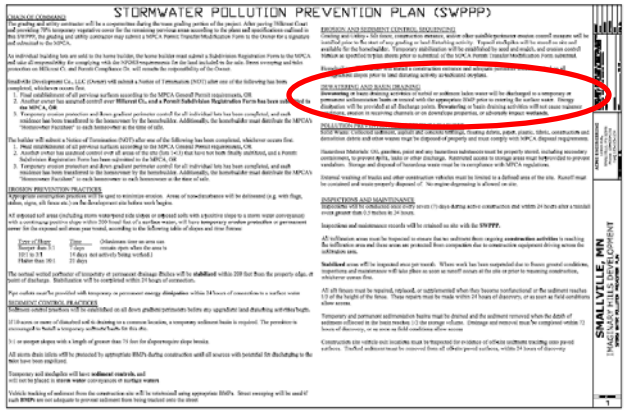
Understanding the **SWPPP**

Construction Activity Requirements

Erosion Prevention Practices Part IV B

Sediment Control Practices Part IV C


STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

SMALLVILLE, MN
HAGUARD HILLS DEVELOPMENT

Dewatering and
Basin Draining Practices Part IV D

Pollution Prevention Management Part IV F

Inspections and Maintenance Part IV E

Structure Dewatering & Basin Draining Practices

SWPPP:

Dewatering or basin draining activities of turbid or sediment laden water will be discharged to a **temporary or permanent sedimentation basin** or **treated** with the appropriate BMP prior to entering the surface water.

Energy dissipation will be provided at all discharge points.

Dewatering or basin draining activities **will not cause nuisance conditions**, erosion in receiving channels or on downslope properties, or adversely impact **wetlands.**

Structure Dewatering & Basin Draining Practices

- 1. Structure Dewatering (footings, trenches, basements, coffers, etc.
  - Mechanical systems – pumps
    - Inlet filtration
    - Sediment recovery
    - Discharge scour protection
- 2. Basin Draining (sediment traps, basins, ponds)
  - Mechanical systems, or
  - Gravity systems – weirs, slotted risers, floating skimmers, filter rock, geotextiles, etc.

Goals and Maintenance

- Dewater program goal within 48 to 72 hours to prepare for next rain (basins) or,
  - Keep structure dewatered for successful staging of work
- Water Conservation Practices (reuse of water): dust control, turf establishment, equipment wash-off systems
- Sediment basin/trap cleanout program (typically when ½ full)

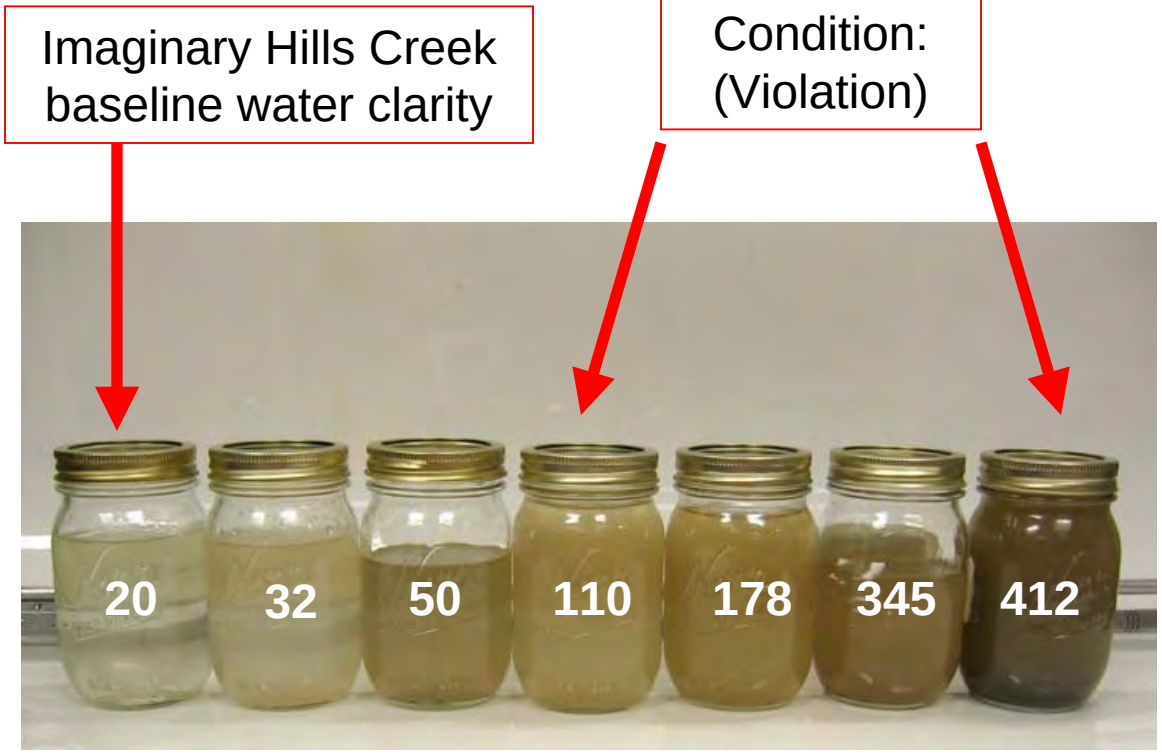
Monitoring Protocols

How Dirty is Dirty?

- Any discharge causing a “nuisance condition.”

<u>Rule of thumb*:</u>

- A discharge within 50 NTUs of the receiving water will not cause a nuisance condition



*Not a regulatory standard. Local regulations may have stricter definition.

Structure Dewatering Methods

Jesse Carlson, Bonestroo Rosene Anderlik/Dwayne Stenlund, Mn/DOT

- Method 1
  - Pumping directed into a temporary sedimentation basin, overflow protection by rock or superduty silt fence system
- Method 2
  - Chitosan sock installed in a pump hose section, which shall be directed into a temporary sedimentation basin with outflow protection
- Method 3
  - Pump head placed into a barrel with holes and with filter rock
- Method 4
  - Pump head or gravity inlet installed on a floating head skimmer
- Method 5
  - Pump into a plastic lined dumpster, chitosan treated, floating head discharge
- Method 6
  - Sand media particulate filter with inline chitosan sock
- Method 7
  - Alternative method designed by an engineer

Structure Dewatering Practices

Method 1: Permanent or Temporary Sediment Basin

- Pumping directed into a temporary sedimentation basin, overflow protection by rock or superduty silt fence system
- Hose shall be placed to prevent bottom scour

Structure Dewatering Practices

- Safety should be job 1.

Structure Dewatering Practices

Method 2: Inline chitosan sock

- Sediment laden (dirty) water passes over chitosan in the pump line
- Discharged to a temporary sedimentation area
- Repeat until required water clarity is achieved

Structure Dewatering Practices
Dewatering Bag

Dwayne Stenlund, CPESC, Mn/DOT

Structure Dewatering Practices
Temporary Geotextile Sediment Trap

Dwayne Stenlund, CPESC, Mn/DOT

Structure Dewatering Practices

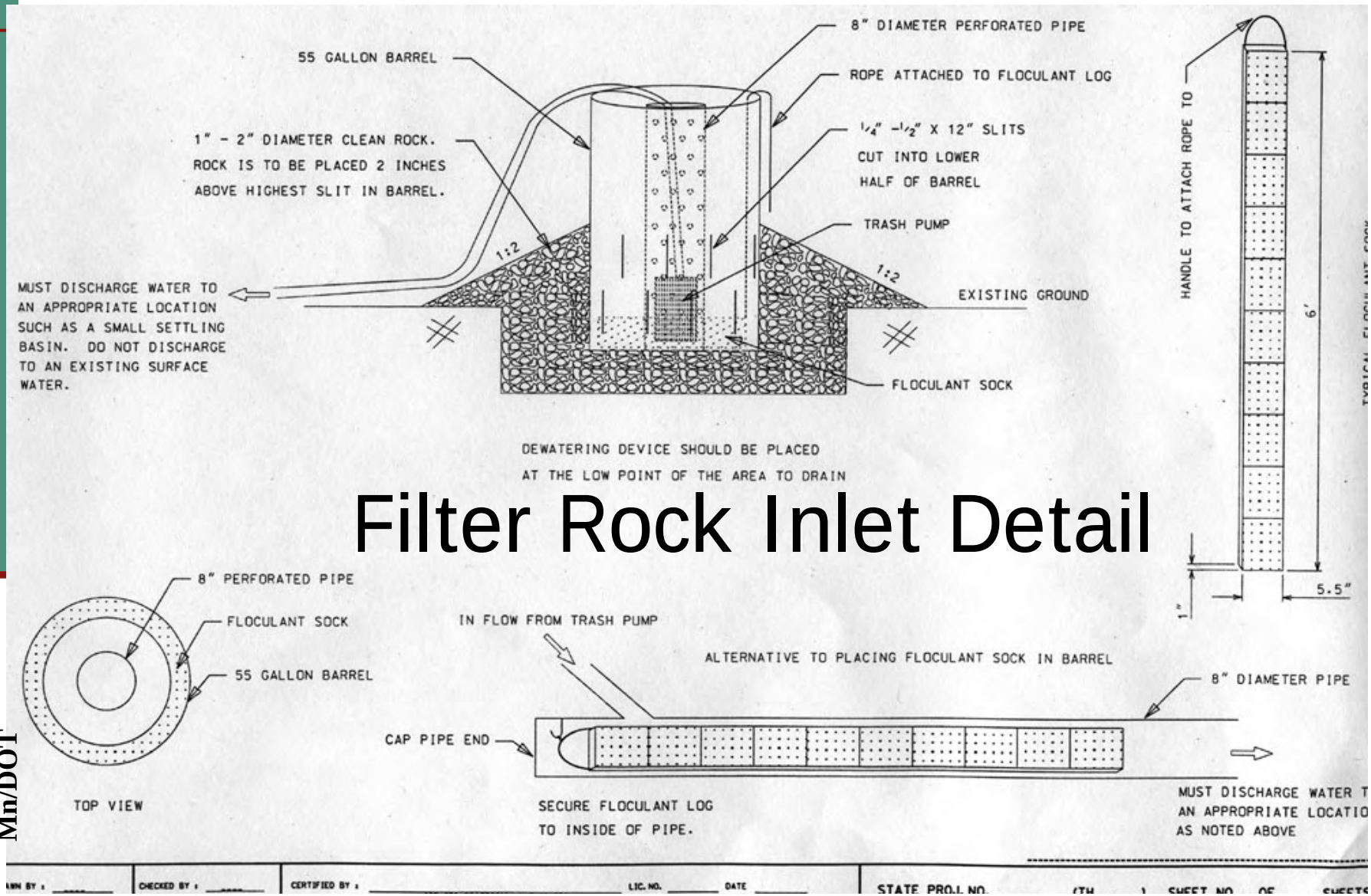
Dwayne Stenlund, CPESC, Mn/DOT

Structure Dewatering Practices

Method 3: Filter Rock Dewatering

- Pump head placed into a barrel with holes and filter rock
- If water is still too dirty; use in-line chitosan sock or discharge to other dewatering BMP

Structure Dewatering Practices

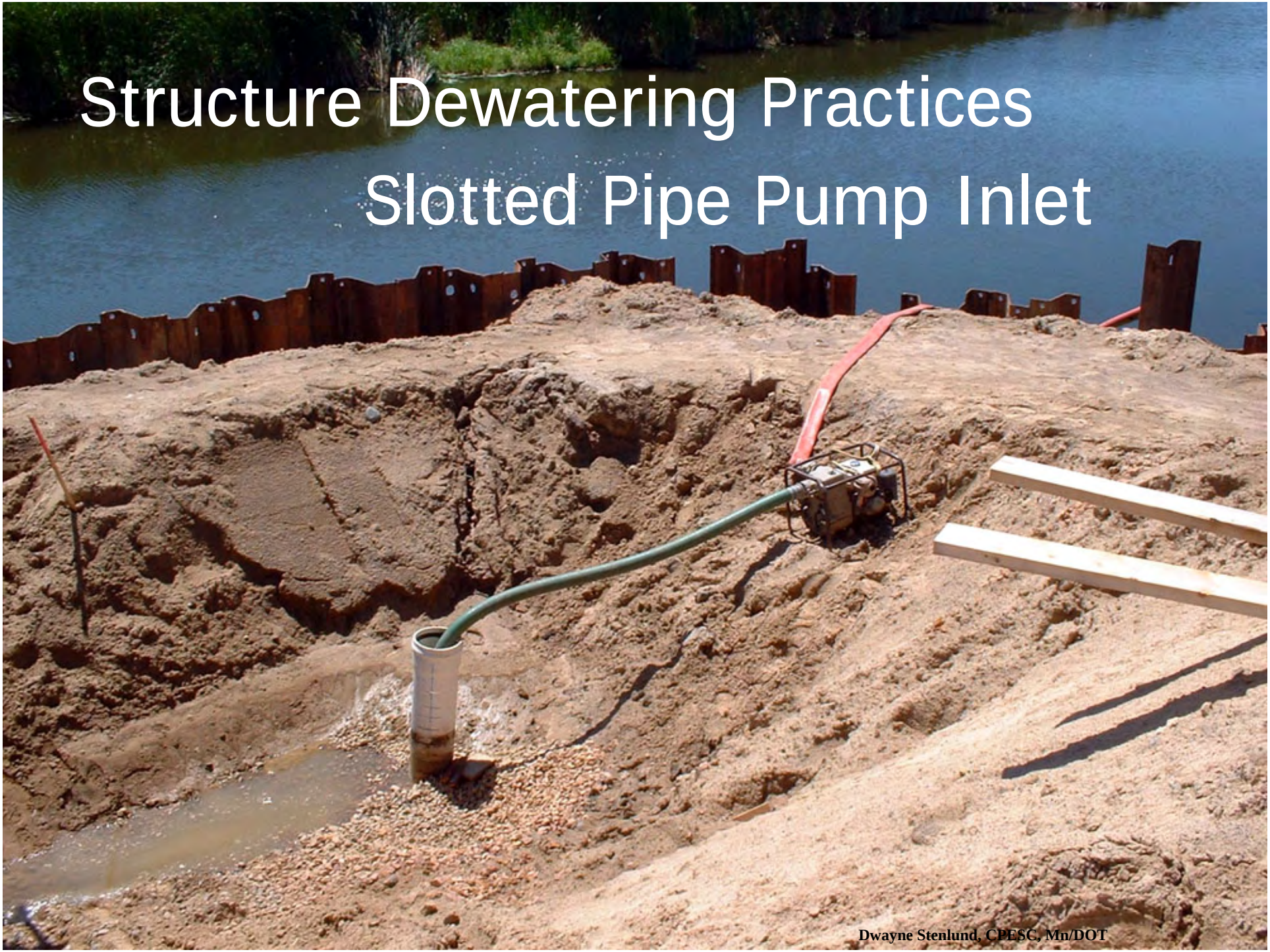


Filter Rock Inlet Detail

Mn/DOT

Structure Dewatering Practices

Slotted Pipe Pump Inlet



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Structure Dewatering Practices

Method 4: Floating Skimmer

- Better water quality on the surface of dewatering areas
- May require additional BMPs if desired water quality is not met

PUMP FLOAT

Structure Dewatering Practices

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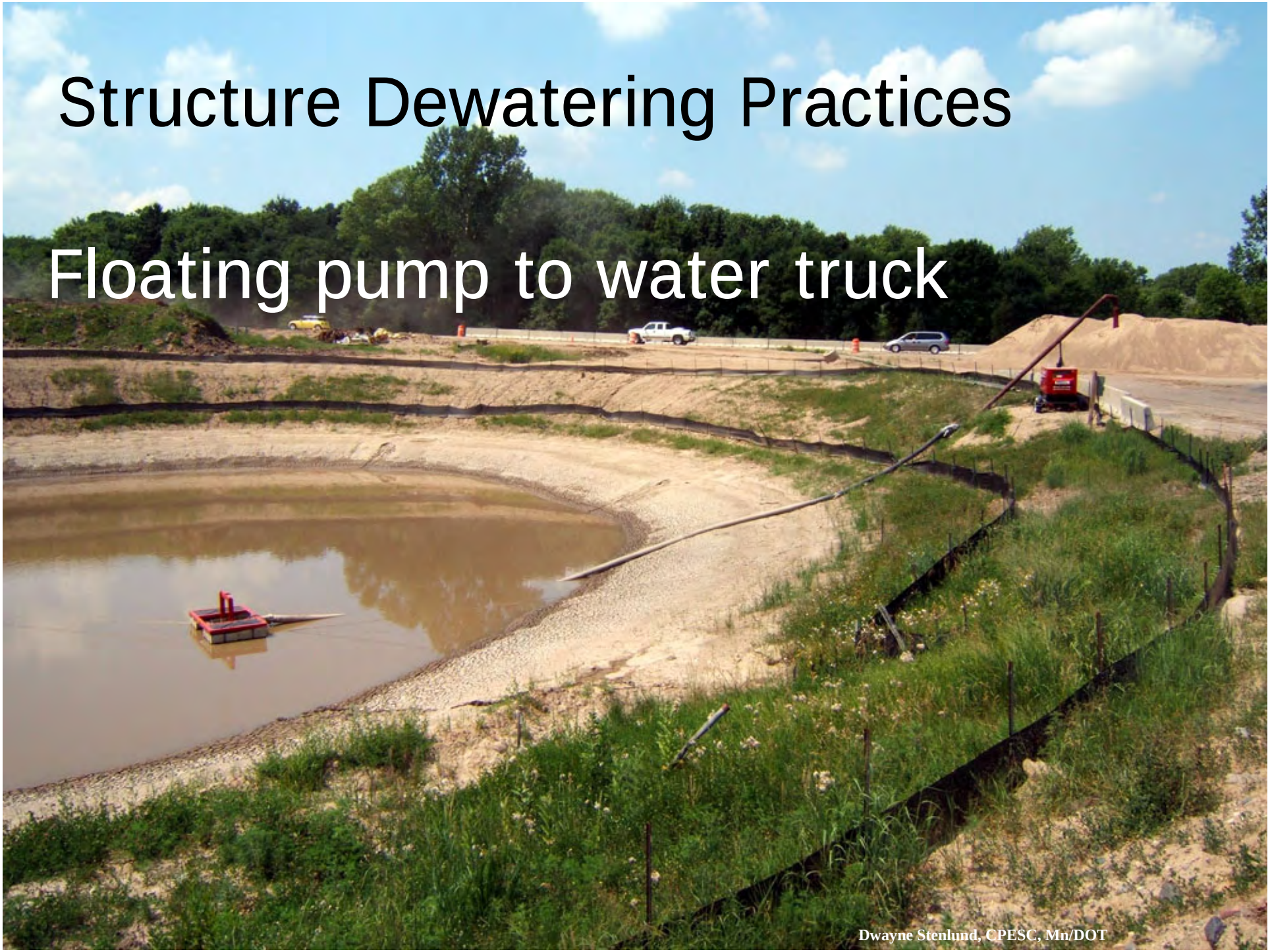
Structure Dewatering Practices

Floating pump to water truck



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Structure Dewatering Practices

Pumping Stormwater Excess

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Structure Dewatering Practices

Dust control

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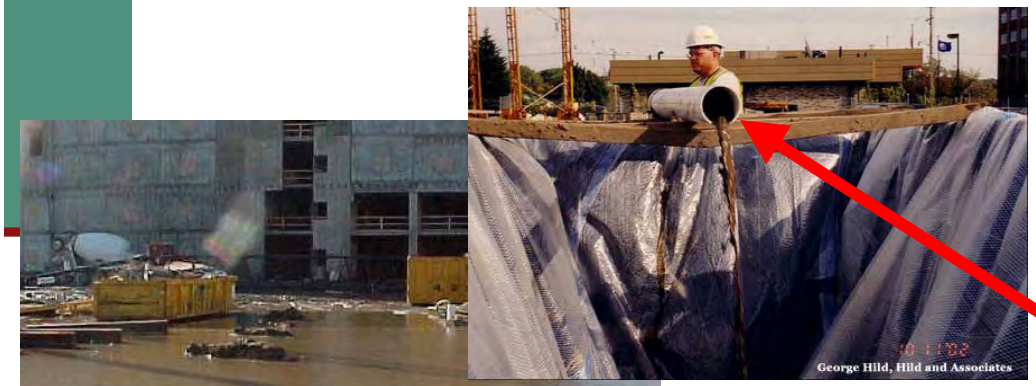
Structure Dewatering Practices

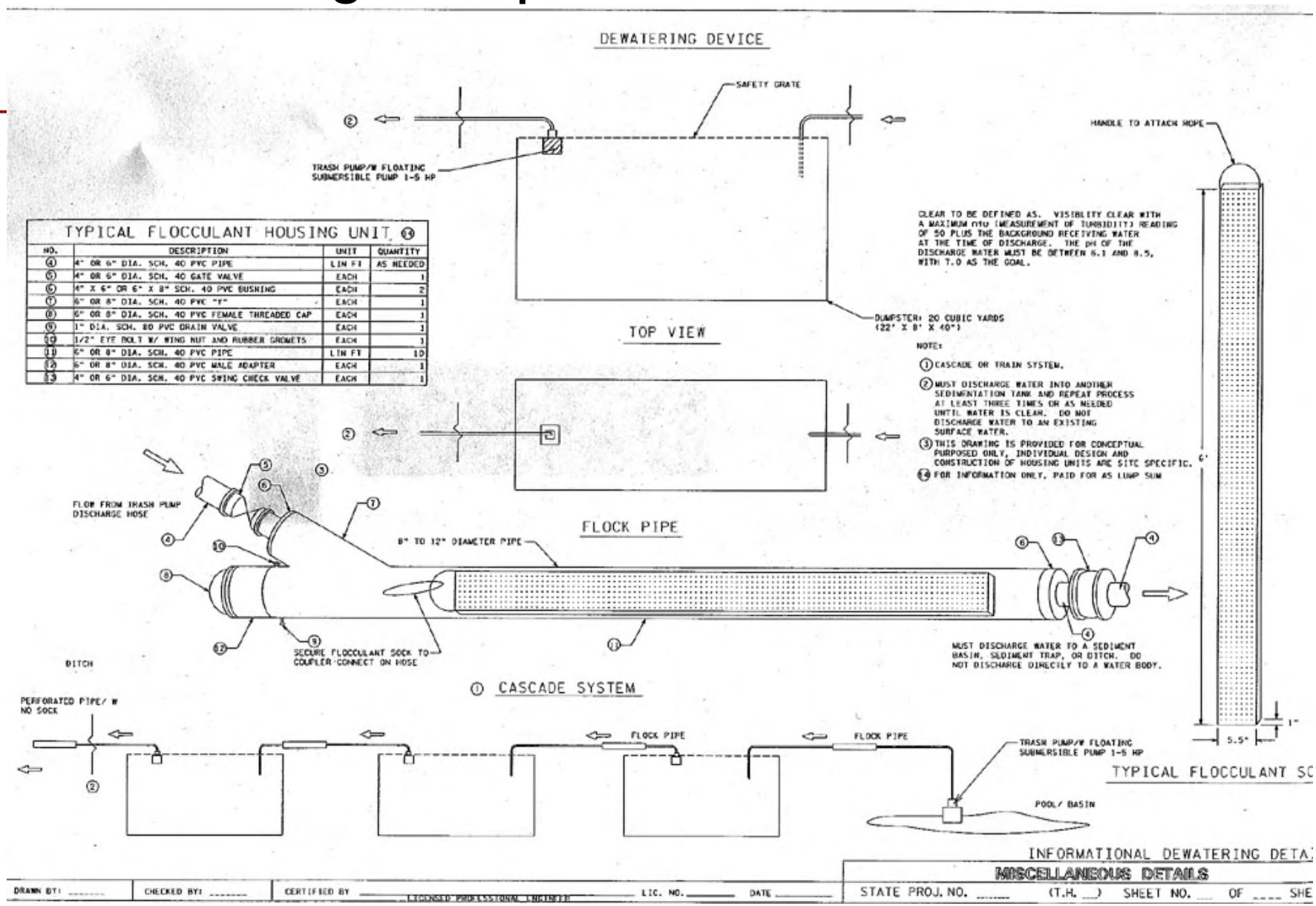
Method 5: Plastic Lined Dumpster

- Pumped into dumpster, flocculated with chitosan, and pumped out with floating head
- Settle until desired water quality is achieved



Chitosan sock in pipe

Dewatering Dumpster Treatment Train



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Structure Dewatering Practices

Engineered Dewatering Dumpster

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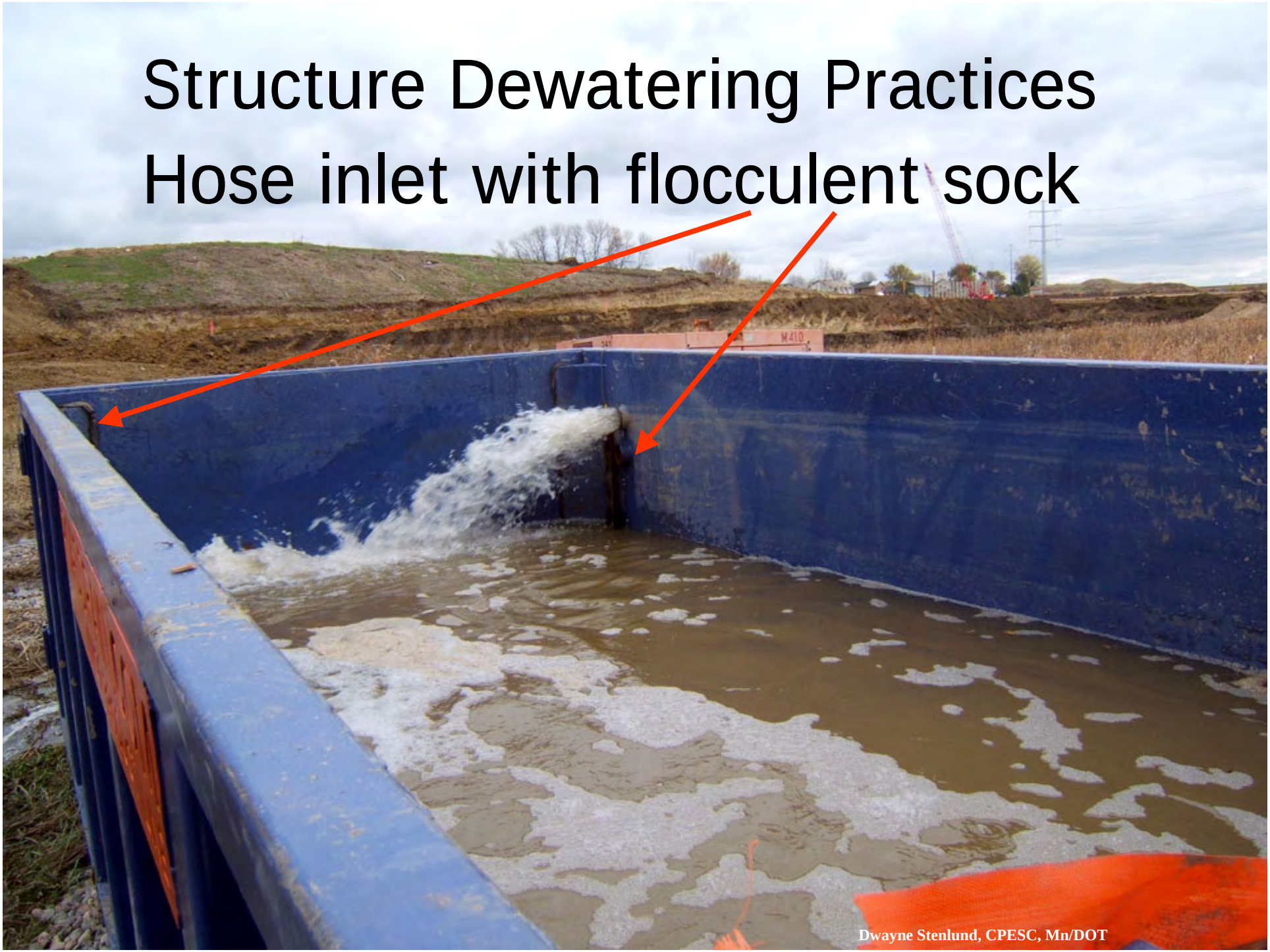
Structure Dewatering Practices

Hose inlet with flocculent sock



Slash mulch outlet filter media

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Clean discharge

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Structure Dewatering Practices

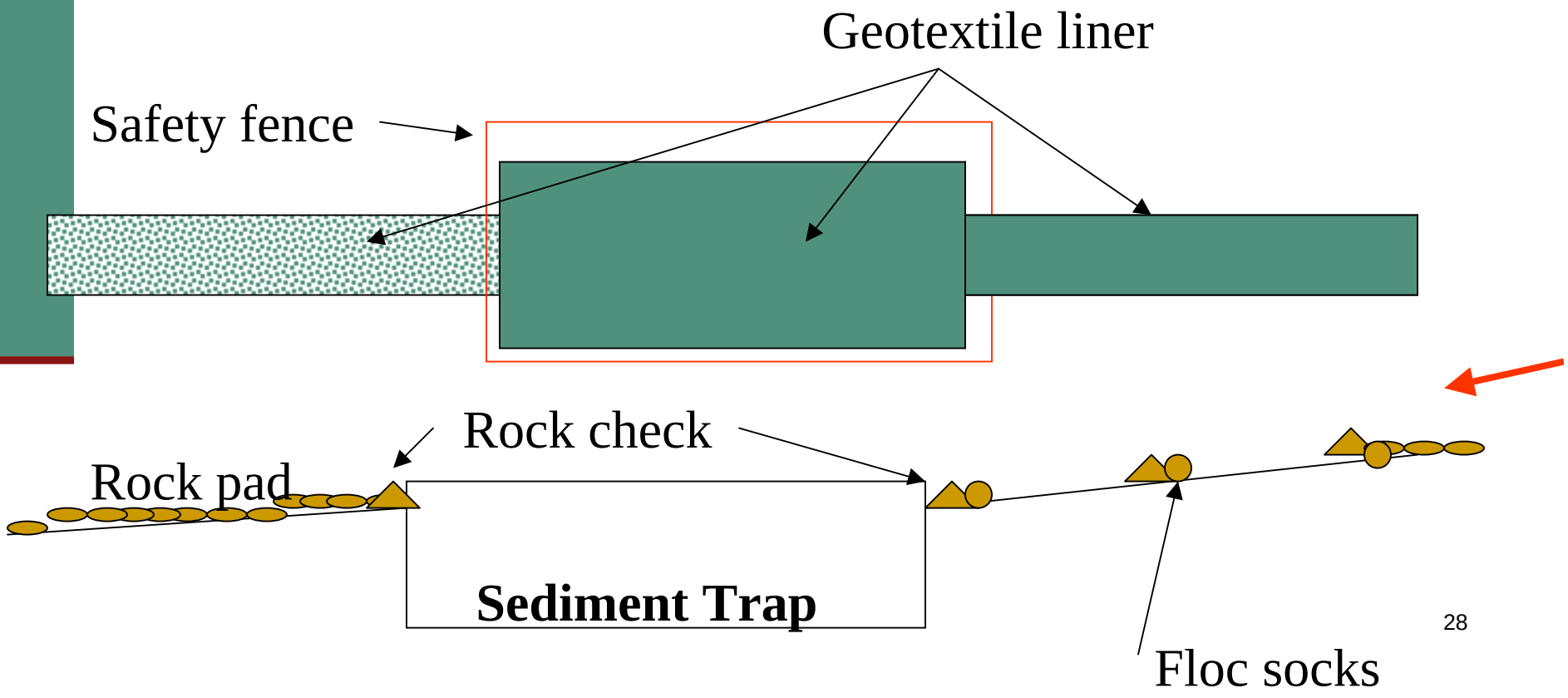
Method 6: Sand Media Particulate Filter with Inline Chitosan Sock

Pictured unit 70-90 GPM

From 1000+ NTUs to 10 NTUs

Structure Dewatering Practices

- **Method 7. Alternative (Engineer Approved) Methods**



Structure Dewatering Practices

Linear Sediment Trap System

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Structure Dewatering Practices

Exhausted Linear Sediment Trap

Dwayne Stenlund, CPESC, Mn/DOT

Structure Dewatering Practices

Temporary Compost Filter Trap

Rod Tyler, Filtrex International

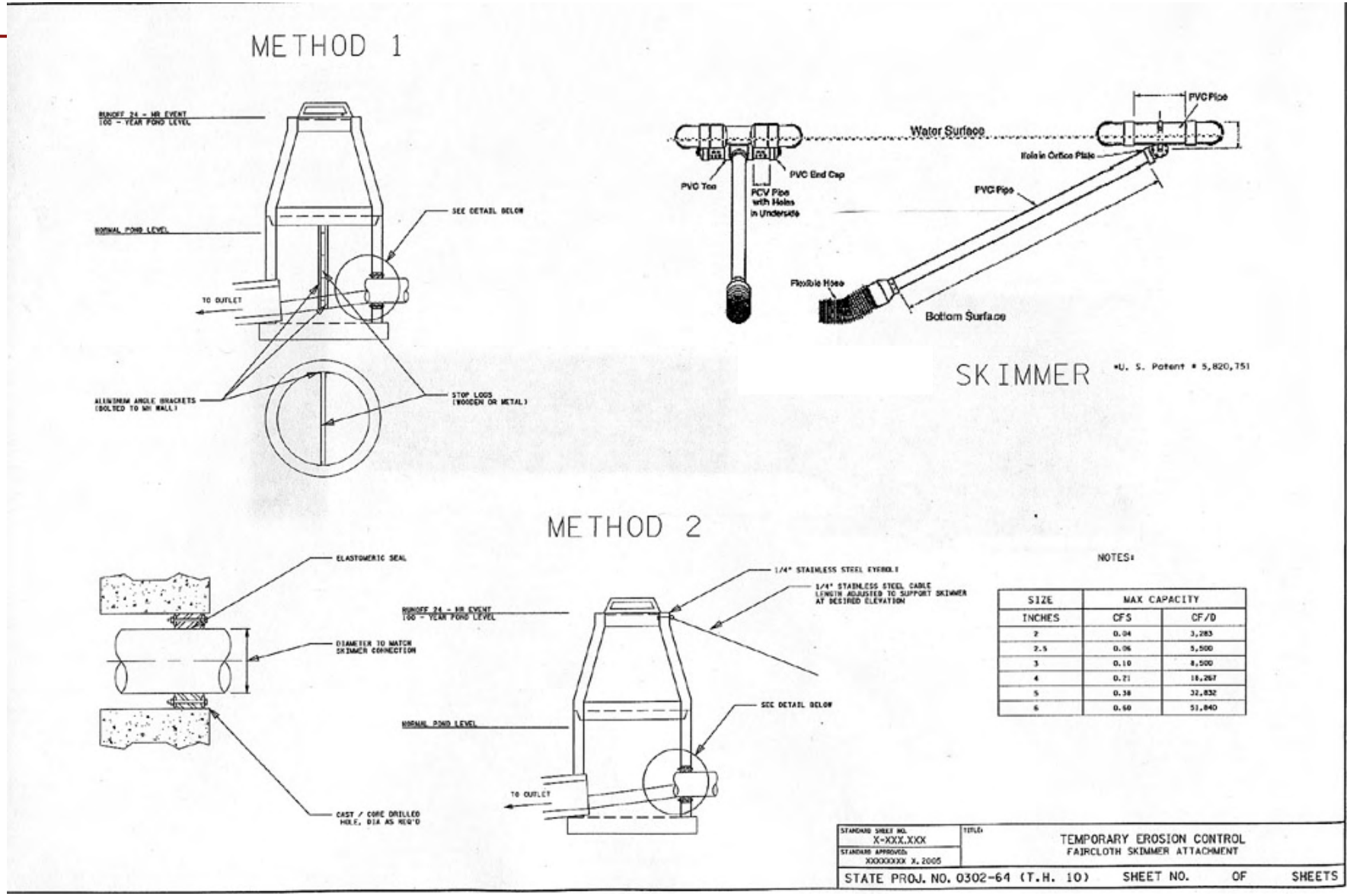
Structure Dewatering Practices

Rod Tyler, Filtrex International

Basin Draining Practices

- Gravity Dewatering
  - Floating skimmers
  - Slotted risers
  - Filter Weirs
- Treatment Train Approach
  - Multiple BMP’s integrated to clean stormwater discharge

Floating Skimmer Detail



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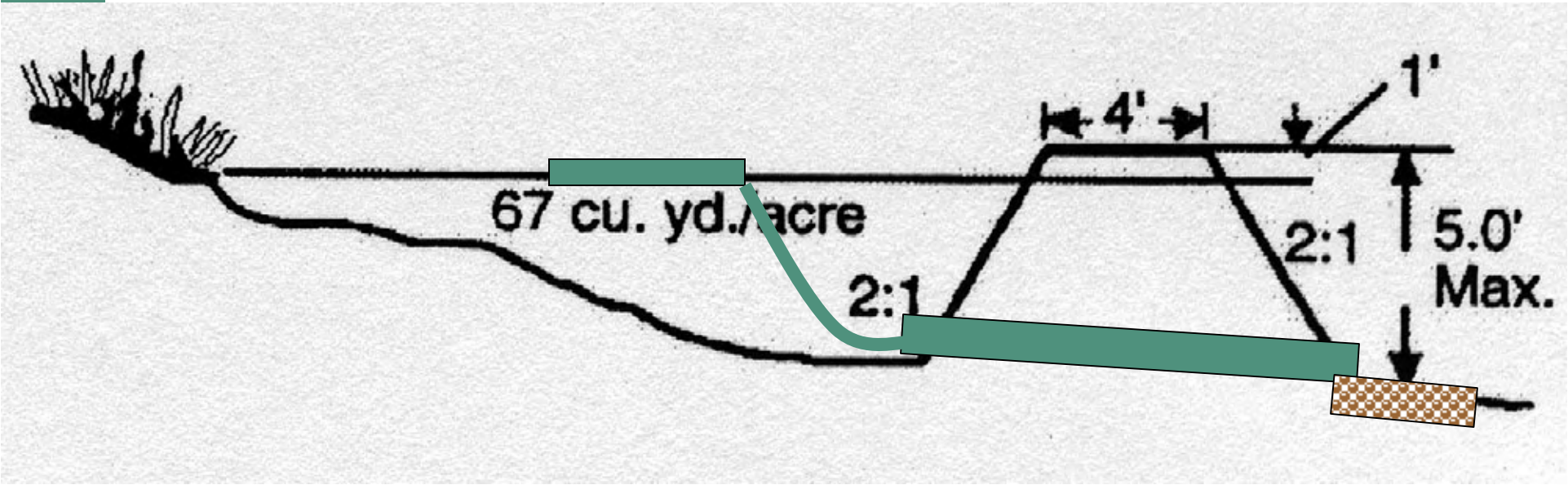
Drainage Skimmer



Treatment Train Treatment

Clinton, D., et al 2004. NC State University

Clinton, D., et al 2004. NC State University

Slotted riser

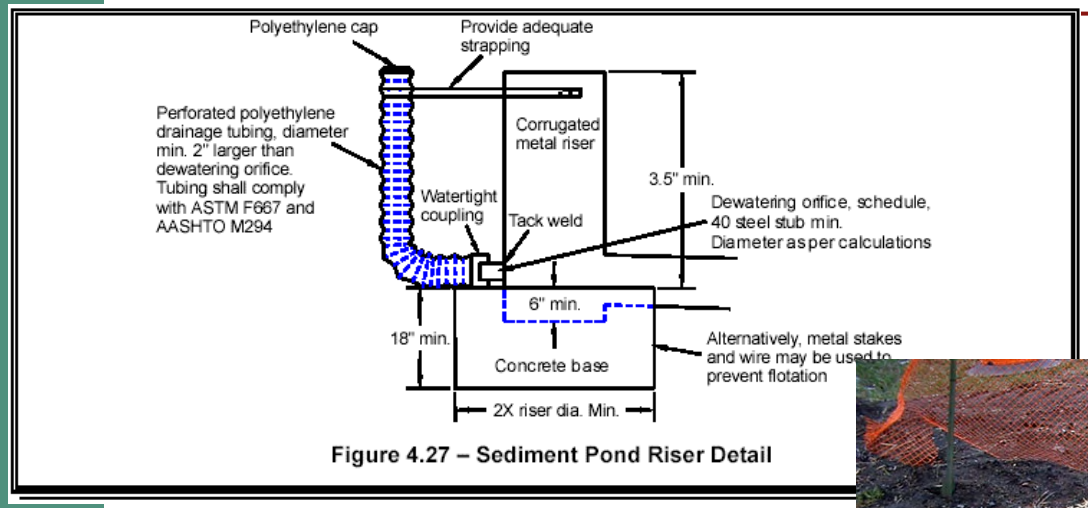


Figure 4.27 – Sediment Pond Riser Detail

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Structure Dewatering & Basin Draining Practices

- Energy dissipation/preventing scour
  - Plastic

Plywood

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Geotextile/rock

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Existing vegetation

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Riprap

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Water

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Exercise
Dewatering BMPs

Permanent or temporary sediment basin

Inline chitosan sock

Rock barrel method

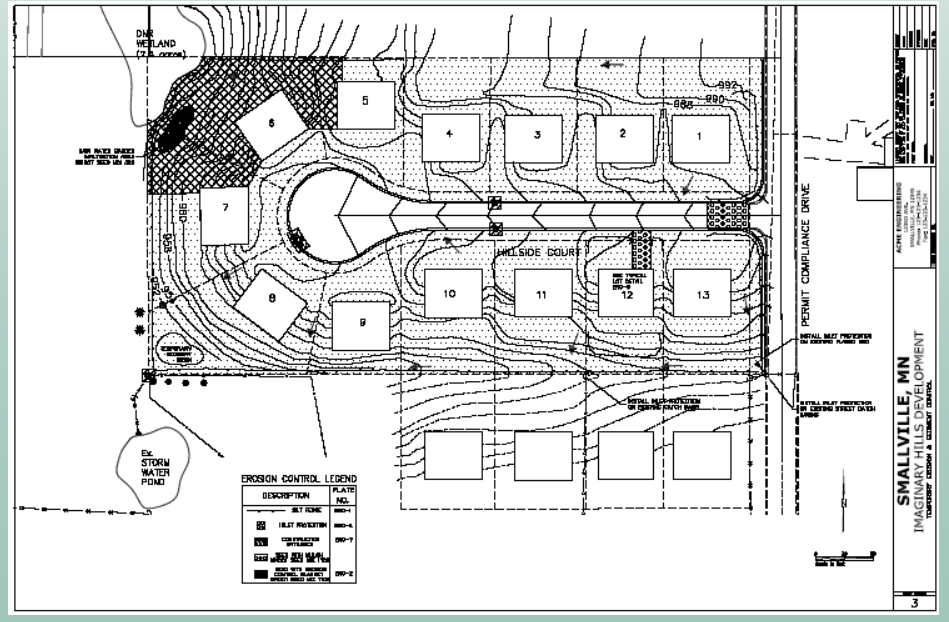
Floating skimmer

Plastic lined dumpster

Geotextile dewatering bag

What dewatering or basin draining activities typically occurs on site?

What BMPs could be used and where could the treated water be discharged?



Exercise

Dewatering BMPs

Permanent or temporary sediment basin

Inline chitosan sock

Rock barrel method

Floating skimmer

Plastic lined dumpster

Geotextile dewatering bag

Who should be contacted about changing the erosion control, sediment control or dewatering practices plan?