



GOLDER

Conversion of a power station ash pond into a landfill for asbestos containing material

HAZELWOOD POWER STATION

10 June 2021



AGENDA

1 – Introduction

2 – Hazelwood Mine and Power Station

3 – HAP1 ash landfill

4 – Conversion to asbestos landfill

5 – Landfill operation

Introduction

LATROBE VALLEY MINES



Hazelwood Mine

HISTORY AND BACKGROUND

- The Hazelwood Mine has been in operation since the late 1950's and is currently owned by Engie .
- Mining of the M1 coal seam began to the south of the Morwell Township and continued in a westerly direction.
- The mine is about 5 km in length, 16 km around its perimeter and is up to 120 m in depth. The mine floor is at about RL – 60 m.
- Mining of coal ceased in March 2017 and the Mine is currently in a closure phase.



Hazelwood Power Station

REMIEDIATION AREAS



- Built between 1964 to 1971, closed in 2017
- Asbestos containing material (ACM), incl. sheeting, pipework, concrete from stacks, etc
- ACM to be removed prior to demolition (except stacks)
- Stacks demolished via blasting
- Demolition work subcontracted out by ENGIE
- HAP1 Ash dam in background

Hazelwood Mine – Eastern Overburden Dump

REMEDIATION AREAS



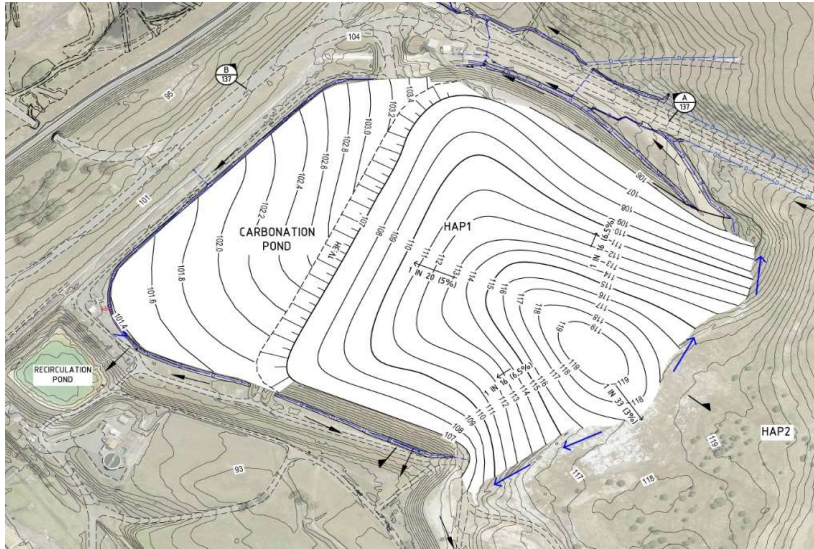
- Overburden from mine operation
- Ash dams and landfills
- Process water ponds
- Stormwater, Erosion and sediment control
- Approx. 4 km²

Hazelwood Ash Pond 1 - HAP1



HAP1 Landfill

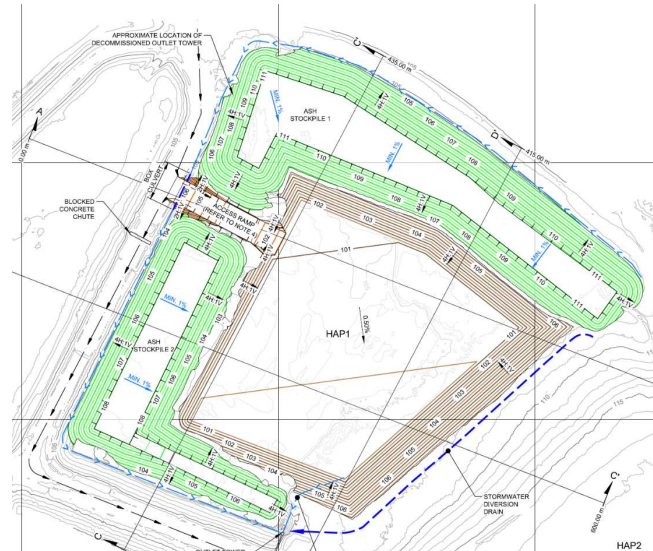
APPROVED AIRSPACE



Approved landform

Minimum of 5% and maximum of 20% fall

ENGIE obtained approval for over
550,000 m³ of Cat C (ACM) landfill airspace



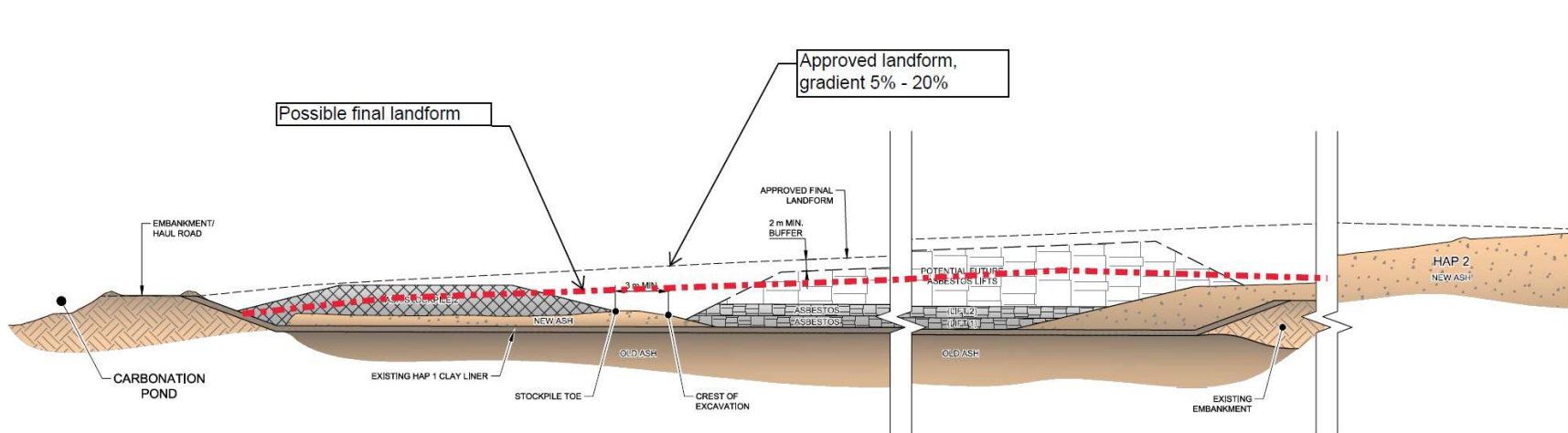
Excavate ash to create landfilling space
in the centre of the facility

Reuse of existing clay liner

Gradually fill with ACM

HAP1

FILLING CONSTRAINTS



Filling constraints (guidelines):

- 2 m buffer between top of asbestos and top of cap
- Daily and intermediate cover (approved spray-on cover used for daily cover)
- Maximum lift height 1.5 m ACM plus 0.5 m cover/bridging layer
- Ash stockpiles partially excavated and placed over asbestos waste as buffer
- Uncertain asbestos volume (design needs to be flexible)

HAP1

BEFORE AND AFTER



HAP1

ASBESTOS PLACEMENT



Placement:

- First ACM placed in bags – note voids around pallets
- First daily cover

HAP1

ENGINEERING CHALLENGES



Challenges:

- Access for heavy machinery on clay liner and weak asbestos
- Asbestos waste highly heterogeneous: sheets, concrete rubble and bagged soft waste
- Bridging layer (soil, geotextile, geogrid, rubble)
- Ash properties



HAP1

REGULATORY REQUIREMENTS

Before compacting, cover with 300 mm soil or 1 m waste (ash)

Daily soil cover for asbestos (ENGIE obtained approval for an alternative daily cover comprising Acryrubber, which was trialled but not used)

Asbestos to be covered with at least 2 m inclusive of cap

Leachate management: leachate captured by existing leachate extraction system (discharged via SWOP)

Stormwater diverted around the tipping area

When is a 'dam' and 'dam'? Consideration of ANCOLD guidelines.

HAP1

REGULATORY REQUIREMENTS

Environment Protection (Industrial Waste Resource)
Regulations 2009 for transport and disposal of waste

Landfill BPEM

EPA Publication IWRG611.2, Asbestos transport and
disposal

EPA Publication 1208, Best Practice Guidelines for
Landfills Accepting Category C Prescribed Industrial Waste

EPA Licence

HAP1

OPERATIONAL SPECIFICATION

- Operational Specification provided to the contractor for operation the landfill and asbestos placement
- Delta are demolition and landfill operations contractor
- Summarises regulatory requirements (environmental team)
- Contractor responsible for maintenance of the existing clay liner
- Outlines technical procedures and required outcomes for asbestos placement
- It is a requirement for the contractor to place waste in a way that the next lift of asbestos waste can be accessed safely
- Quality control procedures and inspection schedule
- Environmental monitoring by ENGIE

Conclusion

ANY QUESTIONS?

