

LAWTIG Seminar : What it takes to build a landfill

Landfill Design, Procurement

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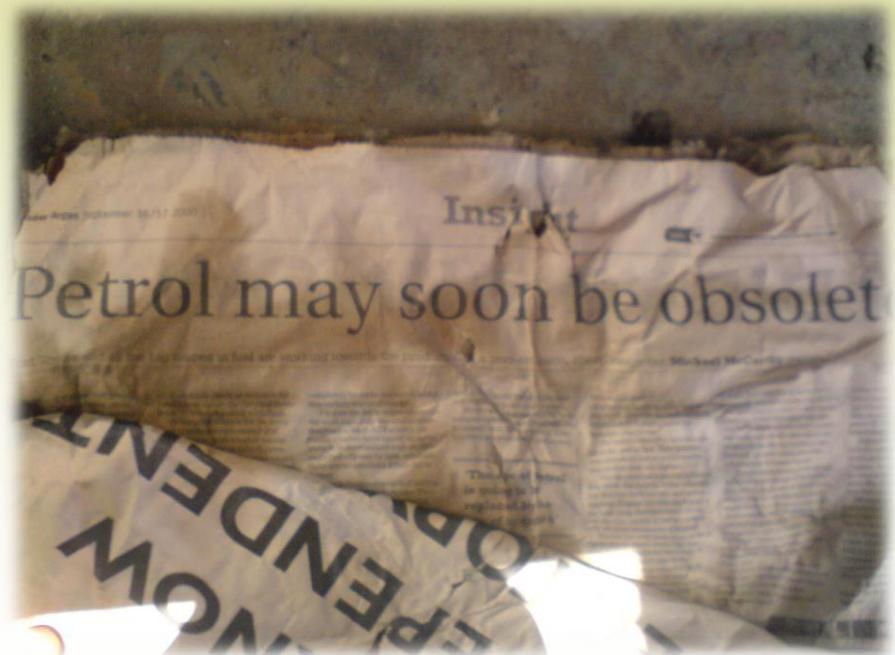


- Definition of waste
- Why still got landfills? (MSA)
- NEMA, NEM:WA & NWMS
- Changes in legislation – no organics/ no liquids



- Procurement... getting it built!

- DoL
- EMPr
- Local content
- Timeframe to develop *from design to ready*





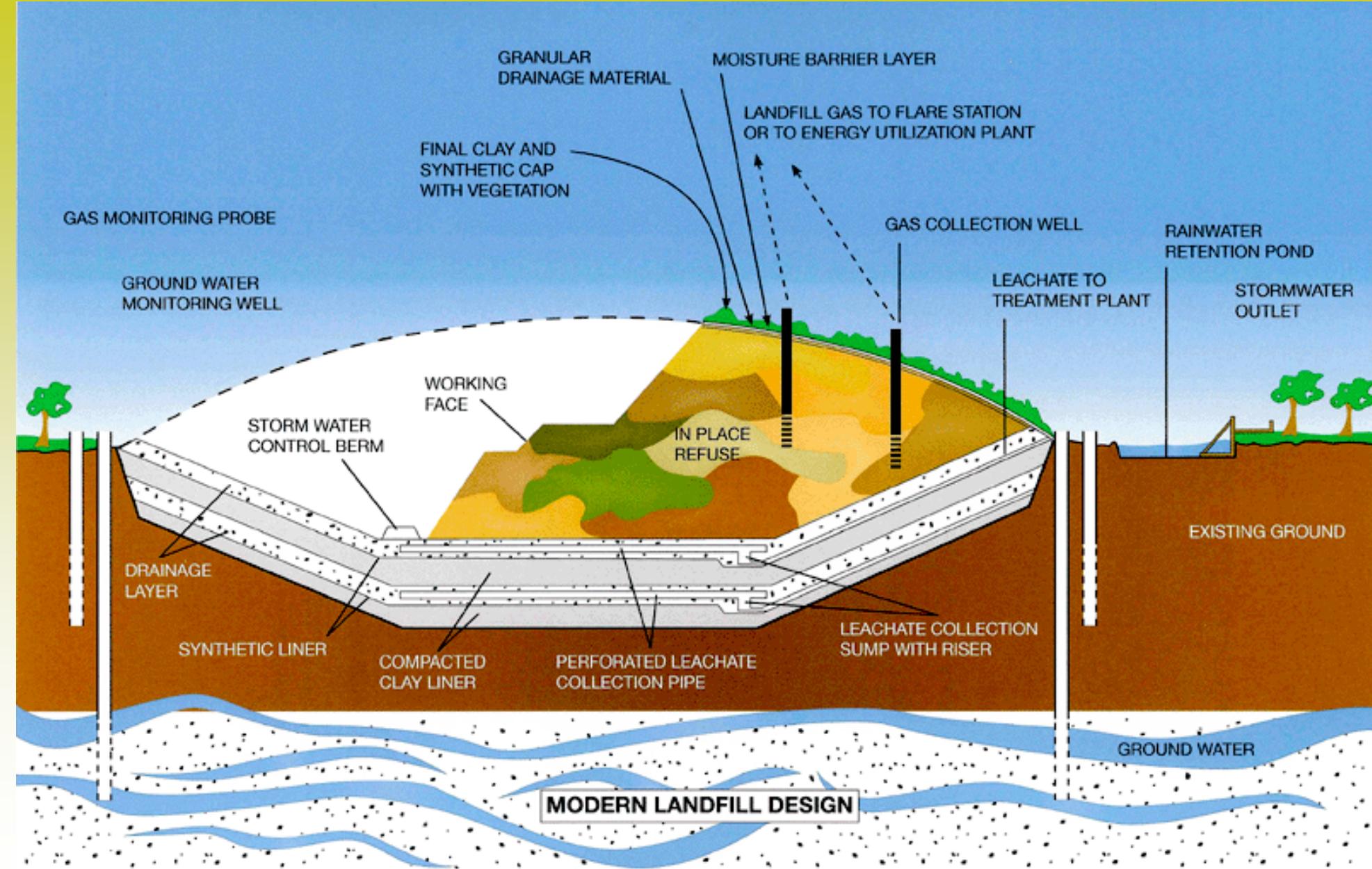
● PROTECTING “SWAGE”

- Social (*aesthetics/visual, health, safety, noise, etc.*)
- Water (*surface/ sub-surface*)
- Air
- Geology
- Ecology

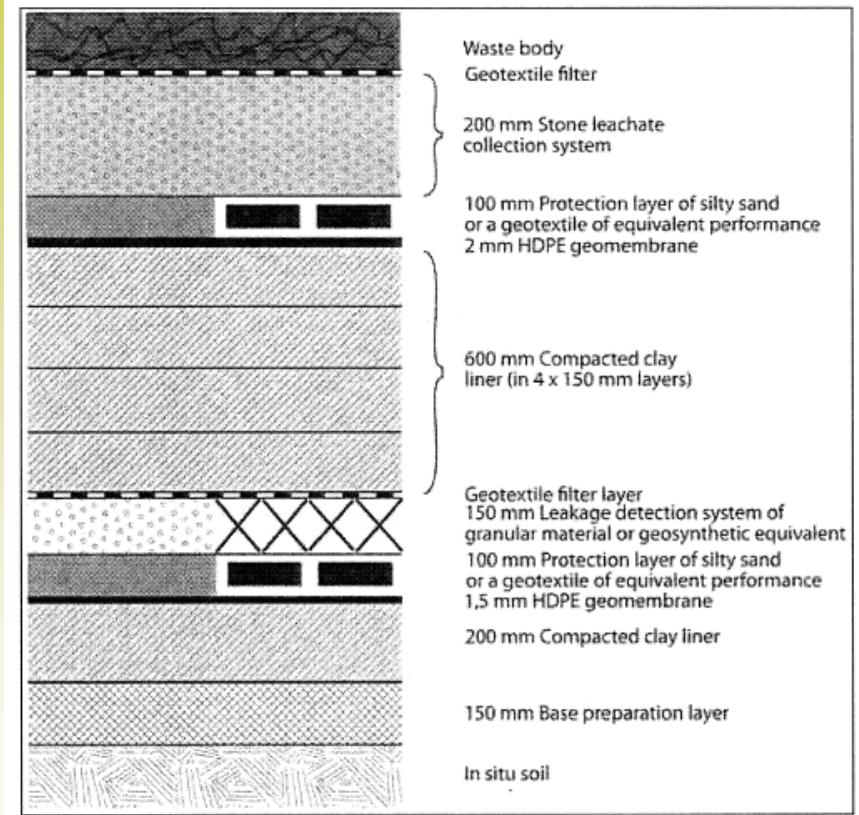
● Some BIG Design items:

- Type of waste & consistency (*character and toxicity – GNR634, SANS10234*)
- Operating methodology/ monitoring
- Leachate management (*head & biological clogging*)
- Chemical stability of materials
- Costs/ Affordability/ Alternatives
- Settlement
- Temperature
- Maximise airspace/ Cell phases
- Stormwater (*during construction and landfill operations*)

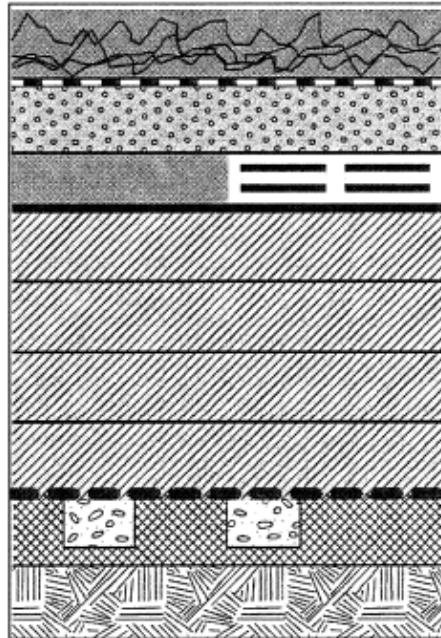




- G.N. R 636 “Norms and Standards”
- Now Only Four Classes of Landfill:
 - “Class A” (Formerly H:H and H:h) – “Type 1” Waste (‘Hazardous Waste’)
 - “Class B” (Formerly G:L:B+) – “Type 2” Waste (Domestic waste, business waste, non-haz, garden)
 - “Class C” (Formerly G:L:B+) – “Type 3” Waste (Post-Consumer Packaging, Tyres)
 - “Class D” (Formerly G:S:B-) – “Type 4” Waste (Inert Waste e.g. Builders Rubble)

(a) Class A Landfill:

(b) Class B Landfill:



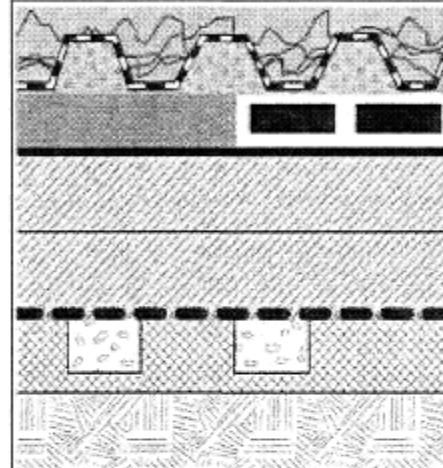
Waste body
Geotextile
150 mm Stone leachate collection system
100 mm Protection layer of silty sand or a Geotextile of equivalent performance
1.5 mm HDPE Geomembrane

600 mm Compacted clay liner (in 4 x 150 mm layers)

Under drainage and monitoring system and 150 mm Base preparation layer

In situ soil

(c) Class C Landfill:

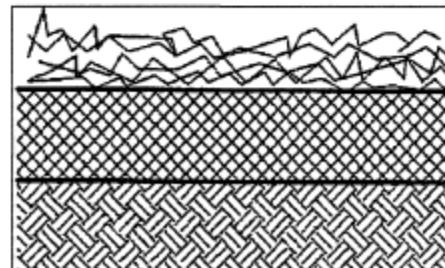


Waste body
300 mm thick finger drain of geotextile covered aggregate
100 mm Protection layer of silty sand or a geotextile of equivalent performance
1.5 mm thick HDPE geomembrane
300 mm clay liner (of 2 X 150 mm thick layers)

Under drainage and monitoring system in base preparation layer

In situ soil

(d) Class D Landfill:



Waste body

150mm Base preparation layer

In situ soil

- CAPEX Cost of landfills... R500/m³?

- Site clearing
- Bulk earthworks/ sub-grade prep & enhancement
- Basal lining system
- Leachate collection external to cell
- Leachate recirc/treatment/transfer system
- Contaminated stormwater
- Gas management/ monitoring
- Groundwater management/ monitoring
- Clean stormwater diversion
- Progressive capping
- Ancillary works:
 - Weighbridge/ data recording
 - Access roads
 - Administration facilities & amenities
 - Security measures



- What is not accounted for environmental impact...
- So now we hear from Peter and Deon on lining systems and barrier systems (mineral and synthetics).

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THANK YOU

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