



Stormwater Management in Closed Landfills

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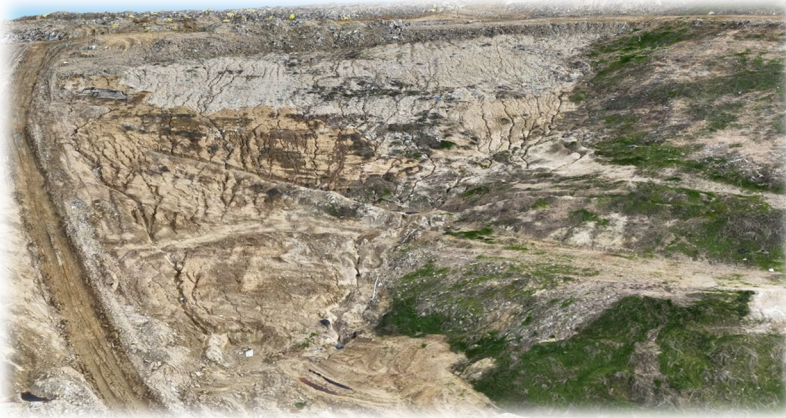
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Key Points

- Design Overview
- Poor Management Consequences
- Implementation Alternatives
- Alternative Comparison
- Example of Preparing for the end at the beginning (if time allows)

Poor Management Consequences

- Increased sideslope erosion
- Increase potential for cap failure
- Increased potential for waste erosion
- Increased potential for slope failure and landslides

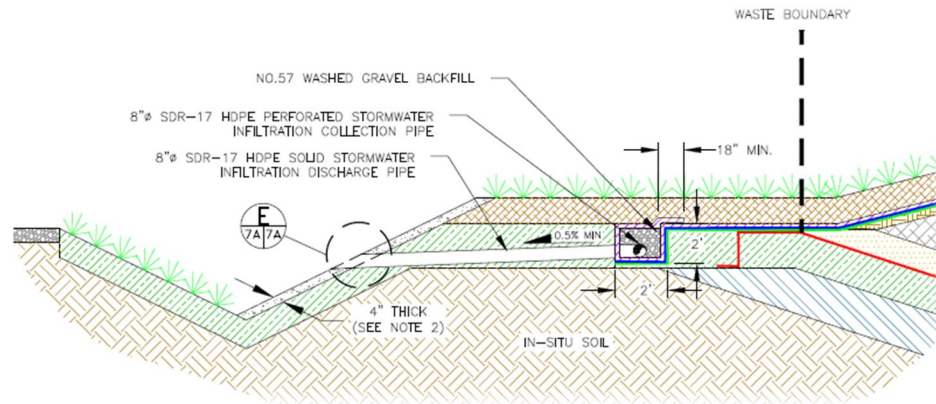
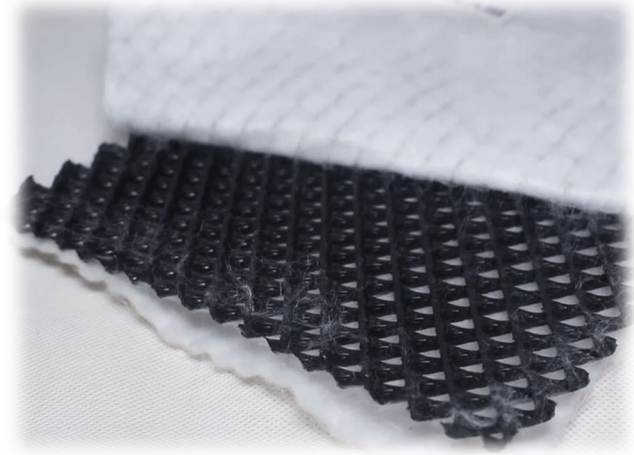
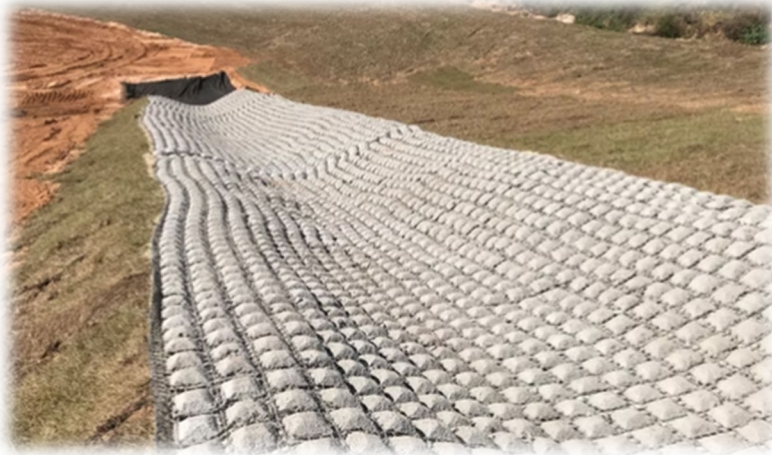




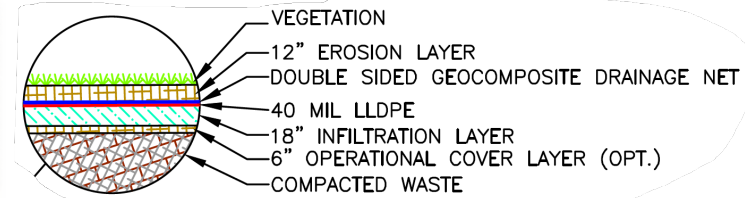
Stormwater Management System Design - Standard

- Series of diversion berms, letdowns, collection pipes, and drainage channels
 - Vegetative cover on landfill surface
 - Low permeability, high performance cap to prevent stormwater infiltration into waste
 - Diversion berms spaced approximately every 75 ft -100 ft horizontally with geocomposite drainage net underlain along sideslopes
 - Letdowns lined with articulated concrete matting
 - French drain to transfer runoff to letdowns / drainage channels
 - Drainage channels to convey runoff to site outfalls or sedimentation basins

Stormwater Management System Design - Standard



Standard Implementation





Stormwater Management System Design - Advanced

- Series of diversion berms, letdowns, collection pipes, and drainage channels
 - Artificial turf cover on landfill surface with sand ballasting
 - Terraced benches spaced approximately every 75 ft -100 ft horizontally with geosynthetic and soil liner to prevent seepage into waste
 - Underground and surface letdowns to transfer runoff to perimeter drainage channels
 - Drainage channels to convey runoff to site outfalls or sedimentation basins

Advanced Implementation





Standard vs. Advanced Management Techniques

Standard

- Meets regulatory requirements
- More cost-effective
- Common practice
- Shorter relative lifespan
- Higher maintenance and upkeep
- Relatively quick installation and implementation
- **\$150,000 - \$200,000 per acre**
 - With easily accessible, on-site soils

Advanced

- Meets regulatory requirements
- Less cost-effective
- Not common practice
- Increased service life
- Little maintenance and upkeep
- Slower installation and implementation
- **\$400,000 - \$500,000 per acre**
 - This alternative was cheaper due to the lack of suitable on-site soils



Industrial Landfills In MS



Industrial Landfills In MS



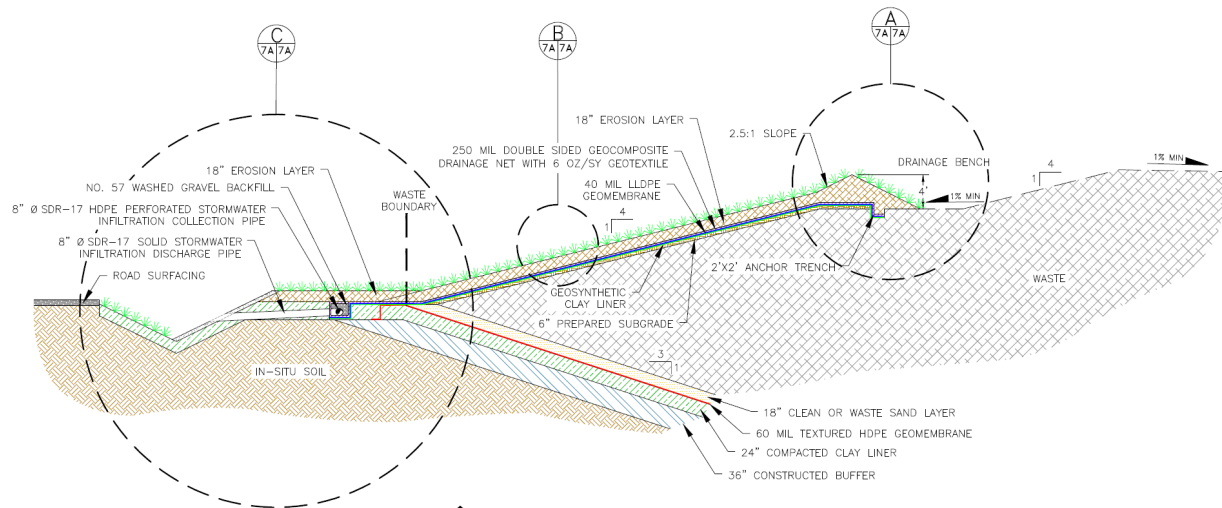
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