

Minnesota
mulch & soil

*Environmental enhancement through
recycling of natural materials.*



Minnesota Mulch and Soil

- Minnesota Mulch and Soil is a specialty **soil and compost recycling** company.
- Started in 1985, the company strives to divert vegetation and soil bound for landfills - and to create products from these materials than can be used to **restore natural environments.**
- We focus on **reusing and recycling** organic materials.
- **Our projects** have included participating in University of Minnesota soil and compost research, providing mitigation and restoration for stormwater run-off projects, developing engineered soils for use in stormwater ponds and rain gardens and developing a protocol for disposing of dredged materials.
- In the winter of 2008, Minnesota Mulch and Soil was given a **beneficial use permit** from the MPCA to treat dredged materials with yard waste and compost for re-use in Mn/DOT projects.

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Managing Dredged Materials



Stormwater pond dredging is becoming an important issue in the Metro.

- Stormwater ponds became a mainstay during the suburban boom 20-30 years ago.
- Ponds act as catch basins and filters collecting sediment and runoff from roads and lawns.
- Average lifespan of a stormwater pond is 20-30 years.
- Many ponds need dredging now for the first time.
- Dredging is costly **\$\$\$\$**.
- Getting rid of the material is expensive.



Who is responsible for dredging?

- It is the responsibility of the **OWNER** to have the pond dredged and to dispose of the dredged material. This can include:

- » Cities
- » Counties
- » Watershed Districts
- » States
- » Private Entities



- The **OWNER** is ultimately responsible for the chain of custody of the material.

What do you do with the dredged material?

1) Land apply

RISK?



2) Landfill dumping

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3) Recycle and Reuse



Recycle and Reuse



- MM&S has been reusing wood products for 22 years.
- MM&S started mixing pond dredgings with aged wood 12 years ago.
 - Excess wood needed moisture and organics to convert into a weed free soil.
 - We experimented with manure, muck, compost, and problem soils.
- Risk was removed by turning low level Tier 2 soils into Tier 1 soils to meet Mn/DOT specs.
- No permits were required, testing was minimal.
- October of 2007 everything changed – now we need a permit.
- MPCA Guide “*Managing Dredged Materials in the State of Minnesota*”



MPCA GUIDELINES: Pond Sediment Characterization

- MPCA requires a sediment characterization of pond material before dredging is done.
- Permit required if over 3000 cubic yards.
- MPCA characterizes dredged material by type and level of pollutant in material (*Managing Dredged Materials in the State of Minnesota MPCA Guide*)

Level 1

- Suitable for use or reuse on properties with a residential or recreational use category.

Level 2 **

- Suitable for use or reuse on properties with an industrial use category.

Level 3

- Characterized as having significant contamination and is not suitable for use or reuse and must be disposed of at an appropriate solid waste facility.

1st MPCA Dredge Permit

***We successfully recycled
Level 2 dredged material
to Level 1.***

- MPCA awarded Minnesota Mulch and Soil a beneficial use permit in Spring of 2008 to re-use dredged materials from Kohlman Creek in Maplewood.
 - We were required to show the MPCA our tested and proven process (the one we had been using for the past 12 years.)
 - MM&S worked with the Watershed Engineer and University of Minnesota to show the MPCA our process and get approval.

The savings to the City was substantial.

- reduced shipping and tipping costs (\$10-\$15/ton est.)



Recycling *Level 2* Dredge Material into Compost

Reducing pollutants - a biological process.

Research Projects, 12 years

- Minnesota Mulch and Soil and Tom Halbach, Professor, U of M Soil Science
- Goals, Mistakes, Accidental Finds

Testing

Must be done prior to receiving material.

Mixing

Bacteria

Fungi (White Root Rot)

Organics/Manure

- Sticky Muck

Process

Strudel

Timing

Location

End Result: *Value Added Soils*



Minnesota Mulch and Soil projects using **Level 2** recycled dredged material.

Over 100 Projects in 2008

- **Parking Lot Rain Gardens**

Target Burnsville

Walmart Brooklyn Center

Fleet Farm Lino Lakes

St. Bonifacious City Hall

- **High Image Planting Medium**

Governor's Mansion

World War II Memorial Garden

TCF Stadium

- **Filtration Pond Mistake**

Mn/DOT Hwy 23 Project

- **Boulevard Mix**

Brooklyn Center, Eagan

Crystal, Woodbury

- **Sod Mix**

TCF Stadium



Mn Mulch “*Rooting Soil*”

Re-use of dredged material

- Based on some recent projects, we have been able to better realize the percentages of materials in the rooting soil mix re-using dredged materials.
- The best combination uses a higher mix of up to **50% dredged material and 30% unscreened raw-wood mulch**. The remainder would be 20% street sweepings or granular native topsoil (e.g. water main breaks).
- Little or no aggregate material is needed.
- Our "dirty-smelly-mulch" proved better at absorption with higher organic levels.
- This is ***Good News*** for Cities and private sector companies planning on re-using dredged materials.



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Products

We have the largest selection of approved Mn/DOT composts and soils. Our special **Streetscape Rooting Mix** has been used by Cities throughout the metro to reduce long term maintenance costs of municipal properties.

Mn/DOT Products

3890 A – Compost Grade 1 (manure)
3890 B – Compost Grade 2 (leaves/yard waste)
3890 C – Compost Grade 3 (manure & leaves/yard waste)
3877.1 - Topsoil Borrow
3877.2 – Select Topsoil Borrow
3877.3 – Premium Topsoil Borrow
Mn/DOT Rain Garden Mix

Engineered Soils

Screened Black Top Soil
Special Rain Garden Soil
Streetscape Rooting Mix
Siltration Mix
Pre-Sod Mix
Pre-Seed Mix
Raised Garden Mix
Clay Cutter Mix

Compost

Manure Compost
Nursery Compost
Yard Waste Compost
Wood Fiber Compost
Leaf Compost

Mulch

Storm Mulch
Whole Tree
Blonde Hardwood
Bark
Wood Chips
Playground
Colored Mulch
Mock Cypress
Cedar Mix
Red Cedar
Cypress
New England



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