

SESC  
BMP

# Part 91 SESC Permits are Required for All Earth Changes:



**Public Transportation Agencies have the opportunity to become an Authorized Public Agency and avoid delays obtaining separate permits from other agencies!**





# Soil Erosion and Sedimentation Control BMPs

For Road Stream Crossings 01/02/2003

# Goals of Part 91:

- Minimize Erosion
- Prevent off-site sedimentation



# Keep Out





# Scheduling



1. Get your permit! Ask if you don't know!
2. Schedule the project for a time of year which avoid aquatic life impacts and heavy rainfall events
3. Shorten the duration of the project as much as possible (don't start a 3 day project on Thursday).
4. Install BMP first....
5. Watch the weather and prioritize completion



# Work Isolation

(Cofferdams and Turbidity Curtains)



# Work Isolation

(Pump-Arounds)

- Gold Standard
- Design and Construction Critical
- Have a backup system (pumps, hoses, etc.) or plan
- Monitor effluent/discharge constantly
- Watch the weather!













# Turbidity Curtains Can Work...





**...or not...**

# Isolate Non-Work Wetland Areas



# Use Mats





# Sediment Capture

(Sediment Trap)

- Small excavation or impounded area
- Should be designed based on flow and sediment characteristics.
- Generally only effective at removing larger sediment particles
- If it's in-stream, you need to include it in your permit!

# Sediment Capture

(Sedimat)





Check dam – the contractor stated that they also dug a sediment trap downstream.

# “Upland” BMPs







# Sediment Controls

(Silt Fence)





# Soil Stabilization (Riprap)

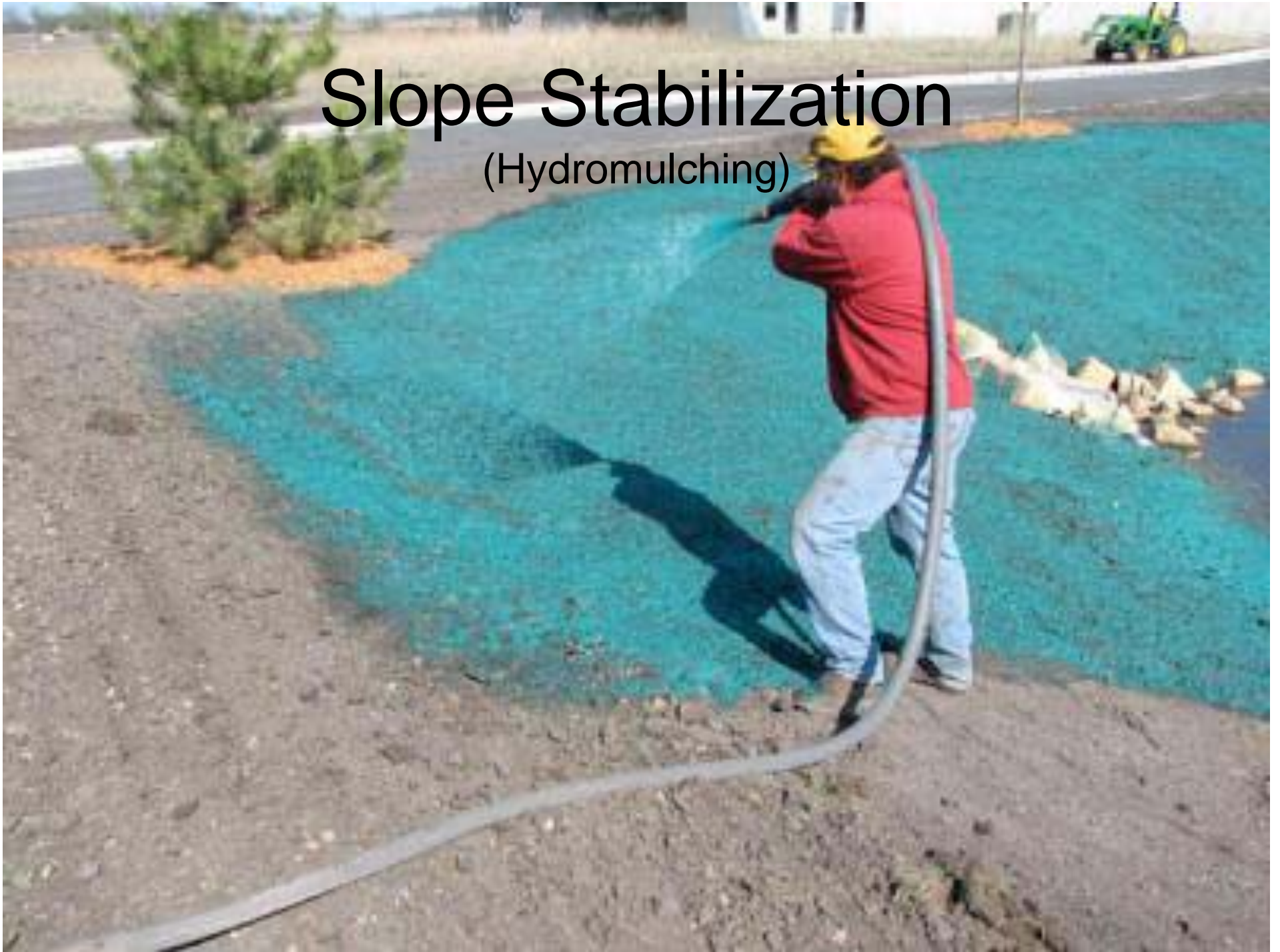


# Soil Stabilization (erosion blankets)





# Slope Stabilization (Hydromulching)



# Angle of Repose

(roughly the “natural slope” of a material in a pile)

Crushed Rock, Gravel, Sandy Soils  
(~1.5H:1V)

Medium Textured Soils (Loams and Silts)  
(~1H:1V)

Cohesive Soils (Clay soils)  
(~.75H:1V)

\*If the designed slope is steeper than the angle of repose  
the slope needs additional slope stability BMPs

# Over-steepened Slopes

(Generally a slope that is steeper than the Angle of Repose)



# BMPs for Over-steepened Slopes

- Wide range of materials and systems
- All should be engineered
- Many times manufacturers of specialty products will assist with designs



*Before*



*After*

# Traditional Concrete and Retaining Wall Materials





# Cellular Confinement

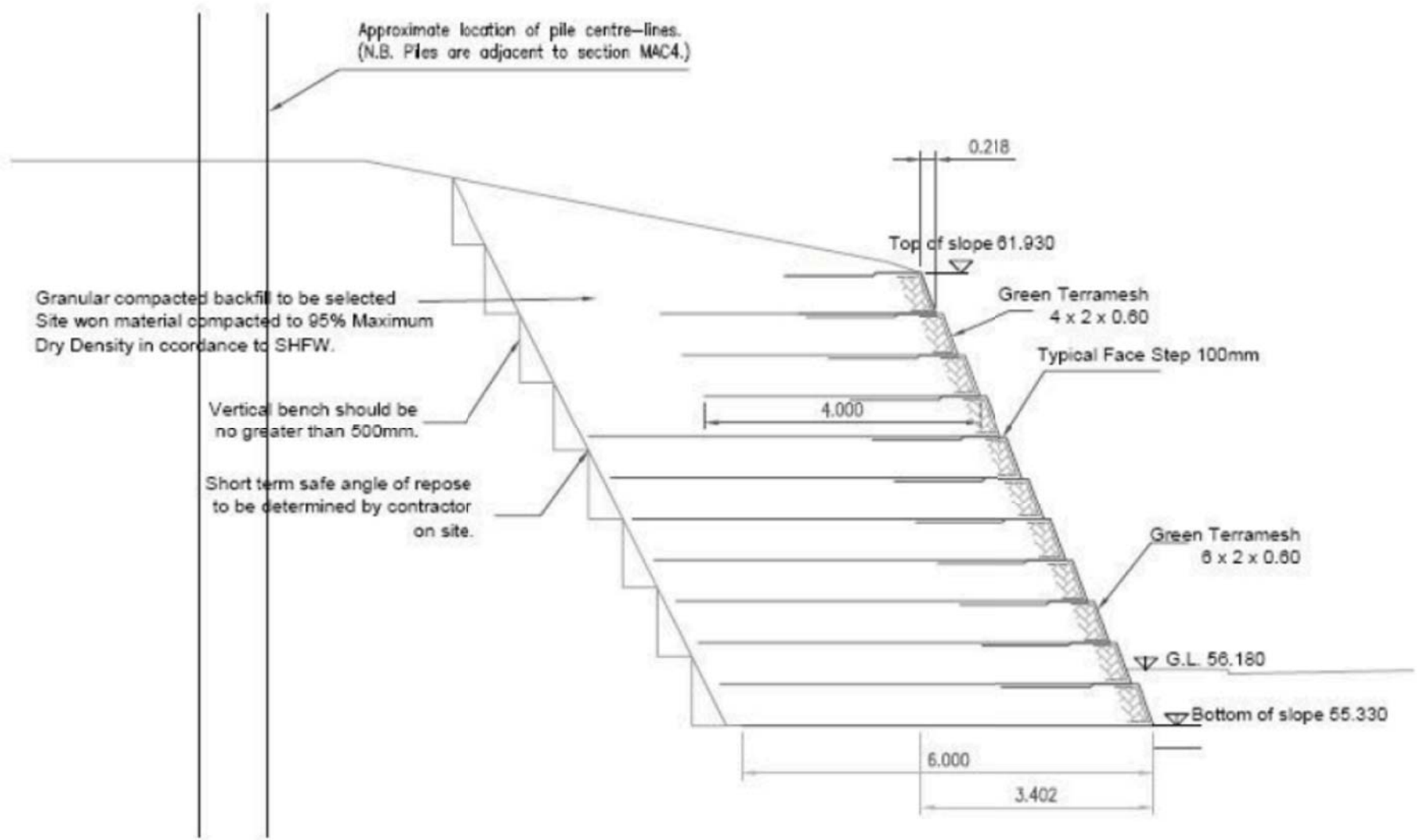


# Cellular Confinement



# Wrap Fascia

(Fabrics, Geo Grids, Steel)





**During construction**

Date: March 2001



**After construction**

Date: March 2002

[www.maccaferri-northamerica.com](http://www.maccaferri-northamerica.com)



# Articulating Block

Source: [www.d2lwr.com](http://www.d2lwr.com)

Let's Get It Right...



Work Not Isolated From Flow



Downstream of culvert.





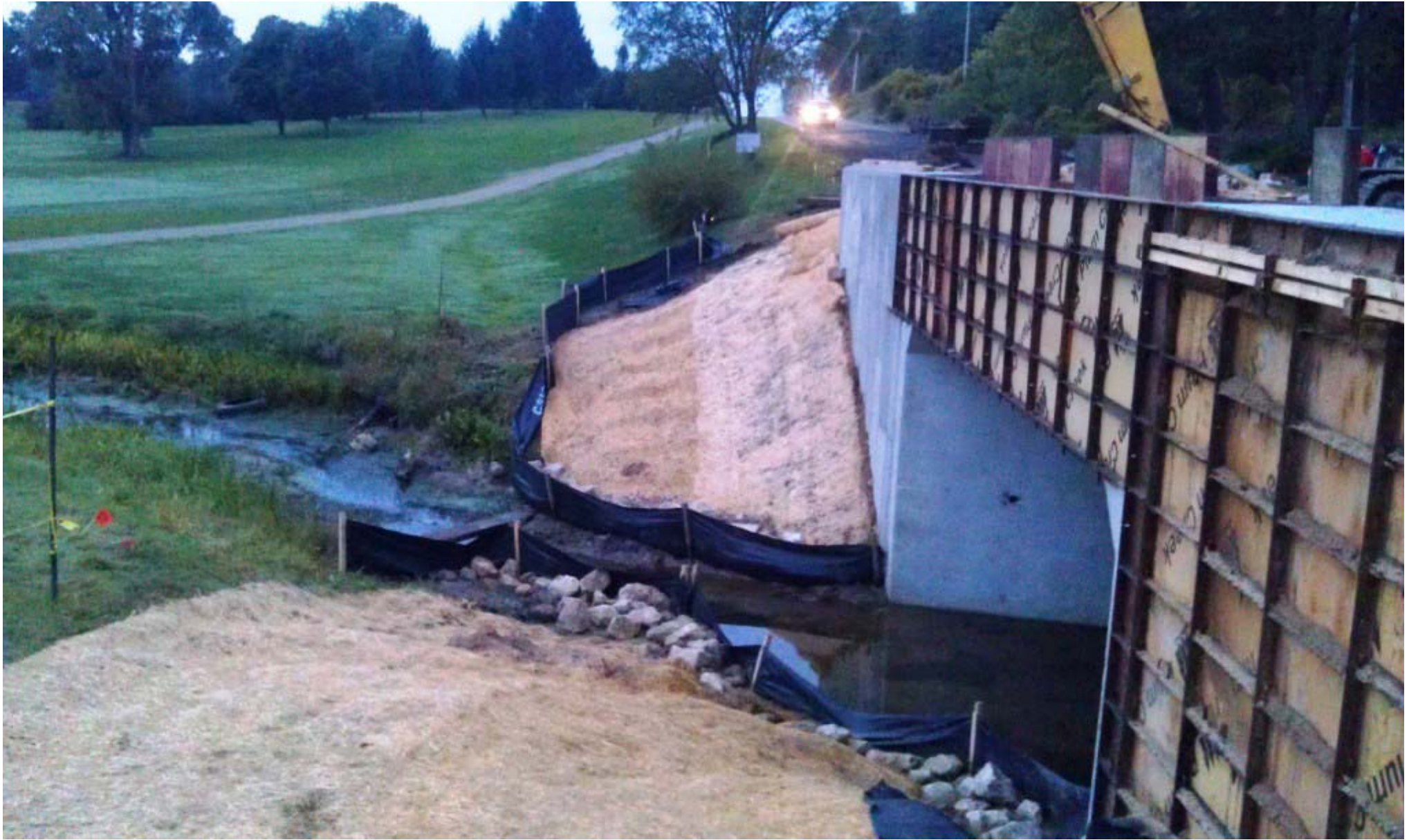




North end of culvert – No slope protection/silt fencing  
Turbidity Curtin being used as slope protection



South side of culvert.



# Questions?

