Anatomy of a Landfill

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**Building A Landfill**

Each landfill is designed individually to meet the needs of the community and environment at a selected site. A basic landfill is a pit surrounded by an earthen embankment. This embankment is bounded by a buffer area, where dirt may be removed to cover trash within the pit. Demolition waste, inert materials such as wood and concrete, may be buried in this buffer area.

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**Leachate (Arrows)**
Leachate is a by-product of landfills, formed by the decomposition of garbage mixed with rainwater. Leachate will percolate through the layers of a landfill, seeping into the groundwater.

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**Creating A Cell**
Each day trash is piled, compacted, and covered with a layer of dirt. The pocket of garbage is called a cell.

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**Old Cells**
By compacting and covering trash in one-day units, the formation of methane gas and leachate is reduced.

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**Buffer Area**

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**Soil Layer**
A 12- to 18-inch layer of soil separates the first cell and the granular drainage layer.

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**Granular Drainage Layer**

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**Textile Mat**
Leachate drains into pipes where it is pumped to holding ponds or tanks.

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**Groundwater**

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**Washed Rock**
Leachate percolates through this layer of washed gravel.

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**Holding Pond**
The leachate formed in a landfill may be pumped into a holding pond. The leachate is broken down through oxidation, then taken to a waste treatment facility.

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**Leachate Collection Pipe**
Leachate draining into pipes where it is pumped to holding ponds or tanks.

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**Compacted Clay**
Compacted clay must separate a landfill from groundwater. If soil does not meet density standards, bentonite may be added to the soil to create a dense layer of clay.

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**Liner Seams**
Sections of the plastic landfill liner are bonded together by heat welding. Seams are tested while the landfill is in use for strength and impermeability.

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**Geotextile Mat**
A nonwoven, fabric mat protects the plastic landfill liner from the gravel in the washed rock layer.

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**Plastic Liner**
This polyethylene liner is designed to prevent leachate from draining into the groundwater.

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**Landfill Walls**
The walls of a landfill may be lined with a geotextile nonwoven fabric mat and a polyethylene liner. The mat and liner are anchored inside the earthen embankment.

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**Site Analysis**
A study must be made of an area before it can be approved as a landfill site. This analysis examines the wildlife living in the area, as well as the condition of the underlying soil and bedrock. It must also be determined if the site has historical or archaeological value.

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**Original Embankment 1**

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**End Use**
When a landfill is declared full, it can be “capped” with a synthetic liner and soil layer. This area can then be converted into a park, golf course, ski hill or other open-space project.

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