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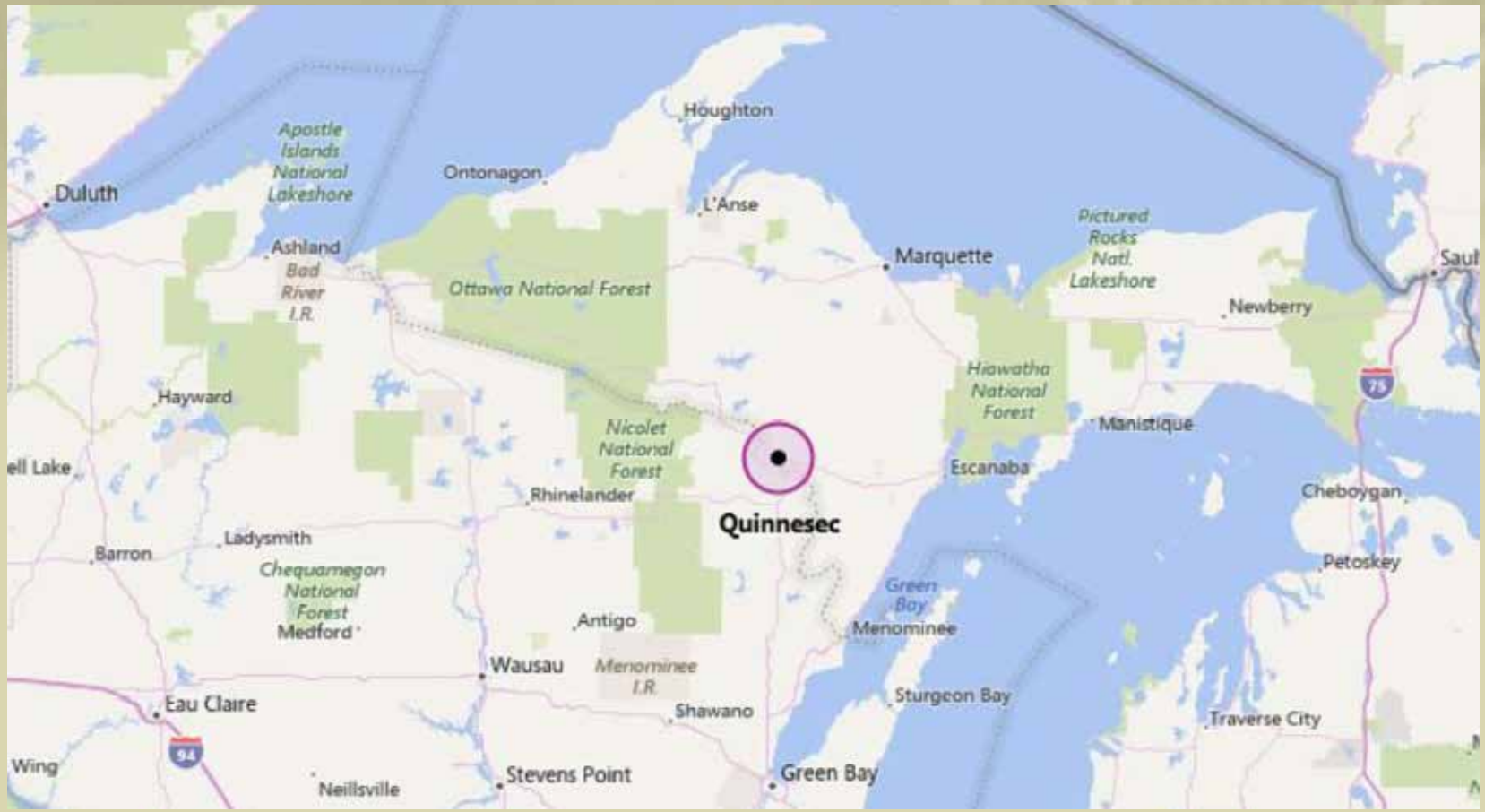
Drainage Improvement Case Study

Niagara Development Landfill

Niagara Development Landfill



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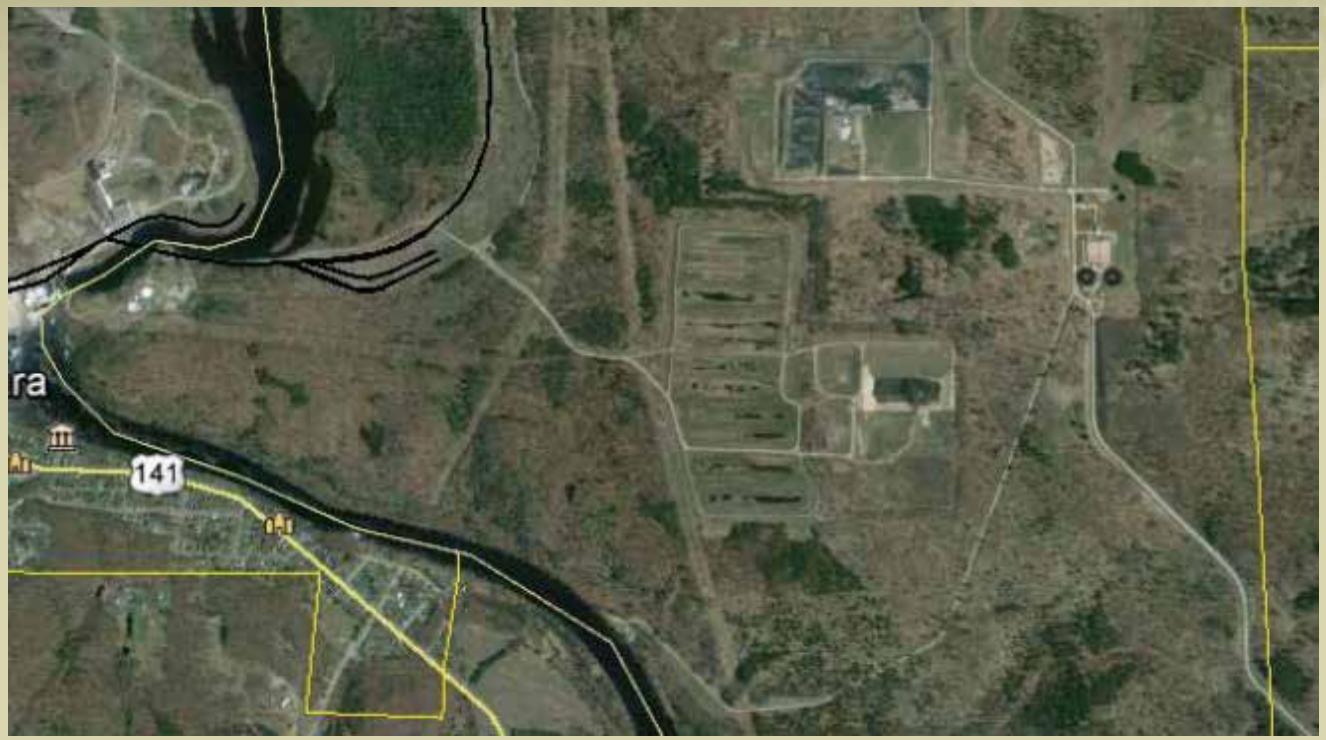
Niagara Development Landfill

- Type III Low Hazard Industrial Waste
- Construction and Demolition Debris



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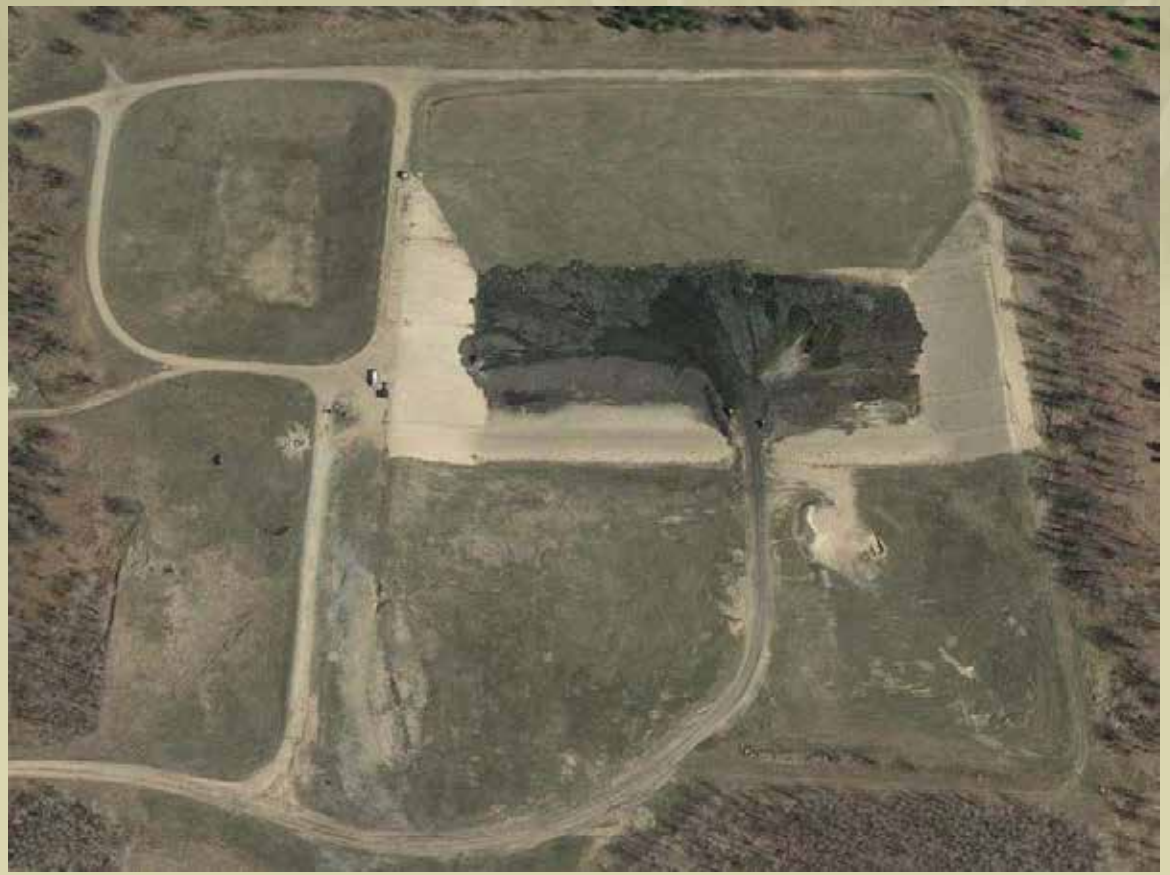
Niagara Development Landfill

- Initially developed to service the former NewPage Mill.
- NewPage closed in 2008, subsequently capped Cell 1.
- Niagara Development assumed operation of the landfill in 2011.



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Niagara Development Landfill

- **Total Permitted Landfill Area of 29 acres.**
- **Permitted Capacity of 2.2 million cubic yards.**

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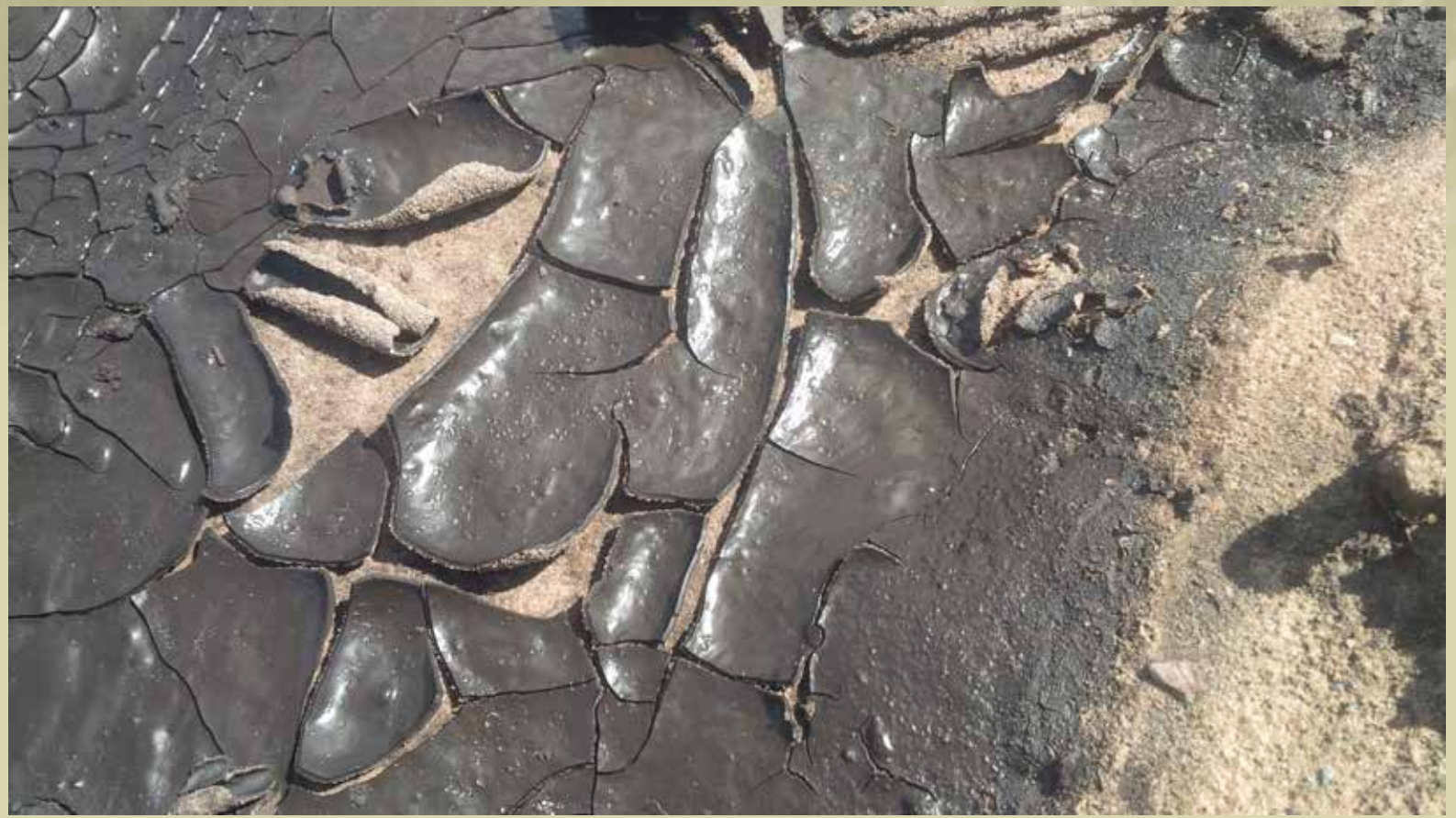
Niagara Development Landfill

- Initial source of waste largely consisted of foundry sand.

Cause – Foundry Sand Binder

Bentonite / Kaolinite



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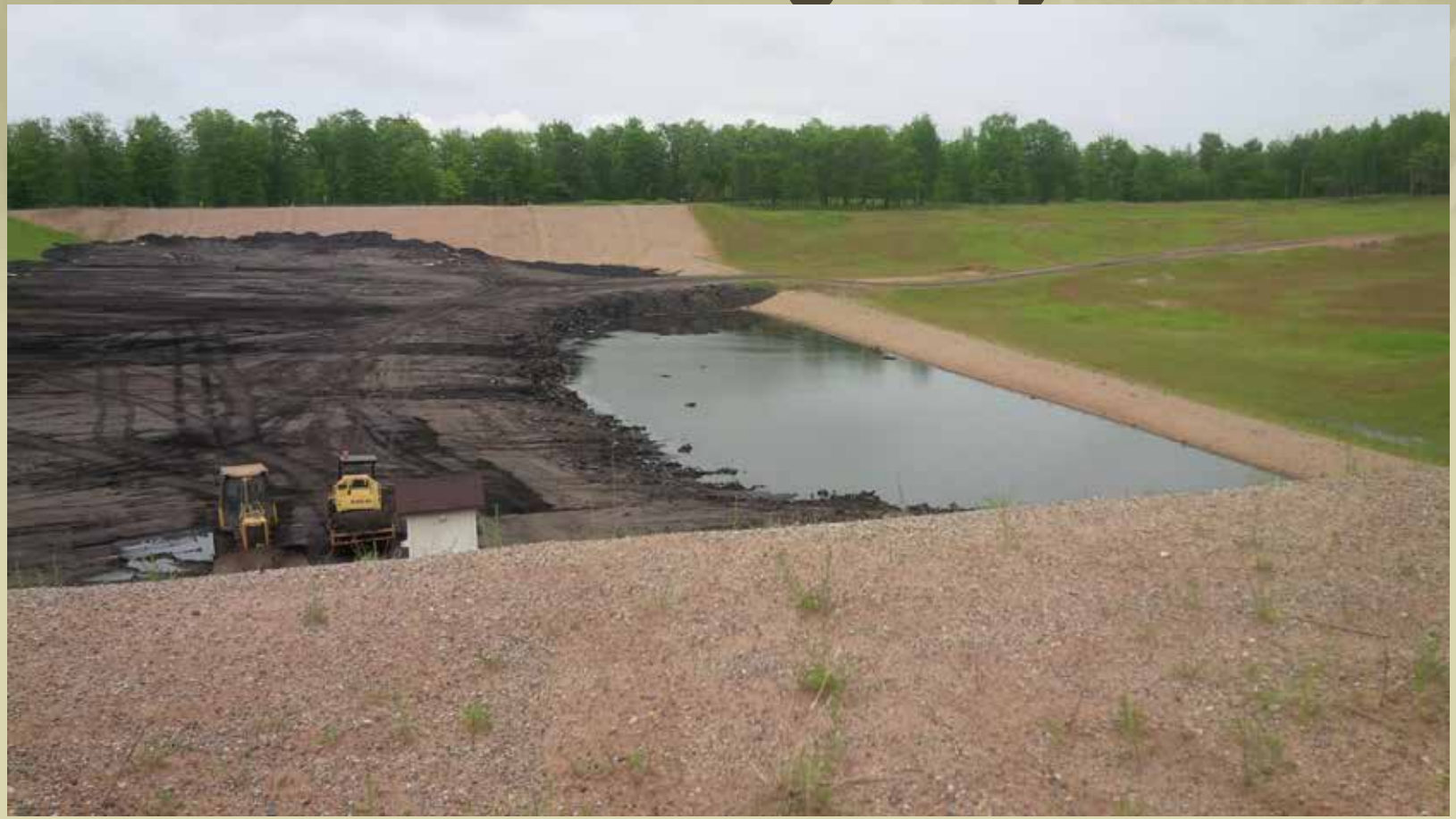
Effect – Sealing the surface of the drainage layer



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Challenges:

1. Restore conditions of the drainage layer.
2. Limit potential for future occurrences.

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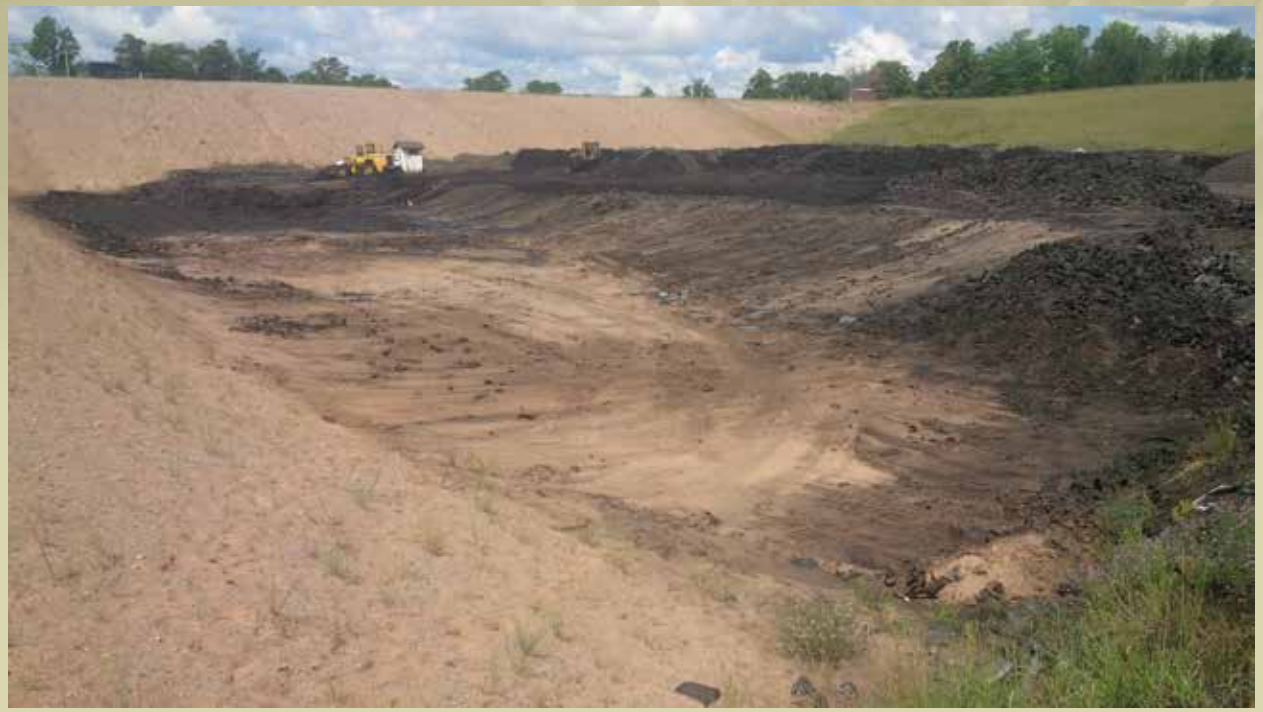
Restoration

1. Carefully remove accumulated waste from ponded area.
2. Clear sediment from the surface of the drainage blanket.
3. Verify conditions of the drainage blanket – thickness and grain size.



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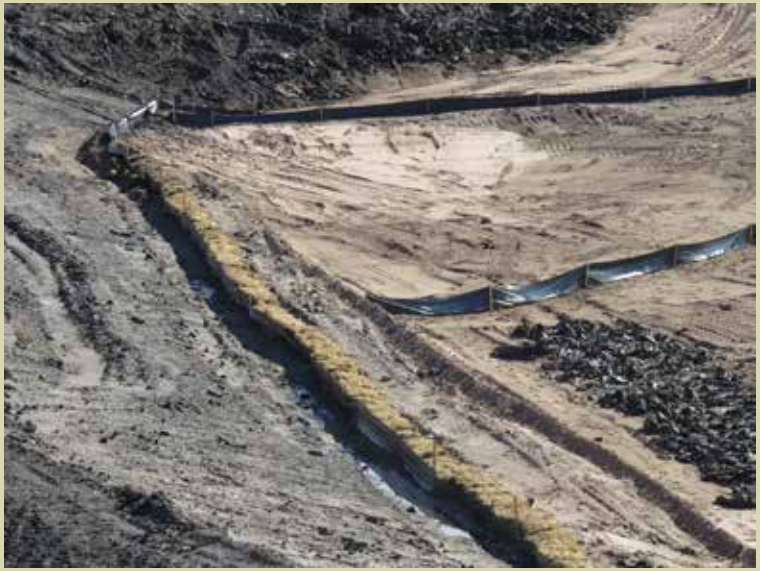
Modify Operations

- Install silt fence and straw bales.
- Create drainage berms to control sheet flow.



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Modify Operations

- Slope waste surface to perimeter.
- Routinely remove sediment.
- Maintain thickness of drainage blanket.

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Modify Operations

- **Use of tire shreds in base and along perimeter to improve drainage.**

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Lessons Learned

- Interior stormwater management important factor in site operations.
- Diligent and conscientious operators are critical to landfill success.
- Respond to conditions and characteristics of waste .

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