



Chagrin River Watershed Partners, Inc.

P.O. Box 229 Willoughby, Ohio 44096-0229 Phone: 440.975.3870 www.crwp.org

Roadside Ditch Stabilization

Best Management Practice

Roadway departments challenged by the need to control flooding and provide for motorist safety are often confronted with how best to stabilize exposed soils in a cost effective manner within roadside ditches following dredging maintenance. Innovations in water retaining wood fiber mulches and super absorbent polymers provide superior erosion control to traditional paper mulch materials and straw mulch applications.

Wood Mulches & Water Retention

Polymer Additives

For Hydro Mulch Application

- ◆ Advanced molecular design holds up to 1500% of its weight in moisture increasing water availability to seedbed for superior germination and root system development
- ◆ Reduces plant stress on newly planted and established seed
- ◆ Prevents leaching away of valuable nutrients, additives and fertilizer from seedbed during precipitation events or watering
- ◆ Easily installed as a slurry mix in mechanically agitated hydro seeder equipment
- ◆ Water retention capabilities decrease watering frequency
- ◆ Less expensive than erosion control blankets and requires less soil preparation during installation



Proper application and enhanced performance of innovative erosion control best management practices (BMP) will reduce expenditures by road departments on costly follow-up application of failed BMPs, limit re-mobilization to problem sites and decrease emergency failures caused by sediment build-up at culverts, bridges and other drainage structures.

Super absorbent hydraulically applied mulches such as Terra Mulch Blend 70/30 and Flexible Growth Medium (FGM) are made with thermally refined recycled wood to create fine, long, highly absorbent fibers. Hydraulic mulches such as Terra Mulch Blend 70/30 and Flexible Growth Medium can achieve water holding capacities of 1100% and 1500% respectively. Hydraulically applied in slurry form by mechanically agitated hydro-seeder, these mulch materials provide immediate erosion control, seed protection and prolonged water availability for extremely poor soil condition areas such as roadside ditches. The advanced characteristics of super absorbent mulches make them ideal for treatment of disturbed berm, back slope and fore slope components of roadside ditches.

Best management practice development was funded in part through the Lake Erie Protection Fund, administered by the Ohio Lake Erie Commission. The LEPF is supported by the voluntary contribution of Ohioans who purchase the "Erie...Our Great Lake" license plate, featuring the Marblehead and Toledo Harbor Lighthouse.



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Wood Mulches & Water Retention Polymer Additive Advantages

- ◆ Instantaneous erosion control protection of bare soil surface areas
- ◆ Wood fiber mulches can provide up to 18-24 months of soil surface protection
- ◆ Greater slope protection and resistance to rill and gully formation
- ◆ Greater stability of soils in high flow areas when used with erosion control mats or straw wattle check dams
- ◆ Water holding capacity of water retention polymer additives and mulch materials maintain moisture within the seedbed for increased germination and growth during dry conditions
- ◆ Water retention polymers enhance absorption of additives by seed which promotes quicker germination and higher yields



Application Tip: Use mechanically agitated hydro seeder with a 50-degree tip fan nozzle and spray in opposing directions for maximum soil coverage and seed penetration into the soil.

Roadside Ditch Stabilization Demonstration Site Product Application Costs

Bass Lake Road Demonstration Site - Munson Township, Geauga County

The Bass Lake Road ditch maintenance site included a 700 linear foot section of excavated ditch by a Gradall smooth bucket with an average excavation width of 10 feet totaling 7,000 square feet of disturbed treatment area. Terra Mulch Blend 70/30 wood fiber mulch was mixed with a water retention polymer additive, ODOT Roadside Seed Mix and hydraulically applied with a mechanically agitated hydro seeder.

Water Retention Polymer Additive

HydraSorb - Application Rate: 5 pounds per acre recommended

Product Cost: \$17.43 per pound, \$0.002 per square foot of treatment

BMP material investment to treat 7,000 square feet: \$14.00

Wood Fiber & Cellulose Fiber Mulch

Terra Mulch Blend 70/30 - Application Rate: 2,500 pounds per acre for 3:1 or 2:1 slopes

Product Cost: \$40.00 per 50 lb. bale, \$0.045 per square foot of treatment

BMP material investment to treat 7,000 square feet: \$315.00

BMP installation occurred upon entering the dormant season for germination and growth on November 7, 2011. The wood fiber mulch and water retention polymer additive prevented erosion of the ditch fore slope and back slope during the winter months and protected the seed and retained nutrients within the seed bed for nearly 100% germination during the spring of 2012.

For more details on project demonstration sites and results go to:
http://www.crwpp.org/Projects/roadside_ditch_sediment_control.htm