INDOT
Storm Water Management
Lessons Learned, Moving Forward

A conversation with INDOT and consultants
Topics for Discussion

- INDOT Storm Water Management Program
- New Plant Growth Layer Specs
- Compliance
- Assistance in the Field
Environmental Compliance

What is your RISK?

• Laws, Regulations, Enforcement
• More entities have jurisdiction over storm water creating more oversight of construction activities
• On time on Budget
  • Erosion and off site sediment release issues are expensive and time consuming to repair
  • Erosion can lead to structure damage
  • Can lead to hazardous road conditions
  • Violations can be expensive
INDOTs Storm Water Management Program

RSP 205-R-636 (INDOT Storm Water Management Specs)

- Level Determination
- Storm Water Quality Manager
- Storm Water Quality Control Plan
- Concrete Waste Water Plan
- Inspections
Level Determinations

What makes a project Level I or Level II?

Greater environmental risk

General criteria:
- New terrain development
- Potential impacts to multiple regulated waterways
- Stream relocation
- Formal consultation for Endangered Species
- Potential ground disturbance involving a karst feature
- More than 5 acre watershed flowing to a point requiring a basin
- Known hazardous waste site
- Fast track contracts ahead of environmental documents
Trainings and Certifications

Level I Requirements:

• INDOT Construction Storm Water Management Training

Level II Requirements:

• INDOT Construction Storm Water Management Training +
• CESSWI/CISEC – National Certification Program
Storm Water Quality Control plan

• New Emphasis in the New RSP 205-R-636
• Developed by the contractor via a professional engineer
• Designer required to have CPESC or CPESC in-training
• Contain any revisions to the design SWPPP and plans
• Address phasing and sequencing of installation, maintenance and removal of storm water management measures
Storm Water Quality Control plan

• Must include haul roads, stockpiles sites, equipment storage sites, concrete washout sites, plant sites, and borrow and disposal sites, etc.

• Concrete Waste Water/ Other Waste Water Plan

• Must be submitted to the INDOT Engineer 14 days prior to operations, but can be submitted in phases.

• In mandatory usage on all INDOT projects
Concrete Waste Water Plans
Concrete Waste Water Plans

• An estimate of total gallons of washout waste water produced on project
• Description and sizing of containment
• Location of containment
• Free Board Allowance
• Removal procedure
• Emergency Spill Response procedure including emergency washout facilities
• Signage
• Straw Bale Containment PROHIBITED
Concrete Waste Water Plans
Inspections

• Think of inspections as a punch list of maintenance needs prioritized.
• Show compliance along with issues
• Protect INDOT and the Contractor
• Help avoid repeat issues
• Save Money
• Save Time
Inspections

• Rain Gages
• Frequency of Inspections
• Access to Past Reports
Plant Growth Layer Specs.

- New Top Soil Requirements
- Required in all Rule 5s
- New Seed mixes
- New installation and finishing language

RSP 629-R-630
Compliance Issues

• Storm Water Management is an Art Form, experience needed
• Understanding the **GRAY** areas of Storm Water Management
• Putting Storm Water Management into the Construction Process
• Right BMPs for the need
• Stream Impacts
Help from INDOT

- Each INDOT District has an Erosion Control Specialist working under construction
- INDOT Central Office now has three Storm Water Specialist
- Trainings
- Technical Assistance
Help from Industry

- Stage release silt fence for high water flow areas
- Used in specific areas for high volume filtration
- Durable for long term jobsite use
- High visibility
Help from Industry

- Stage release HDPE Inlet Protection devices
- Used at specific inlets for high volume filtration
- Durable for long term jobsite use
- Reusable
- High Visibility
Help from Industry

- Aqua-Solution granules solidify waste water per EPA Text Method 9095 eliminating “free water” for regular landfill disposal
- Geotextile insert with capacity for solids from ~35 trucks
- Blue vinyl containment liner for high pH water from ~100 trucks
- Targeted pollutants include high pH water, suspended solids, assorted metals, chromium, sulfate, potassium, magnesium, and calcium compounds
Help from Industry

- Stabilization geotextiles for haul roads and subgrade stabilization
- Silty-sand site soils
- Site soils placed directly on reinforcement geotextile
Help from Industry

- Flexamat roll out vegetated concrete TRM
- Roll out armor for outfalls and roadside ditches
- Weighs 10 pounds per square foot
- Vegetates with grass and is MOWABLE
Help from Industry

- EPA approved polyacrylamide flocculants
- Useful for dust control on haul roads and surface stabilization
- Solidify saturated soils to prevent leaking and track out
- Improve dewatering bag performance and effectiveness
- Useful for coffer dams and pump arounds

What are flocculants?

- Flocculants for clarifying construction or stormwater are charged the same as the gills of aquatic organisms.

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Flocculants + Soil matrix forms an agglomeration or FLOC

Soil + Flocculants

Coconut or Jute Matting (Provides attachment surface)

Soil Specific Flocculants (must be tested before application)

Flocculants + Soil particles, together allowing clarified waterflocculation and “chain” formation and suspension

Heavier soil particles as the soil settles

Soil + Flocculants
Help from Industry

- FLOC Hog high dosage PAM delivery device
- Useful for dewatering operations from 100 to 1000 gallons per minute
- Clarify sediment basins for dewatering
Help from Industry

- FLOC Hogs may be used in series for high volume dewatering
- Portable water matrix device for three step use of PAMs
- Mixing, settlement, and capture chambers
- $200 per month rental
- 500 to 1000 gpm capacity
- 12’ x 50’ footprint
- Treatment costs of ~$0.0005 per gallon
Help from Industry

- Pump around volumes may exceed capacity of dewatering bags
- Fine grained colloidal soils plug and bypass dewatering bags
- Polymers enhance the utility and effectiveness of dewatering bags
- Smaller footprint portable water matrix device for small bridge and culvert projects
- $125 per month rental
- 200 to 500 gpm within a 12’ x 25’ footprint
- Treatment costs of ~$0.0005 per gallon
Questions

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