not working very well and was not visually appealing. The original design concept for this channel was using gabion baskets but due to cost and the desire for a softer vegetated look another solution needed to be found.

Jeremy J. Williams, P.E., with Design Engineering & Associates of Lincoln, NE was charged with finding the solution. The use of Presto Products Geoweb Cellular Confinement filled with concrete in the bottom of the channel and soil topped with North American Green C-350 turf reinforcement mat on the side slopes was selected.

Geoweb cellular confinement system is an engineered, polyethylene, honeycomb like cellular structure that provides solutions to soil stabilization problems. In this case it was being used as a concrete form and used to stabilize the soil on the banks. When used as a concrete form it speeds up installation and provides additional reinforcement to the concrete. It is also certified to ISO 9002, specifically engineered in accordance with established geosynthetic industry guidelines, and backed by a warranty for materials and workmanship.

The North American Green C-350 is a composite turf reinforcement mat that combines the use of coir fibers for enhanced erosion protection and vegetation establishment, along with permanent UV stabilized matting structure consisting of two high strength netting layers mechanically bonded around a corrugated netting layer. This combination of natural fibers and synthetics netting matrix gives a complete erosion control and vegetative reinforcement system. This system is capable of handling flows with up to 3.2 lbs. of permissible shear unvegitated and up to 8.0 lbs. of shear fully vegetated.

The contract to install the system was awarded to General Excavating of Lincoln, NE. The entire project took around five week, including the removal of the concrete rubble. According to Lowery Engstrom, the project manager for General Excavating, the project went extremely well and the speed of installing this system allowed them to finish before they were hit by the infamously cold Nebraska winter.

The project has withstood numerous storm events since being installed in the fall of 2002. Jeremy Williams of Design Engineering & Associates monitored the construction of the project and he and the owner of the project, were both quite pleased with the final results.

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