

Development and Operational Methods to Optimize Landfill Airspace and Reduce Environmental Impacts

SWANA Northern Lights Chapter Conference

May 30 – June 1, 2011

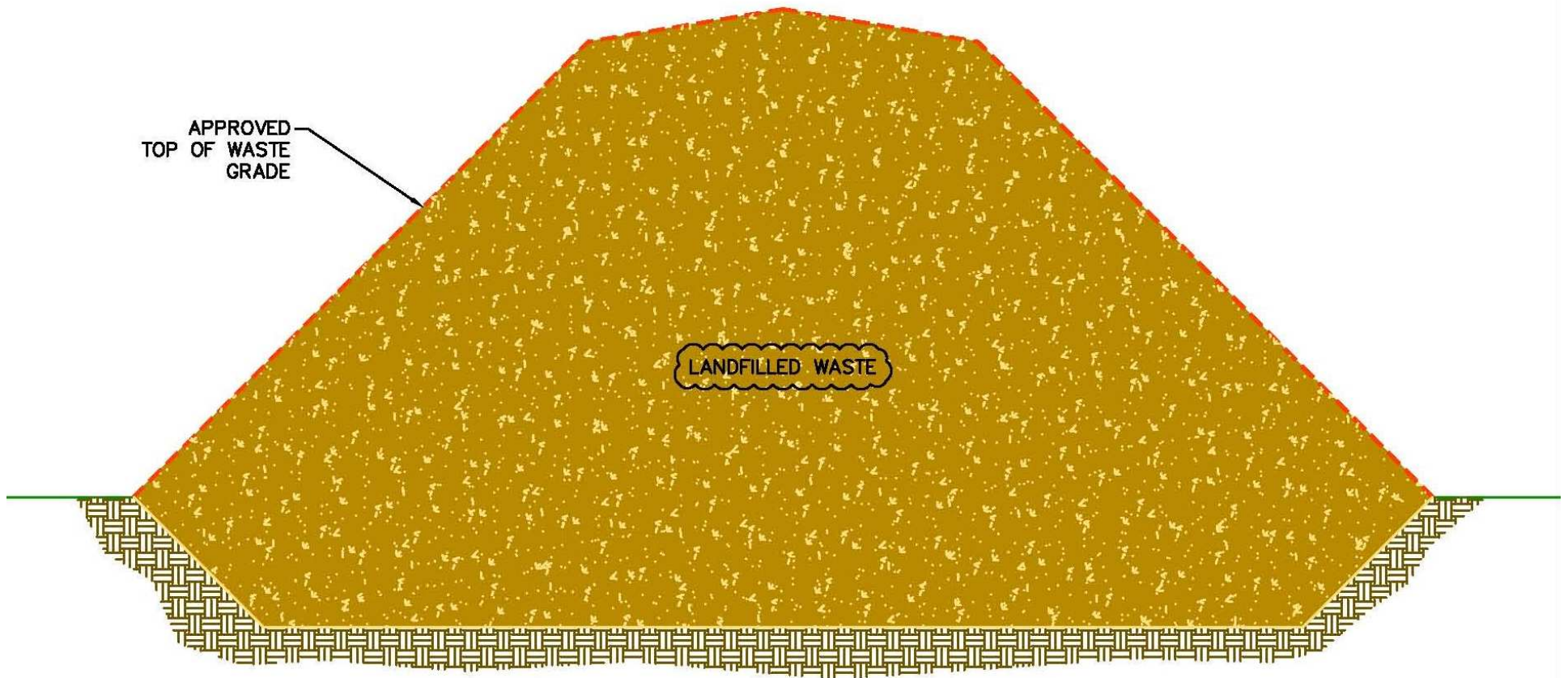
Saskatoon, Saskatchewan



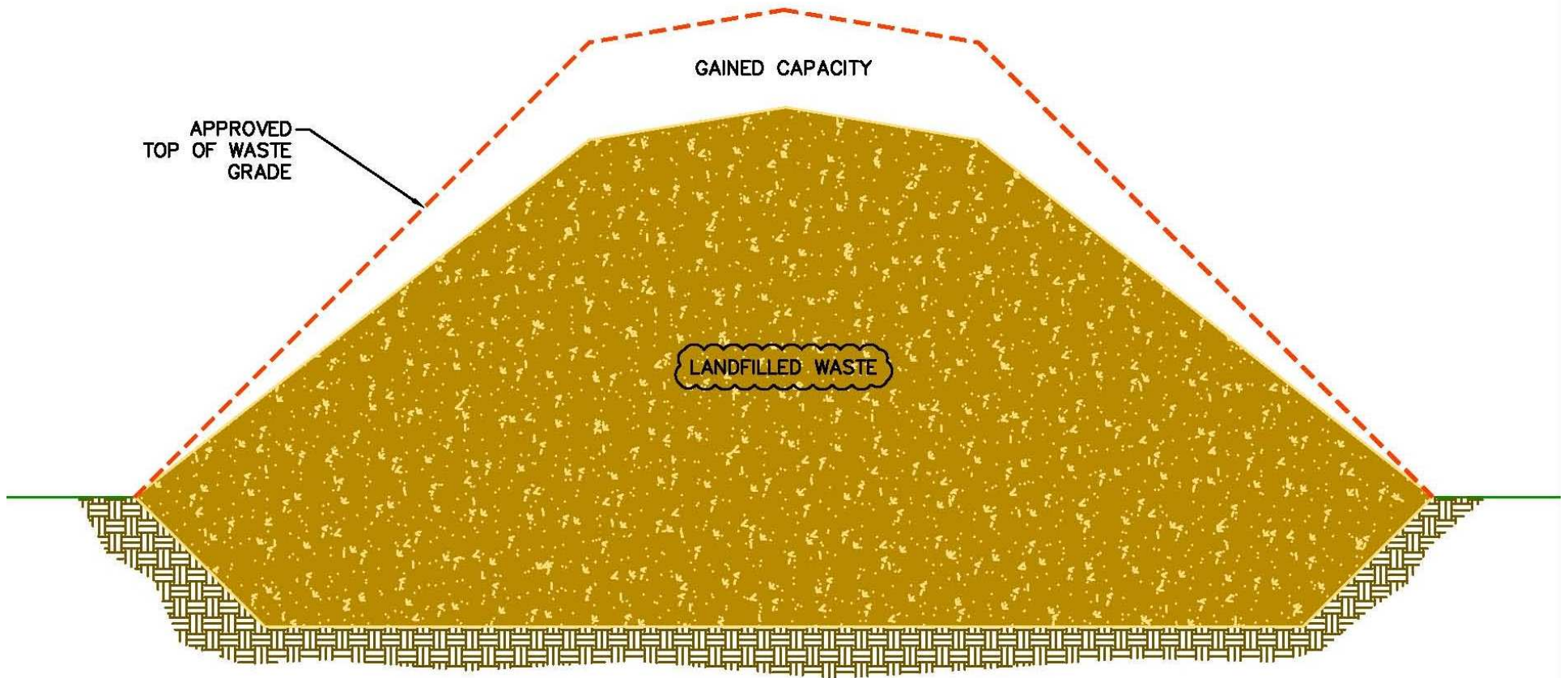
Landfill Types

- Engineered
 - containment (geomembrane – compacted clay)
 - attenuation
- Un-engineered
 - converted dump
- Hybrids

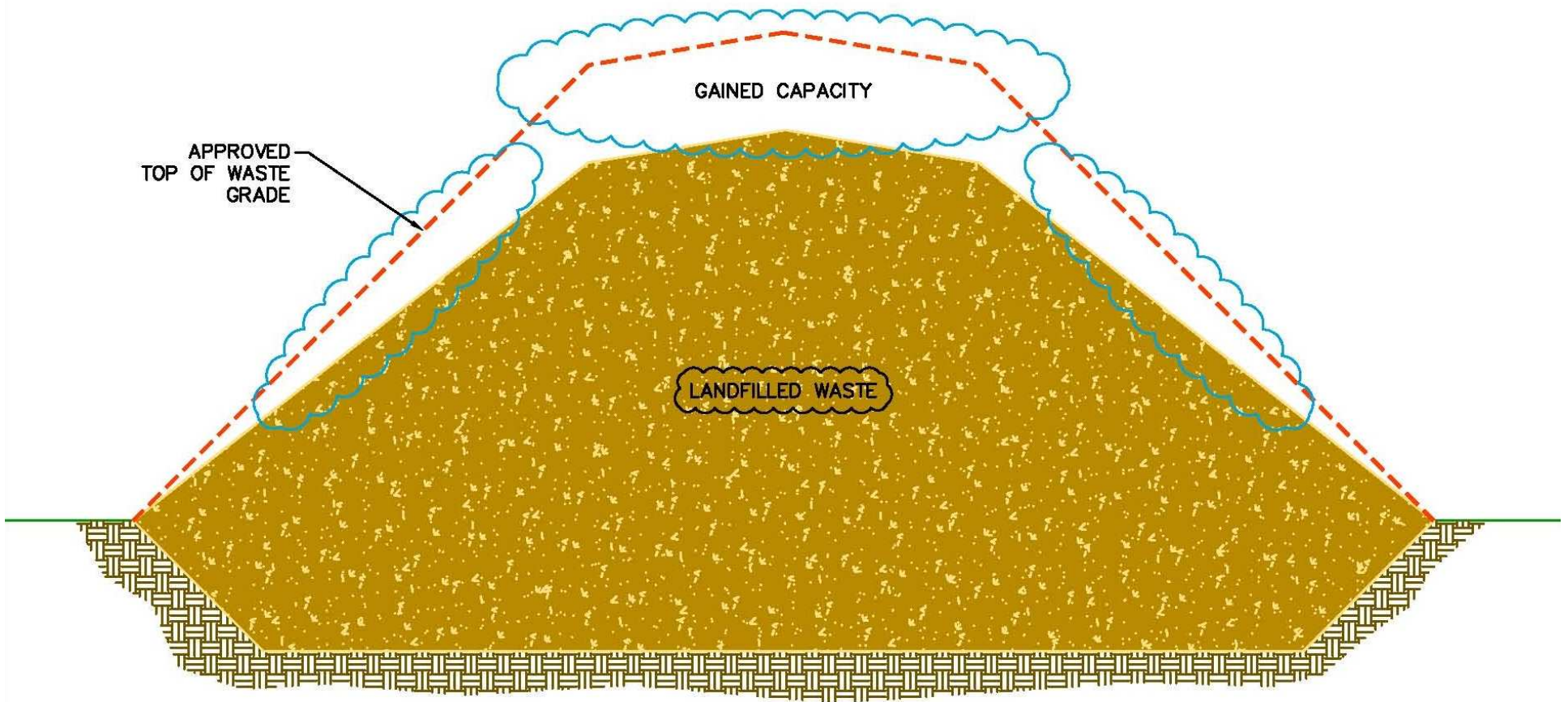
Air Space



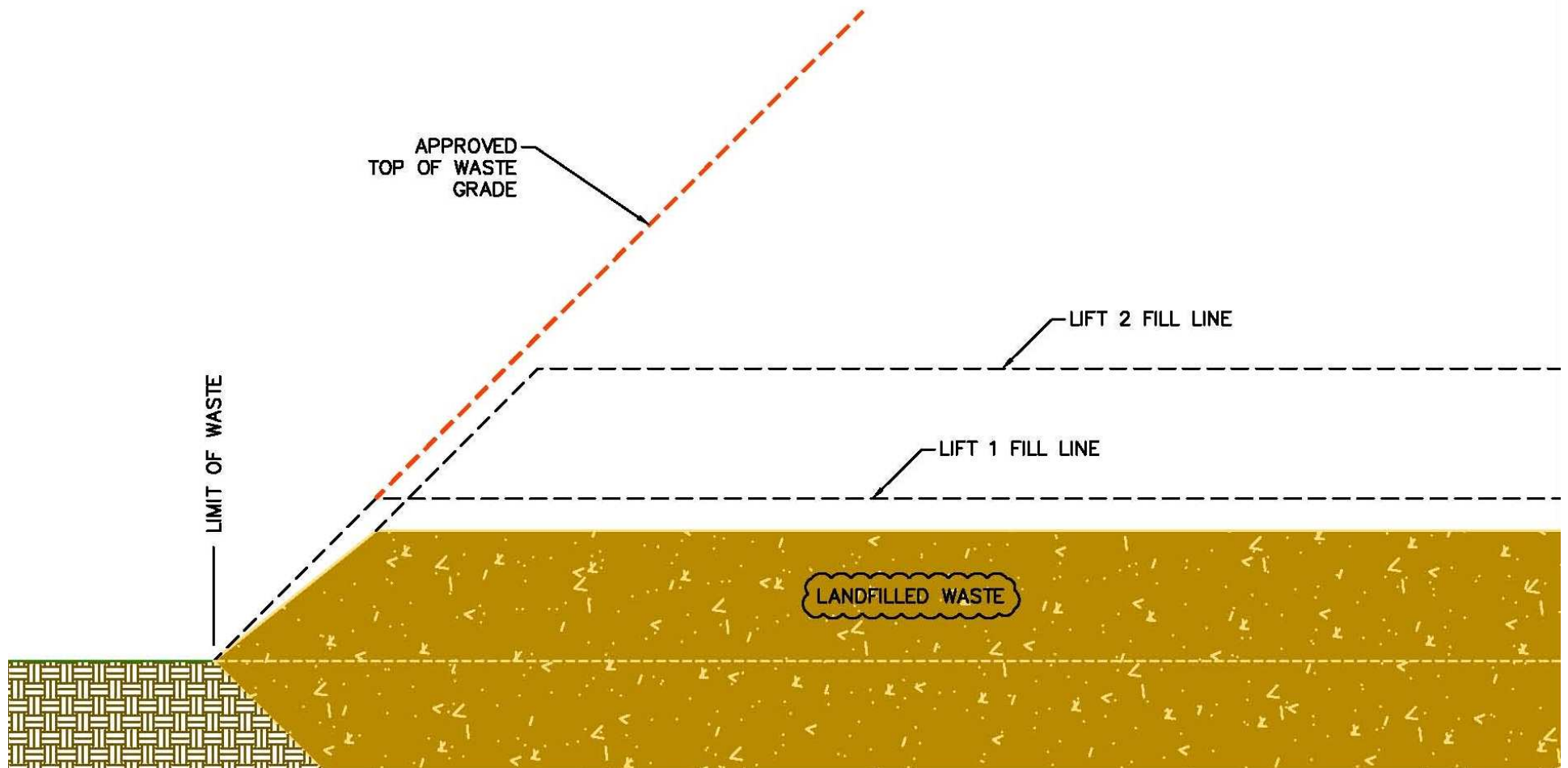
Air Space



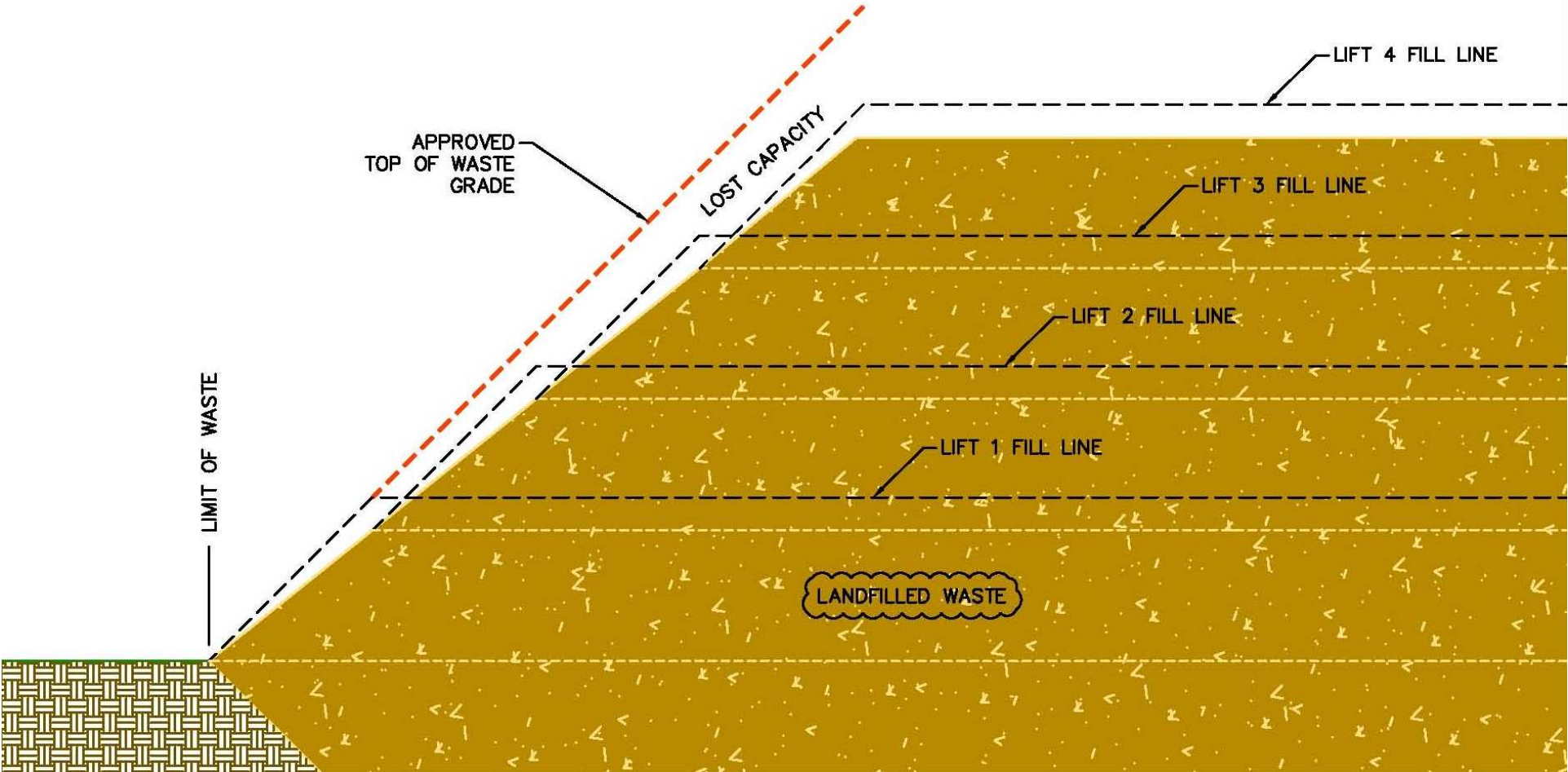
Air Space



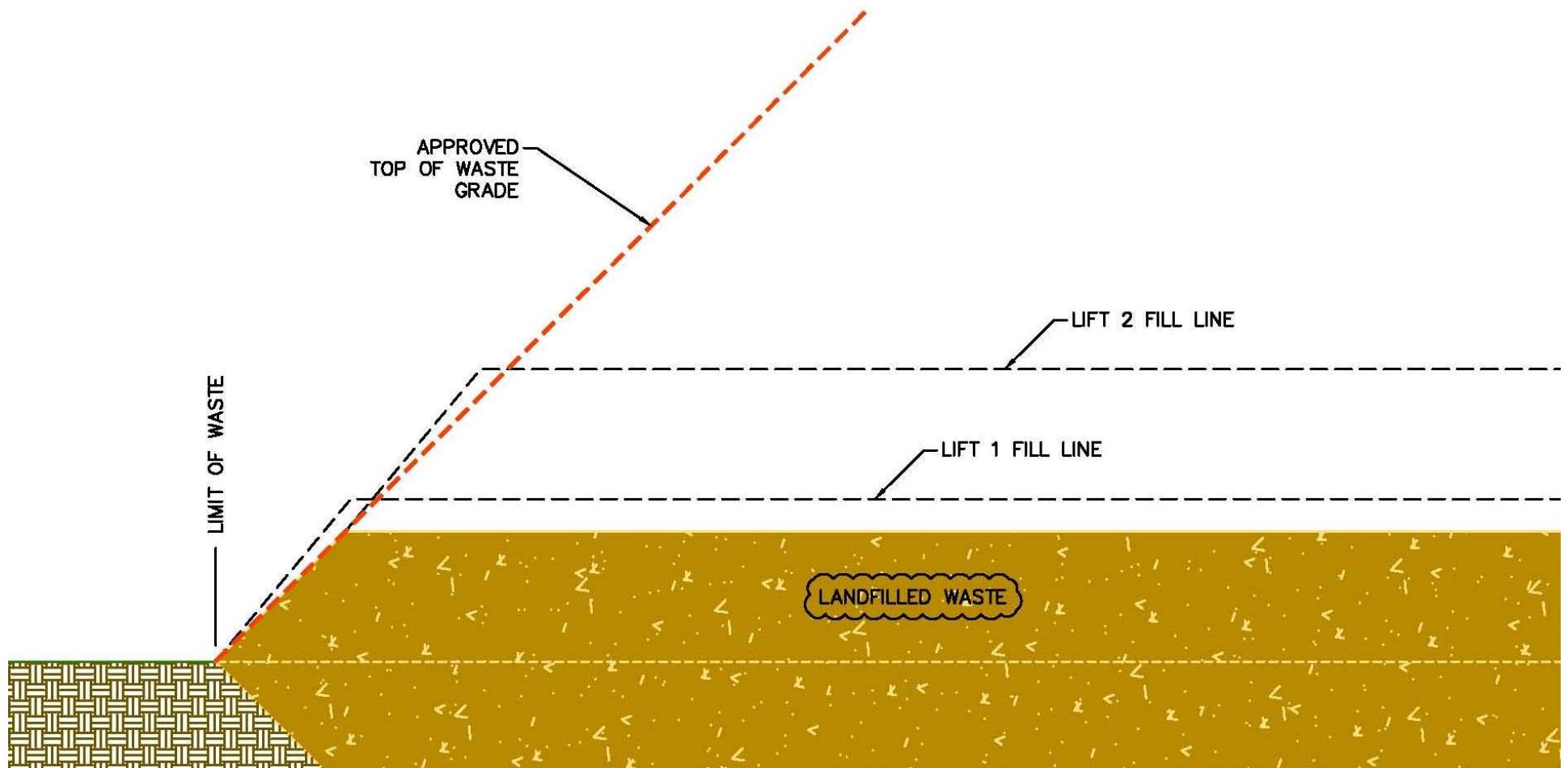
Side Slope Air Space



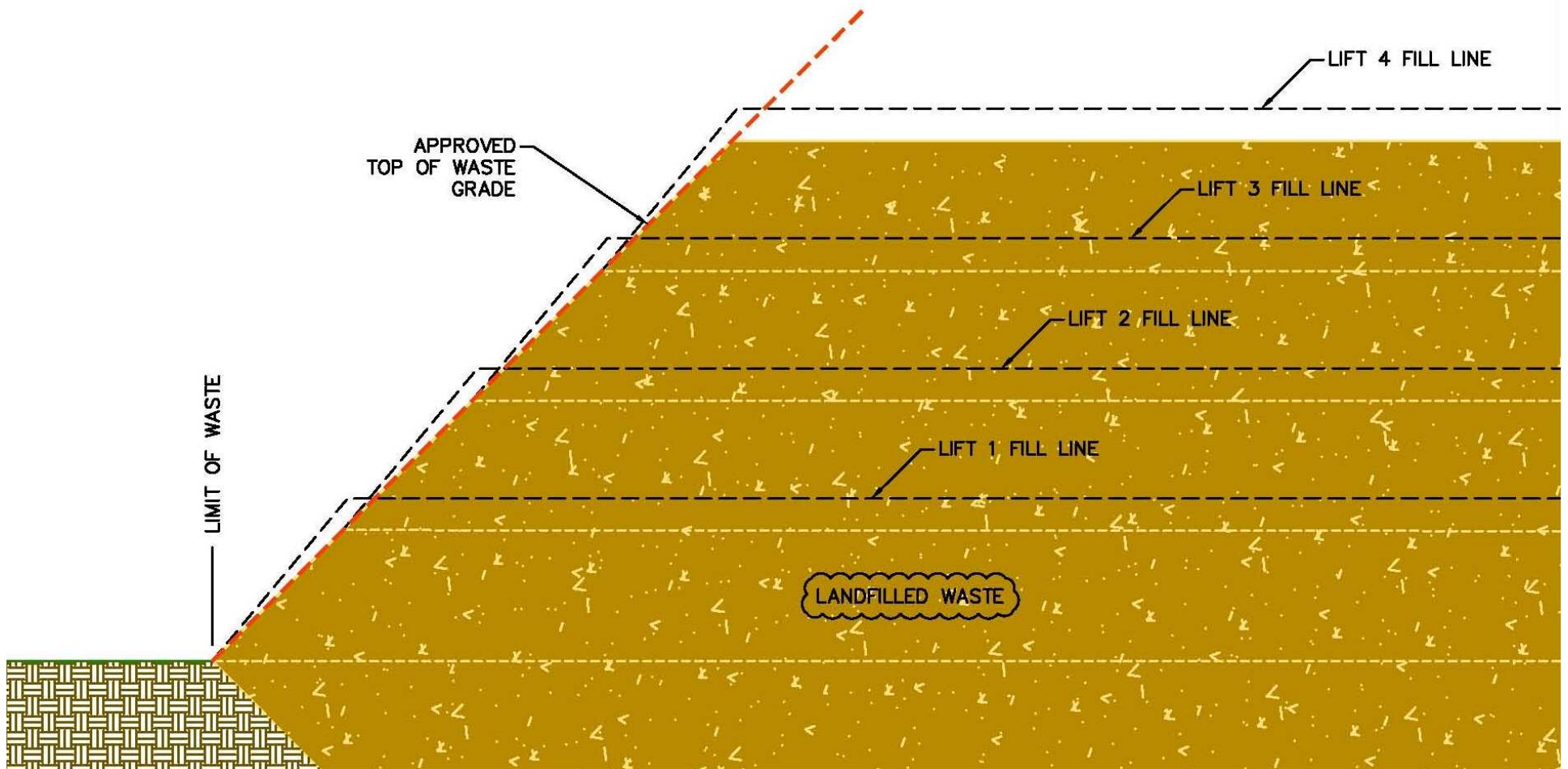
Side Slope Air Space



Side Slope Air Space



Side Slope Air Space



Reduce Environmental Impacts

Reduce Environmental Impacts

Reduce infiltration of surface water,

Reduce leachate production

Reduce Environmental Impacts

- Reduce the size of cells
- Reduce the size of the working face (active area)

Reduce Environmental Impacts

- annual precipitation 300 to 450mm (12 to 18in)
- cell – 450mm per square metre = 450 litres
- working face – 300mm vs. 150mm

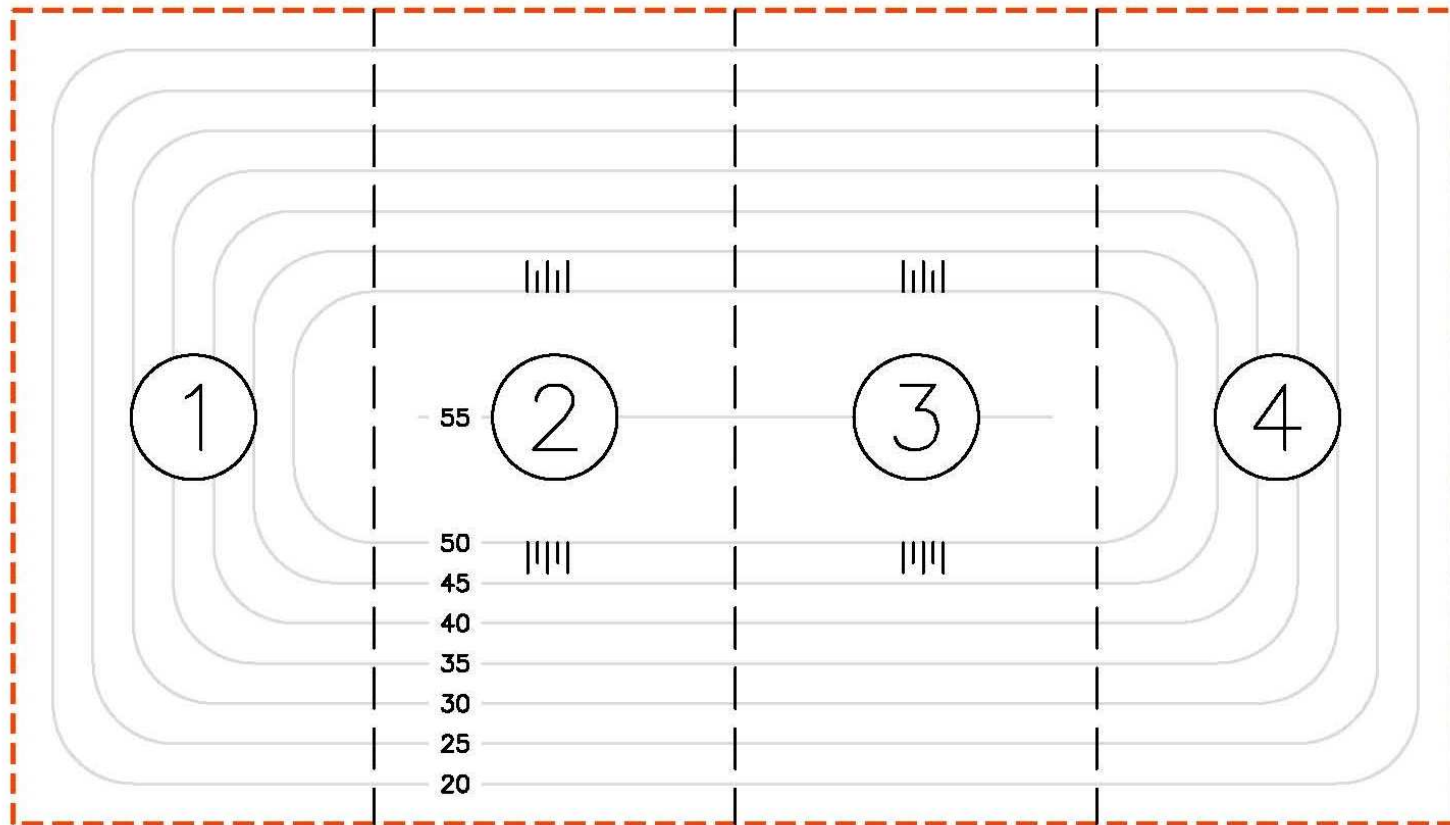
Reduce Environmental Impacts

- Reduce soil usage
- Increase operational efficiency
- Reduce fuel usage
- Reduce equipment wear
- Progressive closure

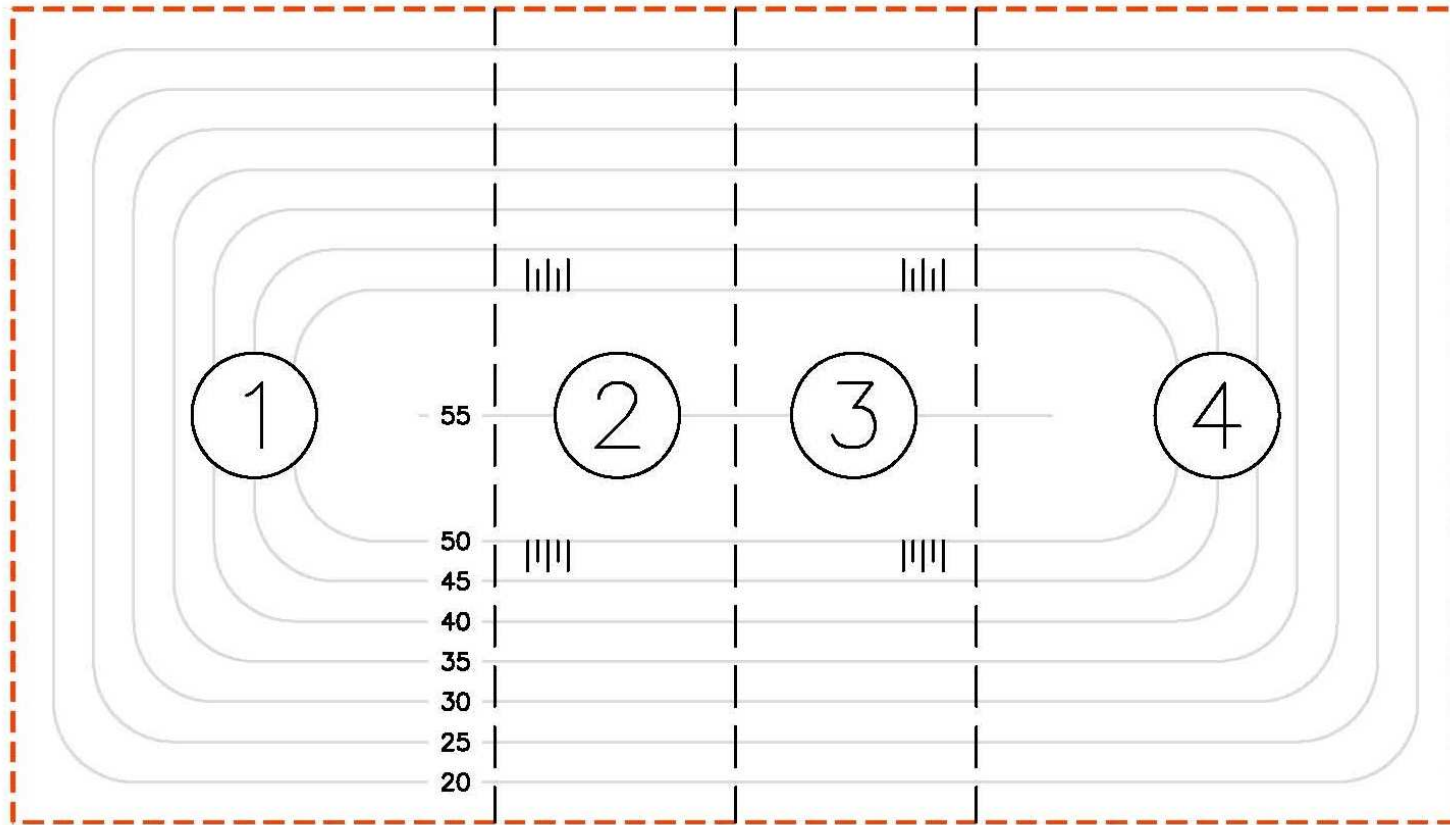
Cell Size

- Balance of capacity and management
- Size by volume (airspace) not area
- Protect cell base
- Bigger cell → more leachate / surface water
- Segregate large cells with berms or rain flaps

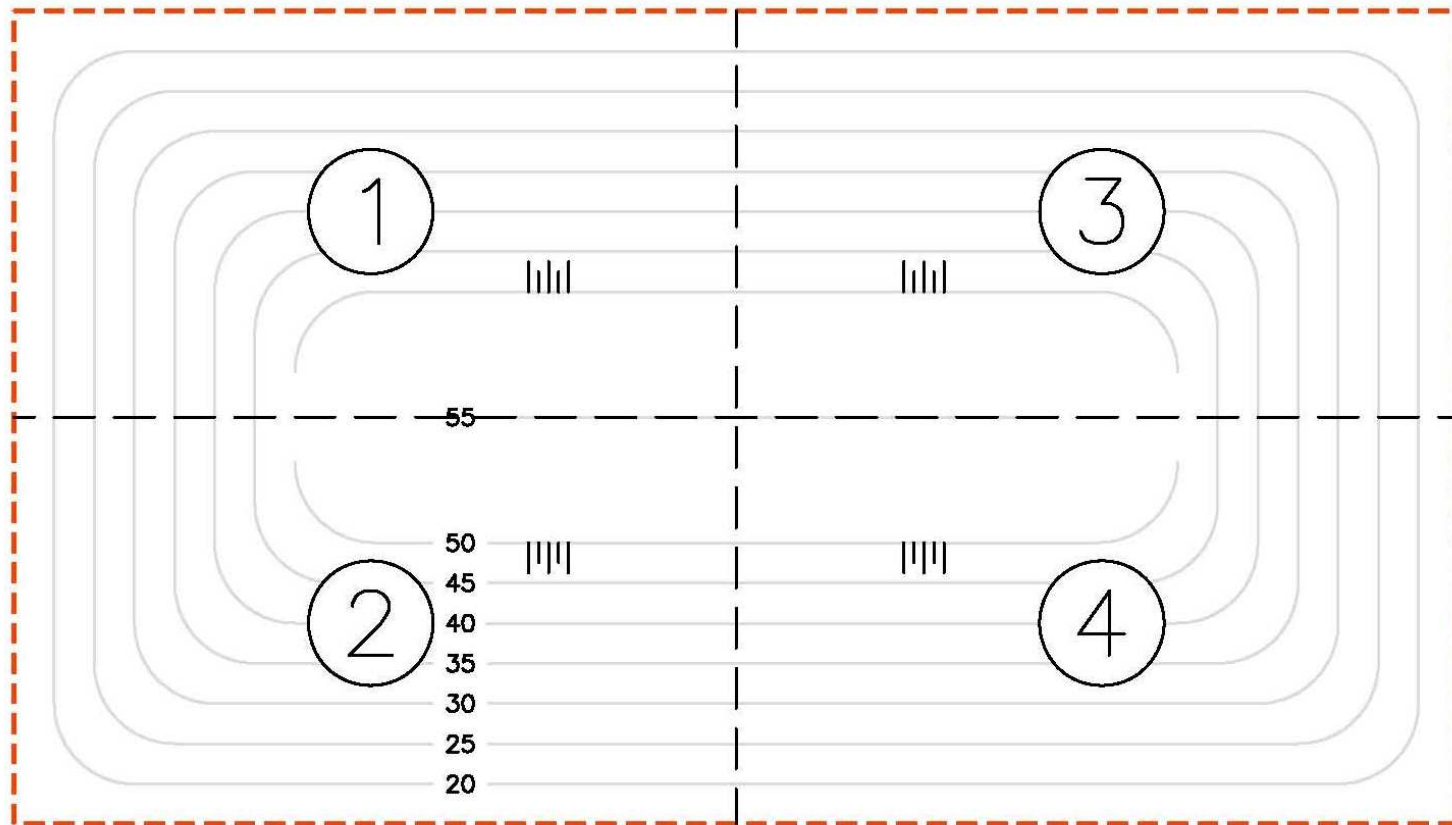
Cells



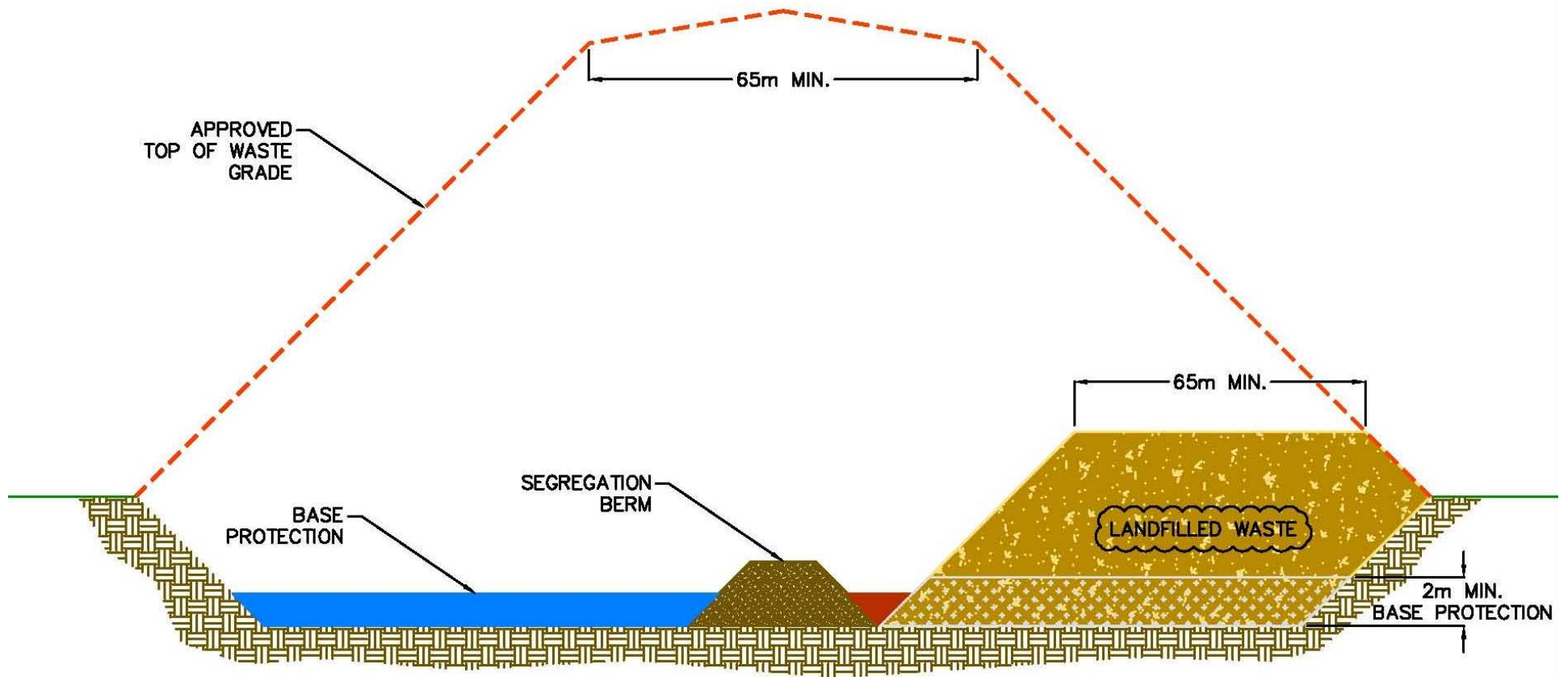
Cells



Cells



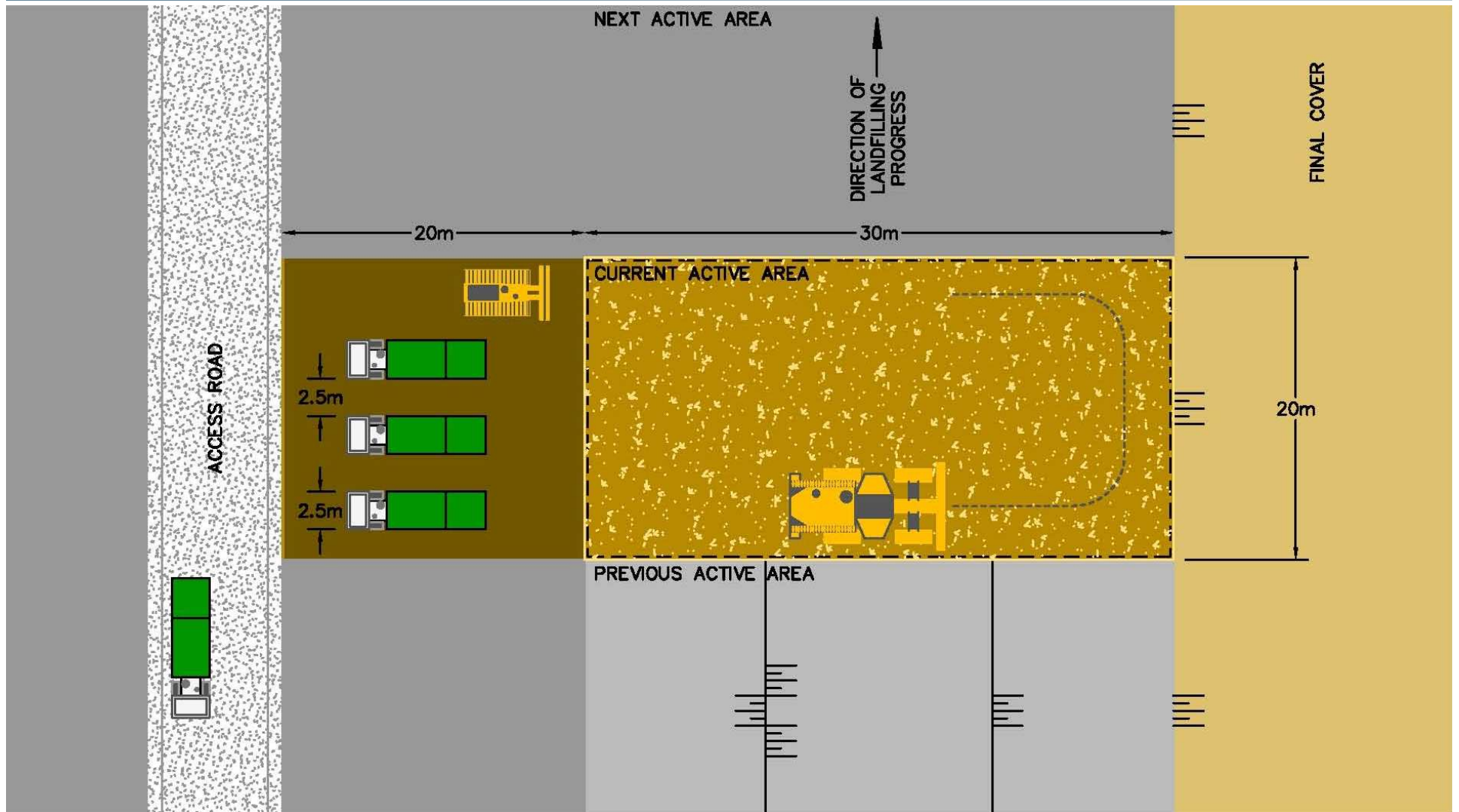
Cells



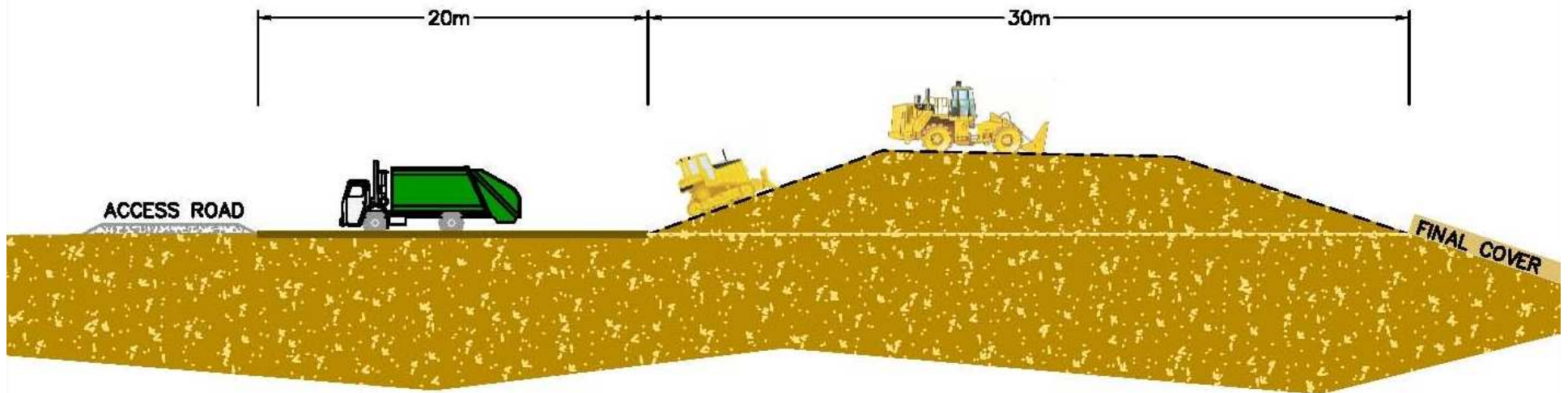
Working Face

- Size criteria:
 - traffic
 - control access
 - accommodate equipment used

Working Face



Working Face



Questions