Landfill Stormwater Management and Compliance

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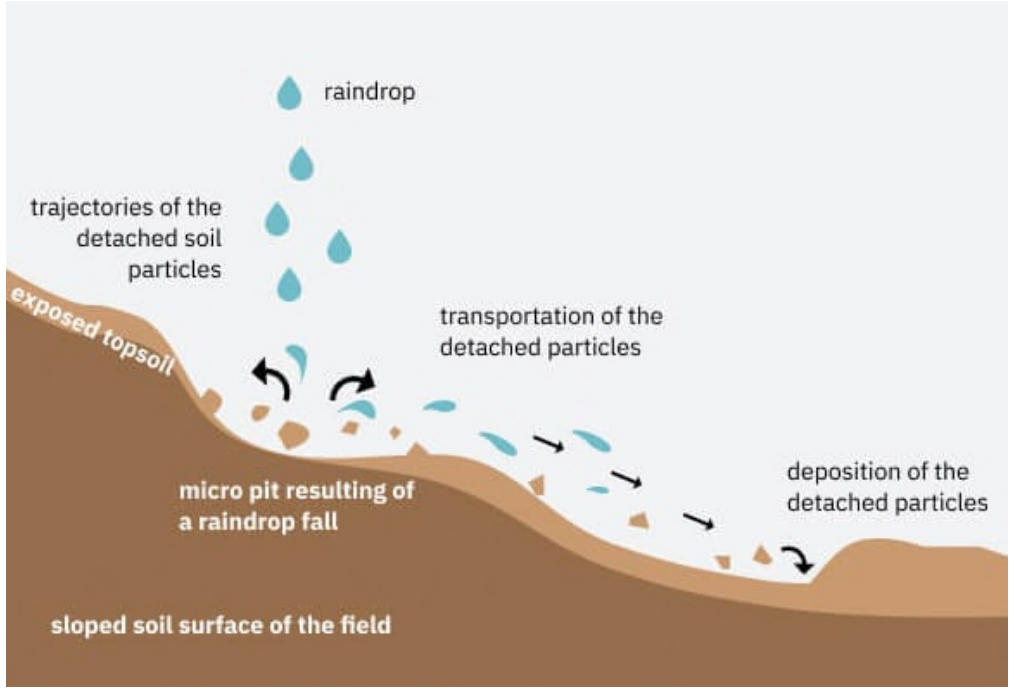
Stormwater Management Topics

- Erosion & Sediment Control basics
- Applicable VPDES permit requirements
- Common issues and areas for improvement
- 2024 ISWGP updates

Erosion is…

…the **removal** and **transportation** of soil by weather and gravity



What's our goal?

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Influences on Erosion

- Climate
- Ground Cover
- Soil
- Topography

What can we control?

Raindrop Effect

- Damaging effects:
  - Detachment of soil particles
  - Sealing the soil's surface
- Responsible for **90% or more** of total soil erosion

VPDES Permit Regulation

9VAC25-31-50 (Prohibitions)

A. Except in compliance with a VPDES permit, or another permit, issued by the board or other entity authorized by the board, it shall be **unlawful** for any person to:

- 1. **Discharge into state waters** sewage, industrial wastes, other wastes, or any noxious or deleterious substances;
- 2. Otherwise alter the physical, chemical or biological properties of such state waters and make them detrimental to the public health, or to animal or aquatic life, or to the use of such waters for domestic or industrial consumption, or for recreation, or for other uses; or
- 3. Discharge stormwater into state waters from municipal separate storm sewer systems or land disturbing activities.

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Two VPDES Permit Options

Individual Permit

- All wastewater treatment facilities discharging to surface water
- Address site-specific deviations not covered by GP
  - Pollutant or process not covered by GP
  - Receiving stream water quality requirements

General Permit

- Facility meets broad permit category
  - Industrial Stormwater (VAR05)
  - Construction Stormwater (VAR10)
  - Various others (Mining, Concrete Production, Seafood processing, drinking water treatment, etc.)
- No site-specific deviation from GP coverage

Industrial Stormwater General Permit Sectors
(Potentially Applicable)

- Sector A: Timber Products
  - Wood, mulch and bark facilities (SIC 2499)
- Sector C: Chemical and Allied Products
  - Composting facilities (SIC 2875)
- **Sector L: Landfills and Land Application Sites**
  - Closed landfills do not apply
- Sector N: Scrap Recycling Facilities (SIC 5093)
  - Includes Material Recovery Facilities (MRF)
- Sector AD: Non-Classified Facilities / Sector AF: Facilities limited to TSS Benchmark Monitoring
  - *Can* include transfer stations; other non-classified activities

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Industrial Stormwater General Permit Outfall Monitoring

- **Sample collection**:
  - o Semi-annual analytical
  - o Quarterly visual
  - o Within 30 minutes of initial discharge; up to 3 hours
  - o At least 72 hours from previous discharge
- **Sample Analysis**:
  - o Benchmark Monitoring (uncontaminated stormwater)
    - TSS @ 100mg/L
    - Exceedance requires review / modify SWPPP and controls
  - o Effluent limitation Monitoring (contaminated stormwater)
    - Exceedance requires reporting to DEQ, corrective actions; may result in DEQ compliance or enforcement action

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Landfill Effluent Limitations (outfalls receiving contaminated stormwater)

PARAMETER	Max. daily (mg/l)	Max. monthly average (mg/l)
BOD	140	37
TSS	88	27
Ammonia	10	4.9
Alpha Terpineol	0.033	0.016
Benzoic Acid	0.12	0.071
P-Cresol	0.25	0.014
Phenol	0.026	0.015
Zinc - total	0.2	0.11
pH	Within range of 6 – 9	

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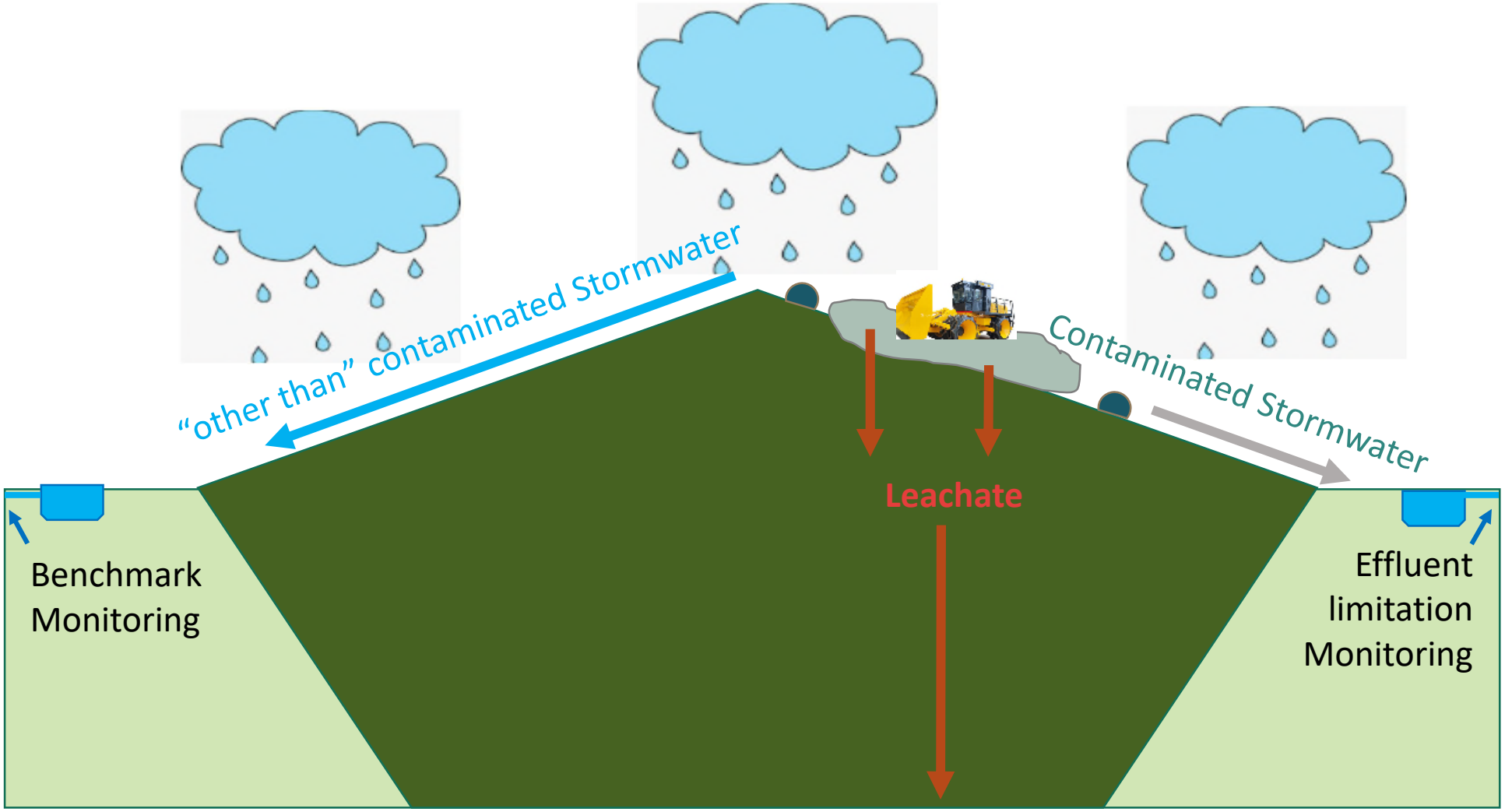
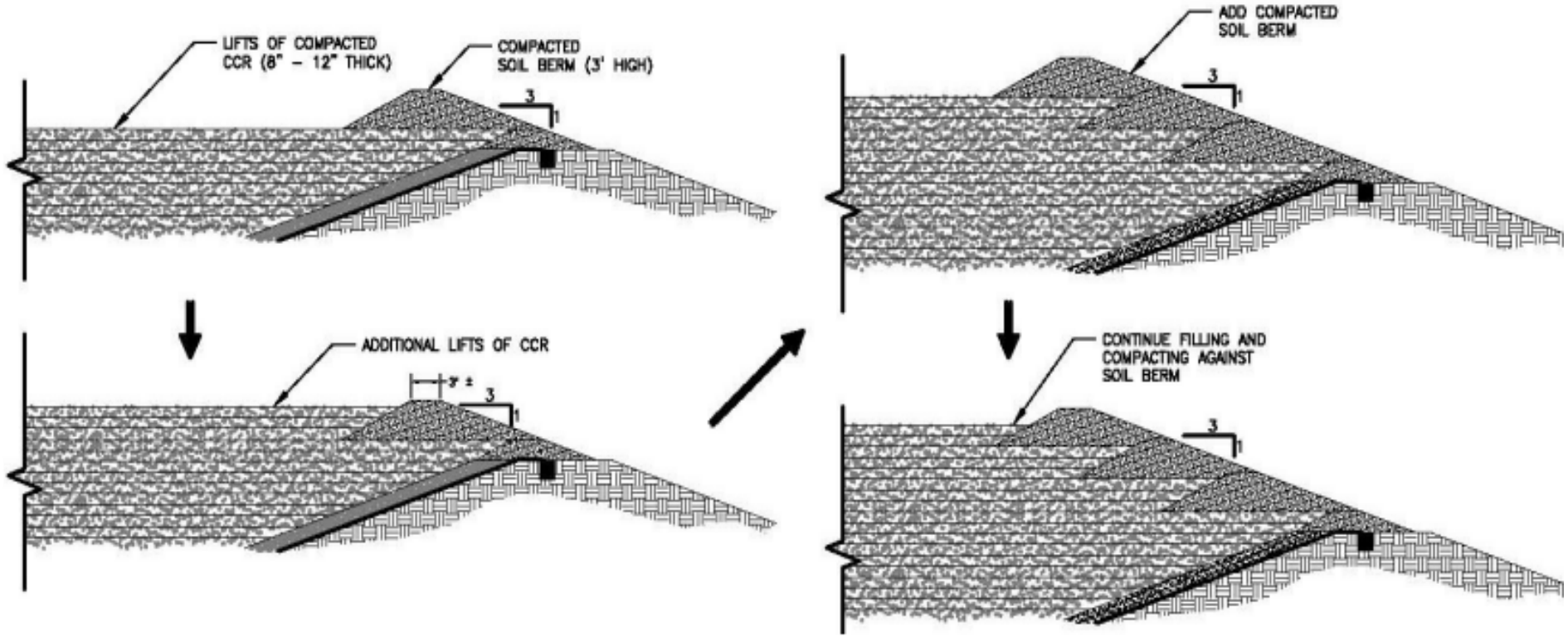


Effluent vs. Benchmark Monitoring

Runoff controls from the active portion of a landfill



ISWGP III.B.4.b(2) *eliminating and minimizing exposure*: "Use grading, berming, or curbing to prevent runoff of contaminated flows and divert run-on away from potential sources of pollutants"

Prohibition of nonstormwater discharges

In addition to the general nonstormwater prohibition in Part I B 1, **the following discharges are not covered by this permit**:

- **Leachate**
- **Gas collection condensate**
- Drained free liquids
- **Contaminated ground water**
- Laboratory wastewater
- **Contact washwater from washing trucks**, equipment, and railcar exteriors
- Surface areas that have come in direct contact with solid waste at the landfill facility

ISWGP Part IV.B

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Areas for Improvement

Stormwater Pollution Prevention Plan

Do you know what's in yours?

ISWGP Parts III, IV

- Site Map
  - Site boundaries, outfalls, conveyances, stormwater flow direction, drainage structures, surface waters, BMPs, pollutant sources, previous spill locations, drainage areas
- Pollution Prevention Team
- Potential Pollutant Sources
  - **Landfill sediment? Leachate collection / storage / transport? Fueling?**
- Stormwater Controls & maintenance records
- BMPs: housekeeping, minimizing exposure, Preventative Maintenance, spill prevention & response, employee training, E&S control, runoff management, dust suppression, material tracking
- Spills / Releases / Response Actions
- Exceedance Response Actions
- 3 years outfall sampling data

- **WEEKLY** Inspection Records – Landfill, Stabilization / E&S Controls, Leachate Collection System, Site Entrance / Exit, Unauthorized Discharges
- Annual unauthorized discharge evaluation inc. leachate and washwater
- Sediment and Erosion Control Plan

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Landfill Cover Stabilization Requirements

ISWGP IV.D.5. “The **SWPPP shall include**….Landfill owners **shall provide for temporary stabilization** (…include temporary seeding, mulching, and placing geotextiles) **of…inactive areas of the landfill which have an intermediate cover** but no final cover. Landfill owners shall provide for temporary stabilization of any landfill areas which have received a final cover until vegetation has established itself.”

VSWMR 140.B.1.f. **Vegetation** shall be established and maintained on all exposed **final cover material within four months after placement**, or as specified by the department when seasonal conditions do not permit.

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Leachate Management Requirements

ISWGP IV.D.1. "The **SWPPP shall include**….the permittee shall **maintain all elements of leachate collection** and treatment systems to prevent commingling of leachate with stormwater and **the integrity and effectiveness of any intermediate or final cover** (including making repairs to the cover as necessary), to minimize the effects of settlement, sinking, and erosion.

VSWMR 140.A.6 Landfills shall **not**:

a. **Allow leachate from the landfill to drain or discharge into surface waters…**

b. Cause a **discharge of pollutants into waters** of the United States, including wetlands, **that violates any requirements** of the Clean Water Act (33 USC § 1251 et seq.), including, but not limited to, **the VPDES requirements…**

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Include your borrow areas!

ISWGP Part III.B.4.b(7)

Sediment and erosion control. The **SWPPP shall identify** areas at the facility that, due to topography, land disturbance (e.g., construction, landscaping, site grading), or other factors, have a potential for soil erosion. **The permittee shall identify and implement structural, vegetative, and stabilization control measures to prevent or control on-site and off-site erosion and sedimentation**. Flow velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel if the flows would otherwise create erosive conditions.

What if there is “no discharge”?

“**Documentation explaining a facility's inability to obtain a sample** (including dates and times the outfalls were viewed or sampling attempted), of no rain event, or of deviation from the "measurable" storm event requirements shall be maintained with the SWPPP. Acceptable documentation includes National Climatic Data Center (NCDC) weather station data, local weather station data, facility rainfall logs, and other appropriate supporting data.”

ISWGP Part I.A.2.e

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Good Housekeeping

The permittee shall **keep clean all exposed areas of the facility that are potential sources of pollutants to stormwater discharges**. The permittee shall perform the following good housekeeping measures to minimize pollutant discharges:

(a) The SWPPP shall include a schedule for **regular pickup and disposal of waste materials**, along with routine inspections for leaks and conditions of drums, tanks, and containers;

(e) **Minimize the potential for waste, garbage, and floatable debris to be discharged** by keeping areas exposed to stormwater **free of such materials** or by **intercepting such materials prior to discharge…**

ISWGP III.B.4.b

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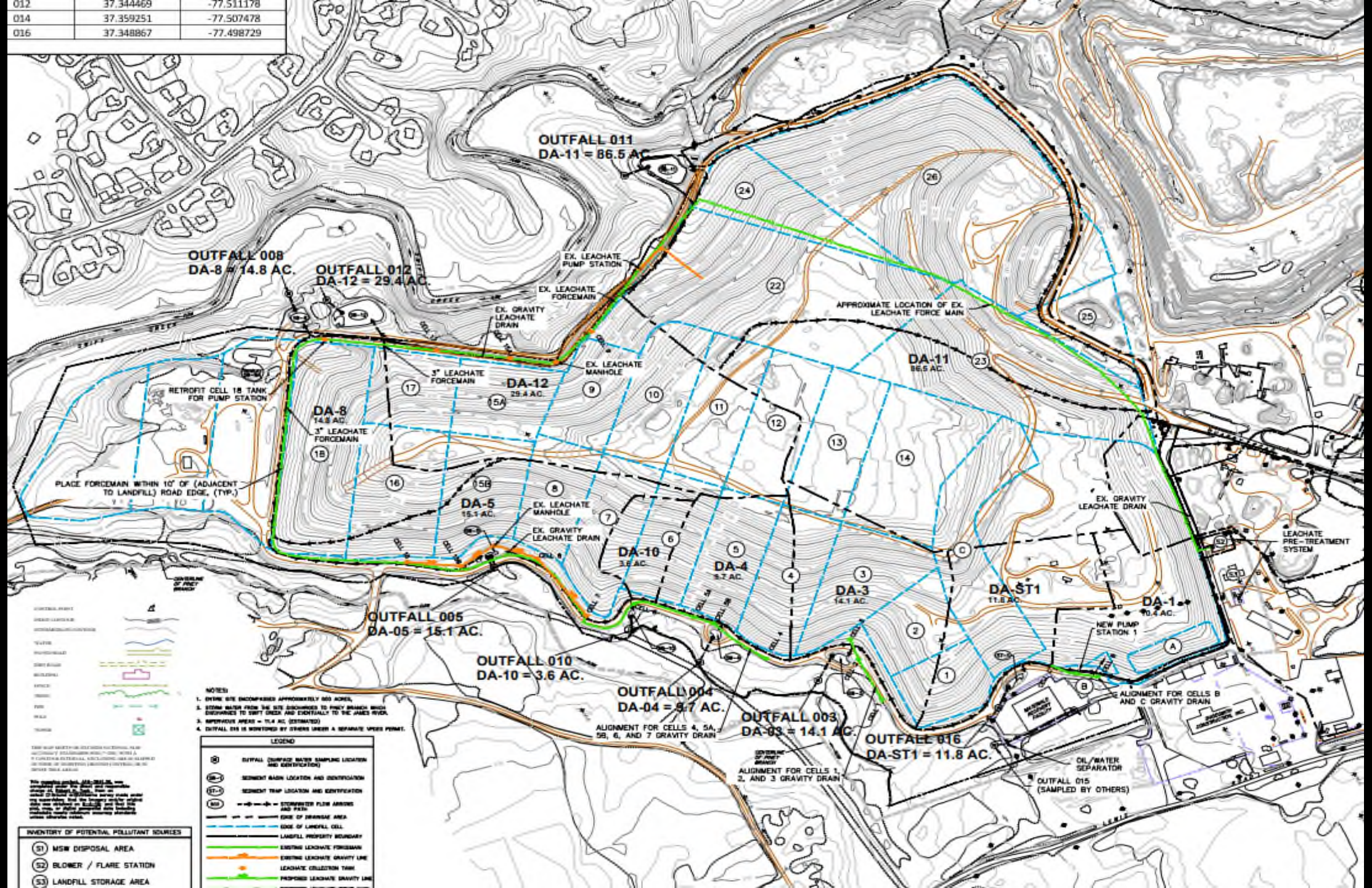
012	37.344469	-77.511178
014	37.359251	-77.507478
016	37.348867	-77.498729

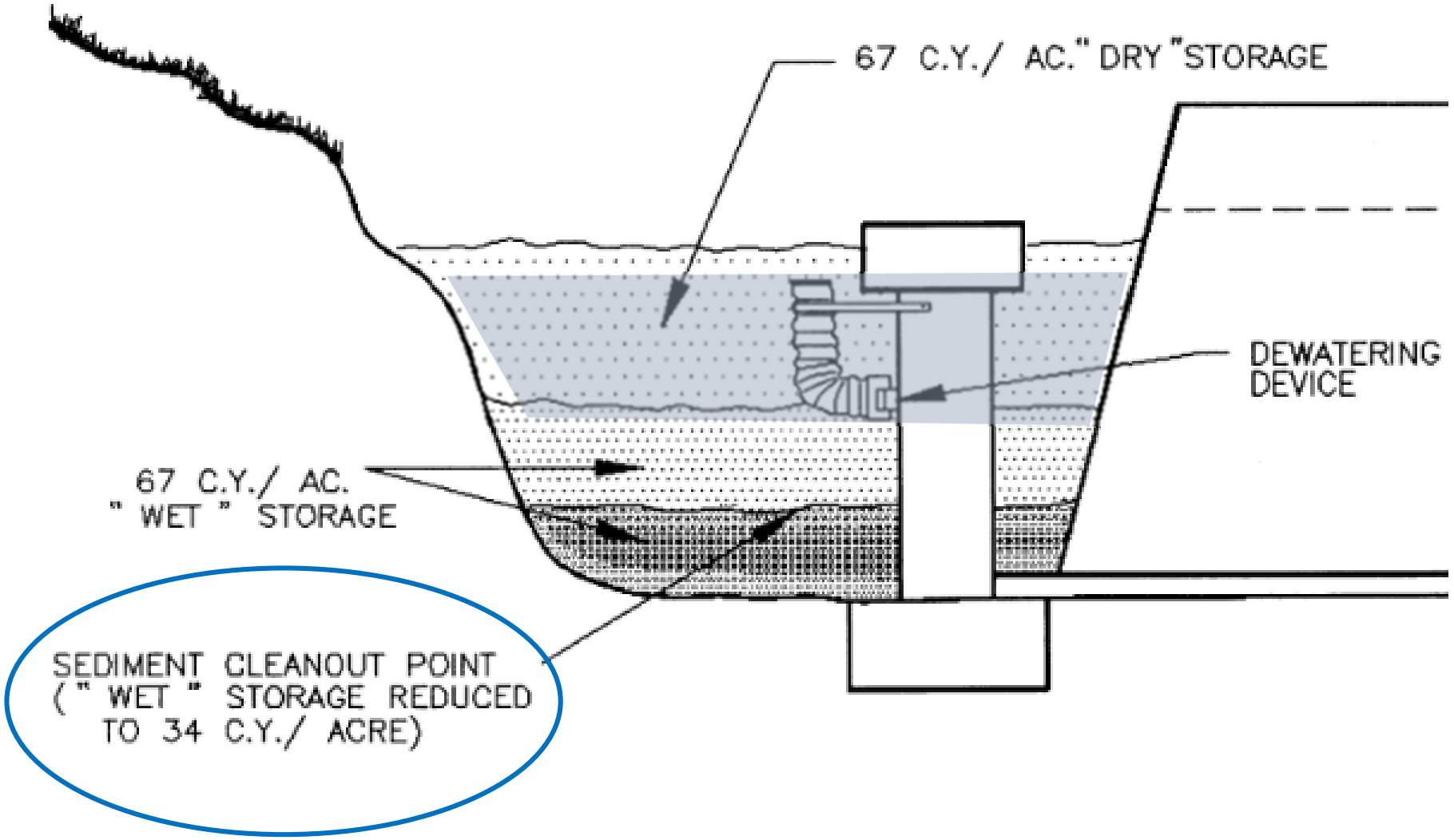


TSS corrective action

Will this fix the problem?

PHOTO 1: Pond cleaning and rock filter dam installation at sediment pond for Outfall 001

Sediment Basin



Sediment Basin – Is there an issue?

Sediment Basin – Is there an issue?

IF you have a sediment (or other) release to stream or wetland

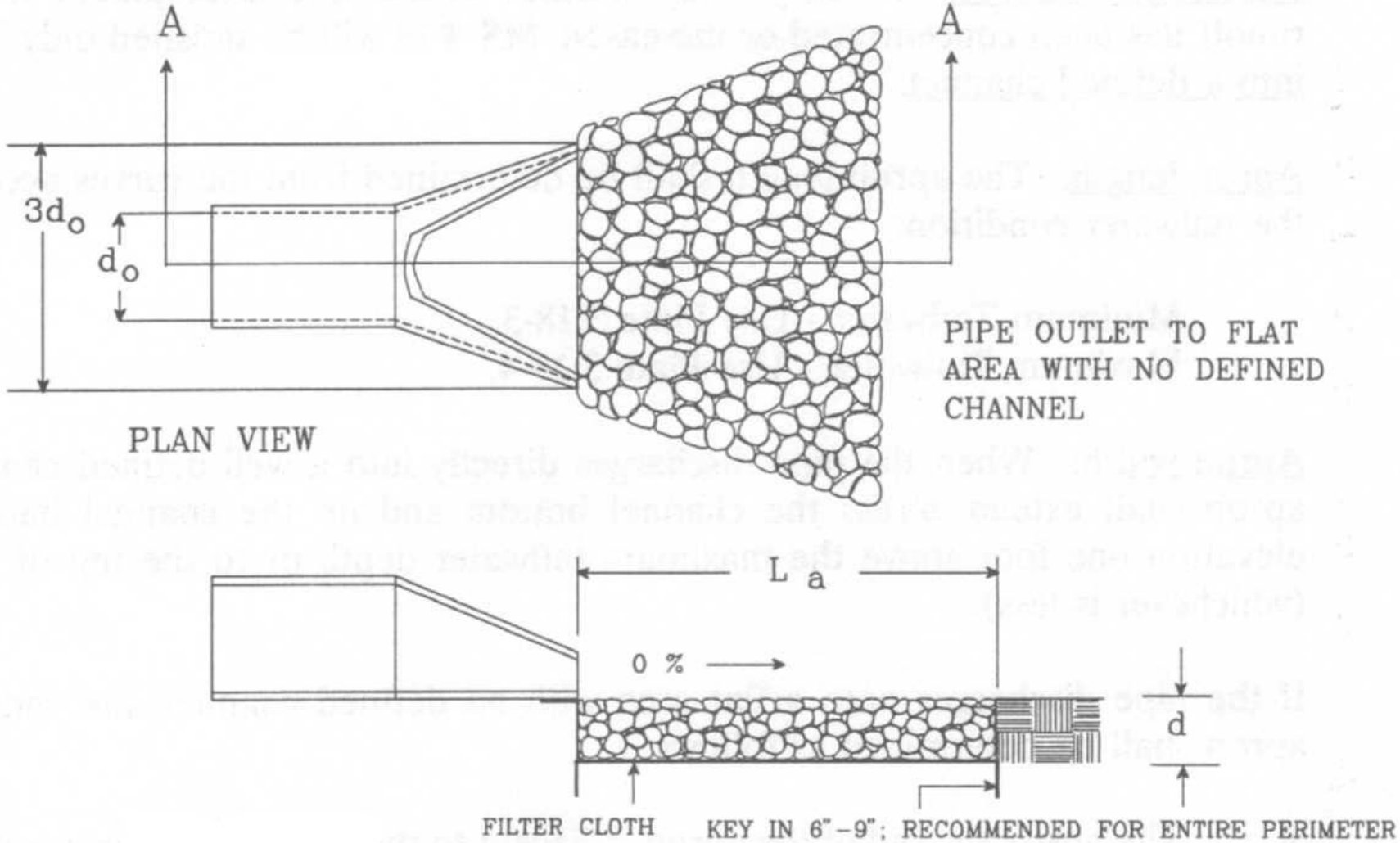
Provide 24 hour oral / 5 day written report to DEQ

(ISWGP Parts II.G, II.I; VSWMR 530.C.3)

Outlet Protection

- “Flow velocity **dissipation devices shall be placed at discharge locations and along the length of any outfall channel** if the flows would otherwise create erosive conditions.” ISWGP III.4.b(7)

Outlet Protection



Adequate cover & soil stabilization

“The permittee shall identify and implement structural, vegetative, and stabilization control measures to prevent or control on-site and off-site erosion and sedimentation.”

ISWGP Part III.B.4(b)(7)

"If routine facility inspection…identify control measures not operating effectively, repairs or maintenance shall be performed before the next anticipated storm event. If maintenance prior to the next anticipated storm event is not possible, maintenance shall be scheduled and accomplished as soon as practicable."

ISWGP Part III.C.

2024 ISWGP Updates

- **Registration statements due no later than May 1, 2024**
- When to Sample: 72-hour “measurable storm event” interval changed to “storm event discharge” interval.
- No more reporting storm event duration.
- Benchmark and effluent limitation exceedance response actions combined; added clarity to SWPPP documentation including dates and duration to complete corrective actions.
- CB TMDL requirements moved to Part V; all existing Action Plan reductions to be achieved by 12/31/2025 (update / resubmit if not yet met); TSS reduction requirements removed.