



CBH Resources Limited



RASP MINE

Community Presentation

December 2016

Rasp Mine

Project Approval MOD4 Review

Wednesday 21 December 2016

- 1. Overview of MOD4**
- 2. Concrete Batching Plant**
- 3. Blackwood Pit TSF
Extension**
- 4. Noise Modeling, Results**
- 5. Dust Modeling, Preliminary
Results**
- 6. Potential Environmental
Risks**
- 7. Proposed Management of
Risks**

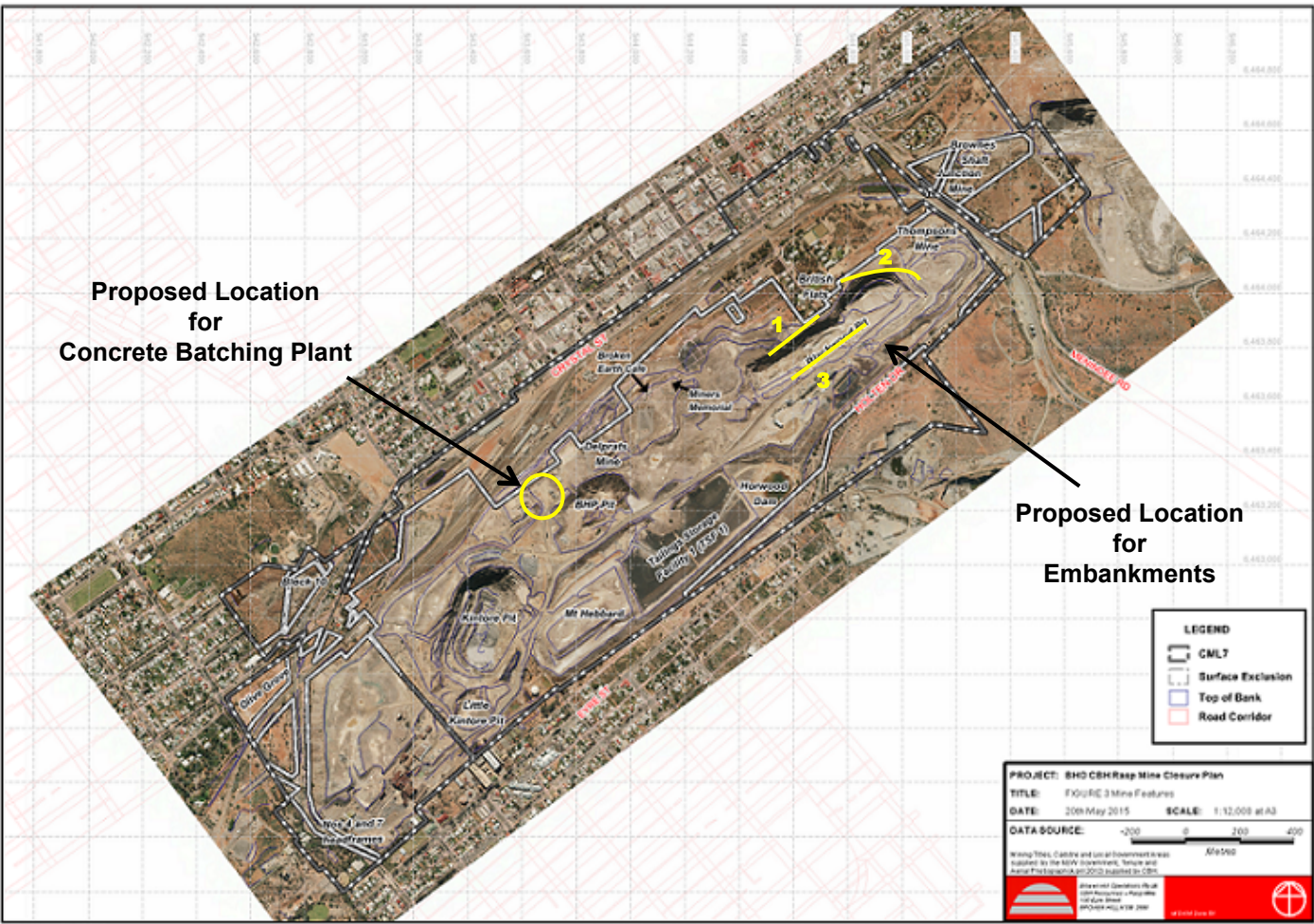
Project Approval MODIFICATION 4 Rob Williamson

Project Approval MODIFICATION 4

The Rasp Mine proposes to submit an application to the Department of Planning & Environment to:-

1. Install a Concrete Batching Plant for the manufacture of fibrecrete and concrete for use at the Mine site.
2. Extend the life of the Blackwood Pit Tailings Storage Facility by installing embankments and a retaining wall at low points along its perimeter, extending the life of operations from 2019 to 2021.

Proposed Locations



Concrete Batching Plant

Rob Williamson

CBP – Surrounding Environment



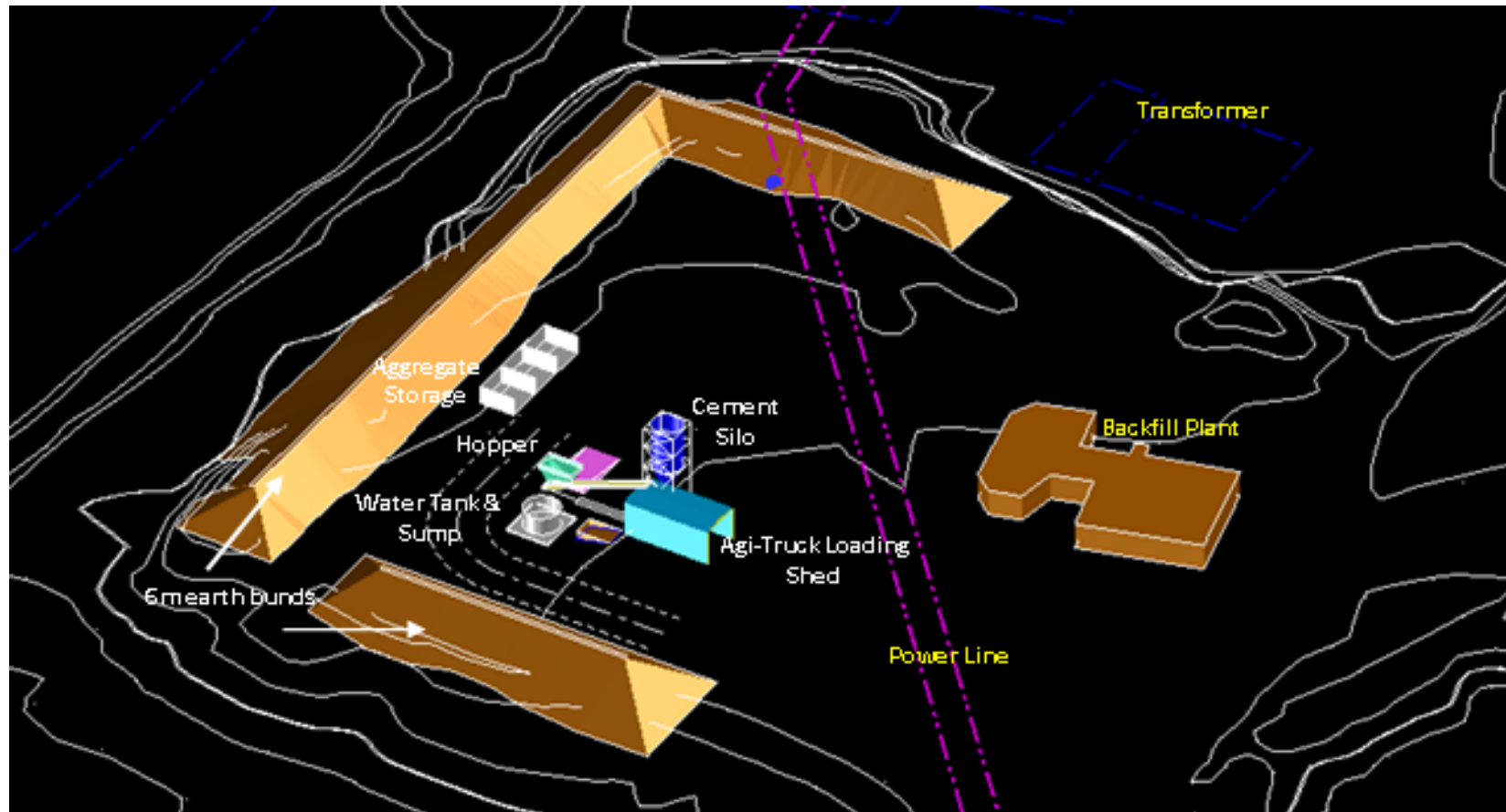
CBP – Use & Inputs During Operations

- Fibrecrete/shotcrete is used for ground support of underground excavations.
- Raw materials used to make fibrecrete/shotcrete are:
 - Coarse & fine aggregate
 - Water
 - Cement
 - Fibres (steel or poly)
 - Admixtures e.g. stabiliser, accelerator
- Mobile equipment used during operation:
 - Front end loader
 - Agitator truck

CBP - Typical Concrete Batching Plant



CBP – Proposed Layout



CBP - Construction

Construction Period – 5 weeks:

- Mobile equipment required; Excavator, grader, dump truck, water truck and agi-truck. Steps:
 1. Bund construction 470 dump truck return trips
 2. Manufacture of batch plant components by off-site supplier
 3. Earthworks and civil works for foundations
 4. Delivery and installation of the plant on site
- Construction activities will occur 7am to 6pm Mon to Fri, 7am to 1pm Sat and no activities will occur on Sundays or Public Holidays.

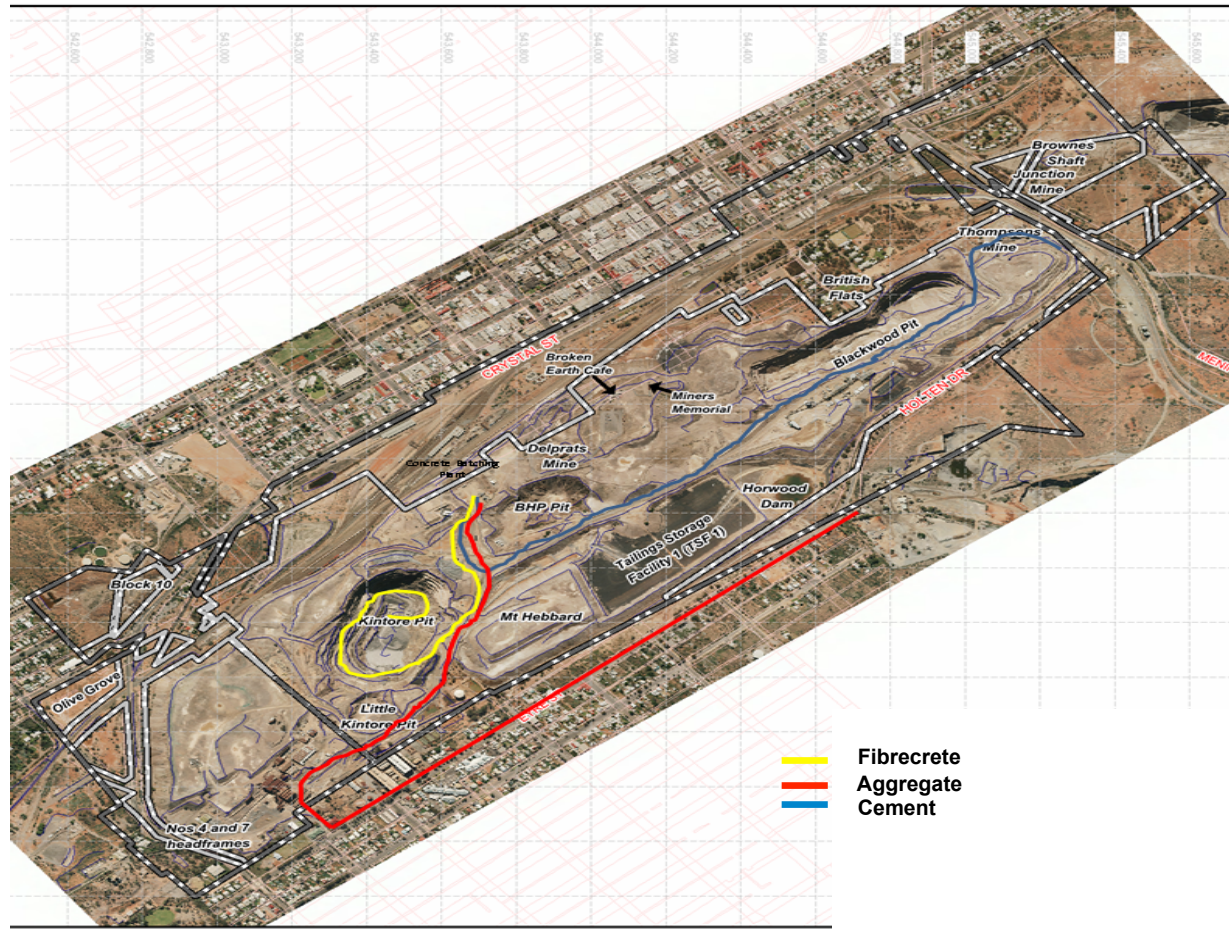
CBP – Major Vehicle Movements - Operations

Vehicle Movements Type :	Return Trips	
	Monthly	Annual
• <i>Current External Public Road:</i> Agi movements from supplier to mine	95	1,140
• <i>Proposed External Public Road:</i> Aggregate B-Double transport from Quarry to mine	50	600
• <i>Proposed Internal Road CML7:</i> ISO cement transport on mine site	21	252
• <i>Proposed Internal Road CML7:</i> Agi movements on mine site	253	3,036

Main Transport Changes:

- All external road deliveries; 07:00-18:00 Monday to Saturday and 08:00-13:00 Sunday and Public Holidays.
- Offsite road vehicle movements will reduce by approximately 50%
- No additional rail movements. ISO's added to existing trains

CBP – Major Vehicle Movements - Operations



Tailings Storage Extension

Visko Sulicich

TSF Extension – Surrounding Environment



TSF Extension – Proposed Embankments

Embankment 1: Central and Western Side of Pit:

- Compacted waste rock. Founded predominantly on weathered rock on pit rim and upstream slope partly on consolidated tailings.
- 160 m long, 9m high, 5 m wide crest
- Retaining wall – waste rock construction, 0.5m to 2m high and 35m long.

Embankment 2: Northern End of Pit:

- Constructed of compacted waste rock and founded entirely on weathered rock on pit rim and excavation of Spillway.
- 450 m long, 6 m high, 5 m wide crest

Embankment 3: Central and Eastern Side of Pit:

- Compacted waste rock. Bounded by access road and founded mostly and in places entirely, on consolidated tailings.
- 350 m long, 4 m high, 5 m wide crest

TSF Extension – Construction & Major Vehicle Movements

Construction to be Undertaken Sequentially – in 2 stages

Stage 1

EMB 2 – 21 weeks:

- 2385 dump truck movements (averaging 2.6ph)
- Excavator, dozer, rollers (lge & sml), Agi-truck, forklift, water truck

Spillway – 4 weeks:

- 1000 dump truck movements (averaging 7.1ph)
- Excavator, dozer, Agi-truck, water truck

AND WHEN TAILINGS REACH REQUIRED HEIGHT (12 months) → Stage 2

Stage 2

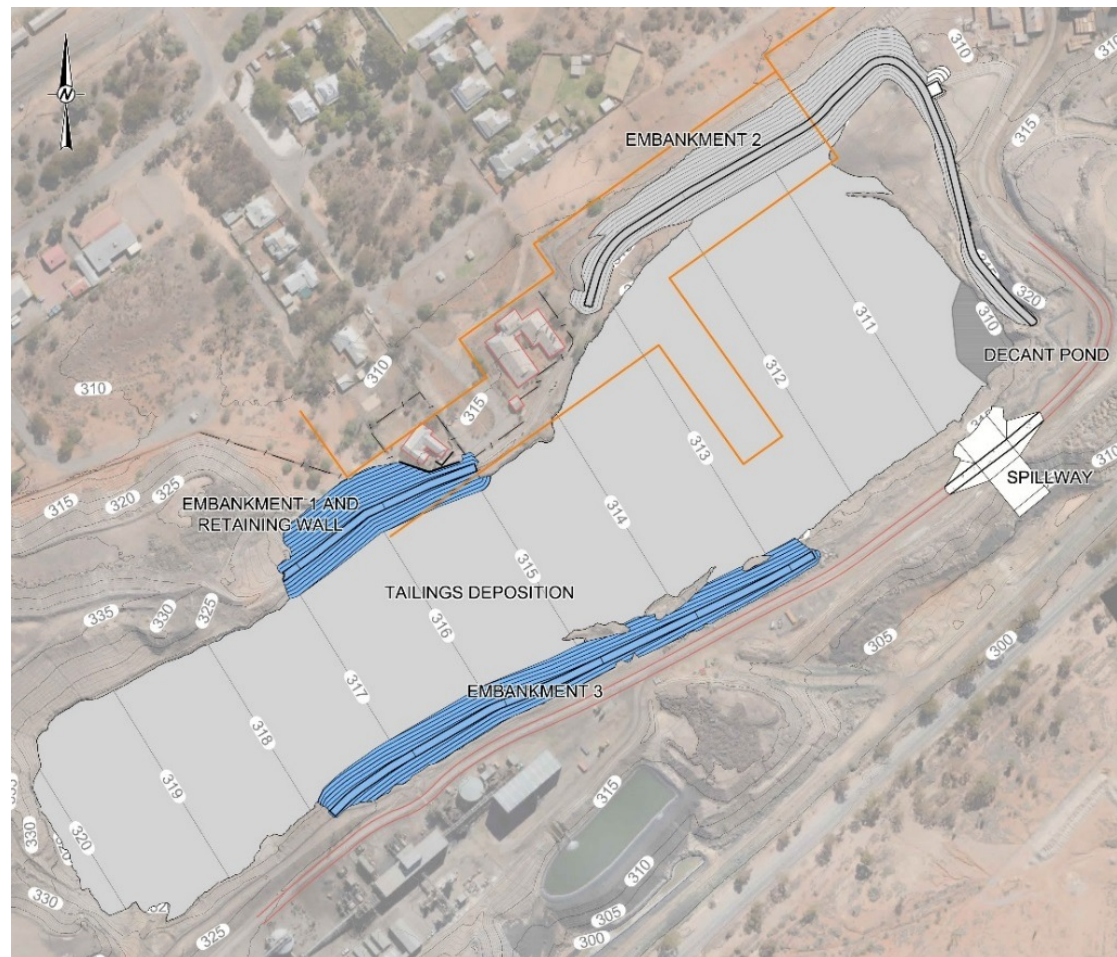
EMB3 – 16 weeks

- 1731 dump truck movements (averaging 2.8ph)
- Excavator, dozer, rollers (lge & sml), Agi-truck, water truck

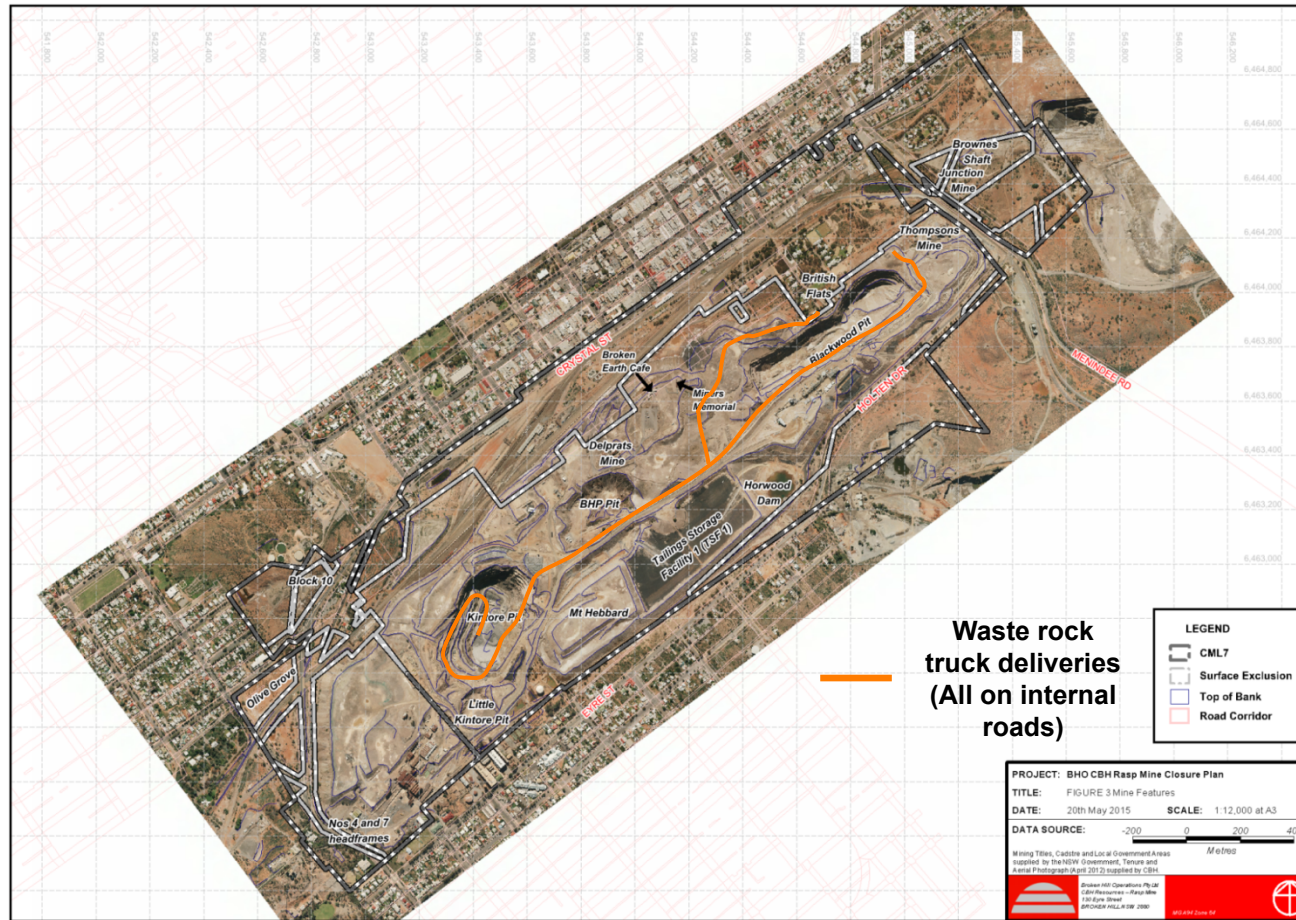
EMB1 – 15 weeks

- 1158 dump truck movements (averaging 2.0ph)
- Excavator, dozer, rollers (lge & sml), Agi-truck, water truck

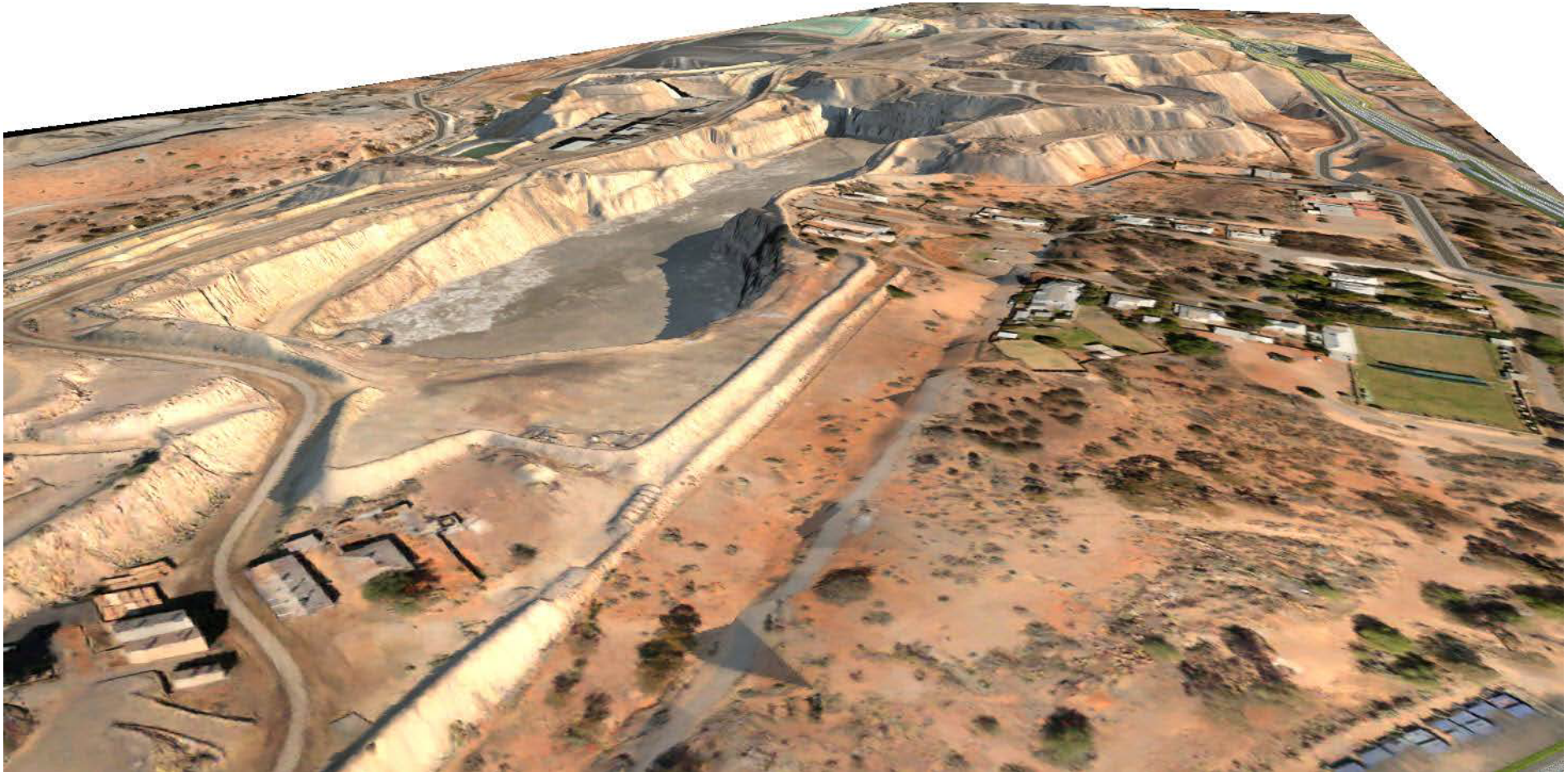
TSF Extension – 2 Staged Construction



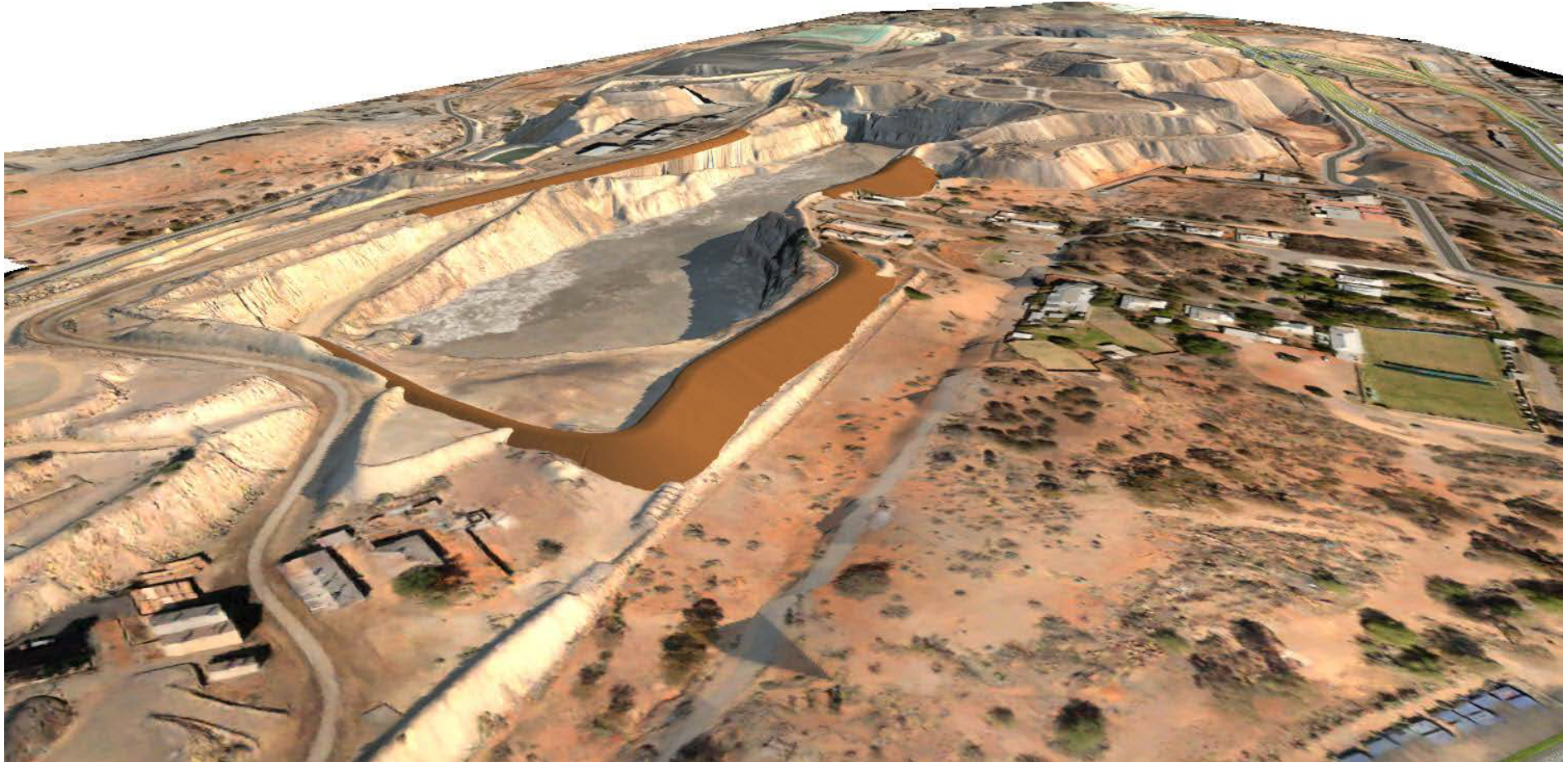
TSF Extension – Major Vehicle Movements



TSF Extension – Current Aspect



TSF Extension – with Embankments



TSF Extension – Visual Impression of Environment



Environment Assessment Results

Gwen Wilson

Environment Assessment Results – Noise Modelling

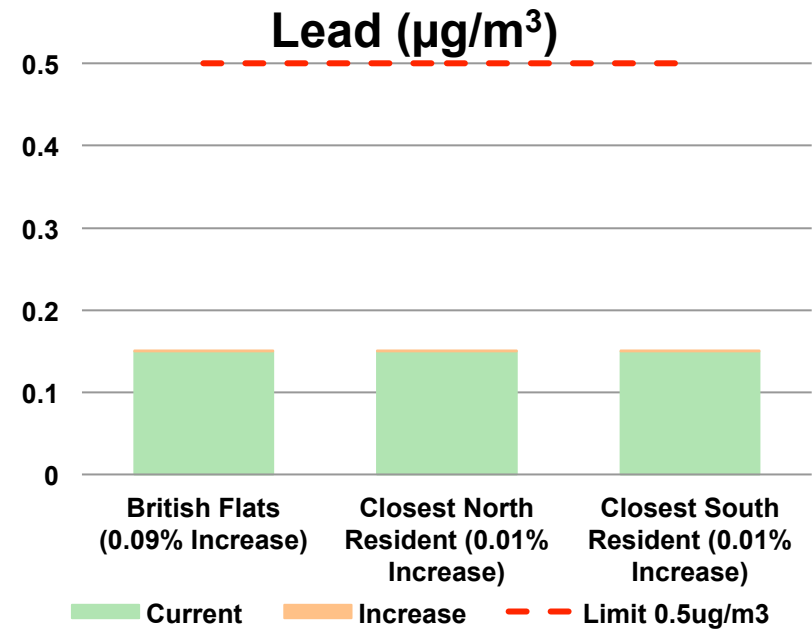
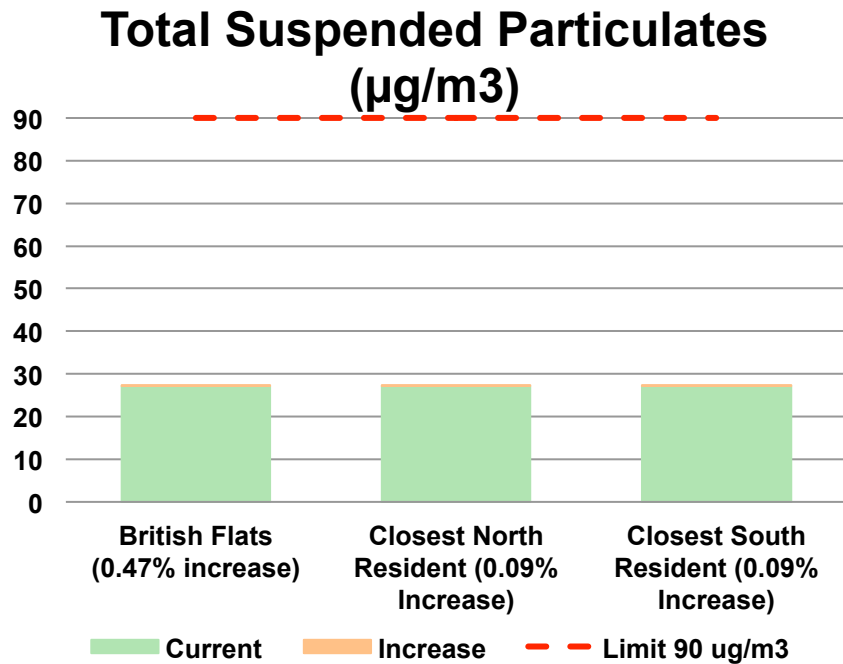
Cumulative Noise Levels (Existing + Construction of CBP / EMB):

- Majority of noise receptors within criteria
- Cumulative site noise level is predicted above the criteria at locations A12 (Crystal Street and Menindee Road), A13 and A14 (South Broken Hill near Essential Water).
- Main noise contributor is the dozer and at A14, haul road movements (from haulage trucks and water cart)
- Exceedence is 1 to 4 dB(A) (people can hear noise increase above 2 dB(A))
- A12 – only during construction of EMB2 (3dB) (base level 51 dB)
- A13 – only during construction of EMB3 (1dB) (base level 43 dB)
- A14 – during embankment construction (2-4dB) (base level 40 dB)
- Construction activities occur during day time only = 7am to 6pm Mon to Fri, 7am to 1pm Sat and no Sundays or Public Holidays

Noise Levels (Existing + CBP Operation):

- Criteria met at all locations

Environment Assessment Results – Preliminary Dust Modelling



Summary of preliminary air quality modelling:

- Worst case scenario modelled using accumulation of Current Operations + CBP + EMB2
- Annual average emissions and 24-hour worst case (TSP, Pb, PM10 and dust deposition)
- Results showed compliance with all the NSW EPA criteria
- No additional exceedences of 24-hour PM10 criterion

Potential Environmental Risks & Proposed Management

Potential Environmental Risks – Gwen Wilson

POTENTIAL RISKS:

- Public exposure to increased noise
- Public exposure to increased dust including lead dust levels
- Community complaints
- Failure to meet noise criteria
- Failure to meet air quality criteria
- Exposure to tailings
- Exposure to contaminated water
- Loss of amenity

FROM:

- Earthworks
- Plant / embankment construction
- Operation of the CBP
- On-site vehicle movements
- Wind entrainment of dust from tailings and capping materials
- Materials handling and placement
- Tailings wall failure
- Excessive flood waters over-topping embankments
- Water seepage from tailings
- Water runoff from site
- Removal of vegetation
- Height of embankments / cement silo
- Demolition of heritage structure

Summary – CBP Management of Potential Risks

Rob Williamson

Noise –

- ✓ 6 m rock bund
- ✓ Concrete slab enclosure w/rubber curtains for Agi-truck loading and slumping
- ✓ Construction schedule – Mon to Fri 07.00 to 18.00, Sat 08.00 to 13.00, no Sundays or public holidays
- ✓ Covered conveyors
- ✓ Covers over motors
- ✓ Rubber lined hopper for aggregate loading
- ✓ Daytime deliveries
- ✓ Squawker reversing beepers
- ✓ Operations inputs delivery schedule – Mon to Fri 7.00 to 18.00, Sat 08.00 to 18.00, no Sundays or public holidays

Dust –

- ✓ Covered conveyors
- ✓ Water sprays
- ✓ Application of chemical suppressant on roads
- ✓ Water trucks

Summary – TSF Management of Potential Risks

Visko Sulicich

Noise

- ✓ Construction schedule – Mon to Fri 07.00 to 18.00, Sat 08.00 to 13.00, no Sundays or public holidays
- ✓ Staged construction
- ✓ Squawker reversing beepers

Stability & Integrity

- ✓ Meets all requirements of the NSW DSC
- ✓ Designed for 1:10,000 year earthquake event
- ✓ Designed for 1:1,000,000 rainfall event
- ✓ Installation of geomembrane liners
- ✓ Collection systems for seepage and stormwater runoff

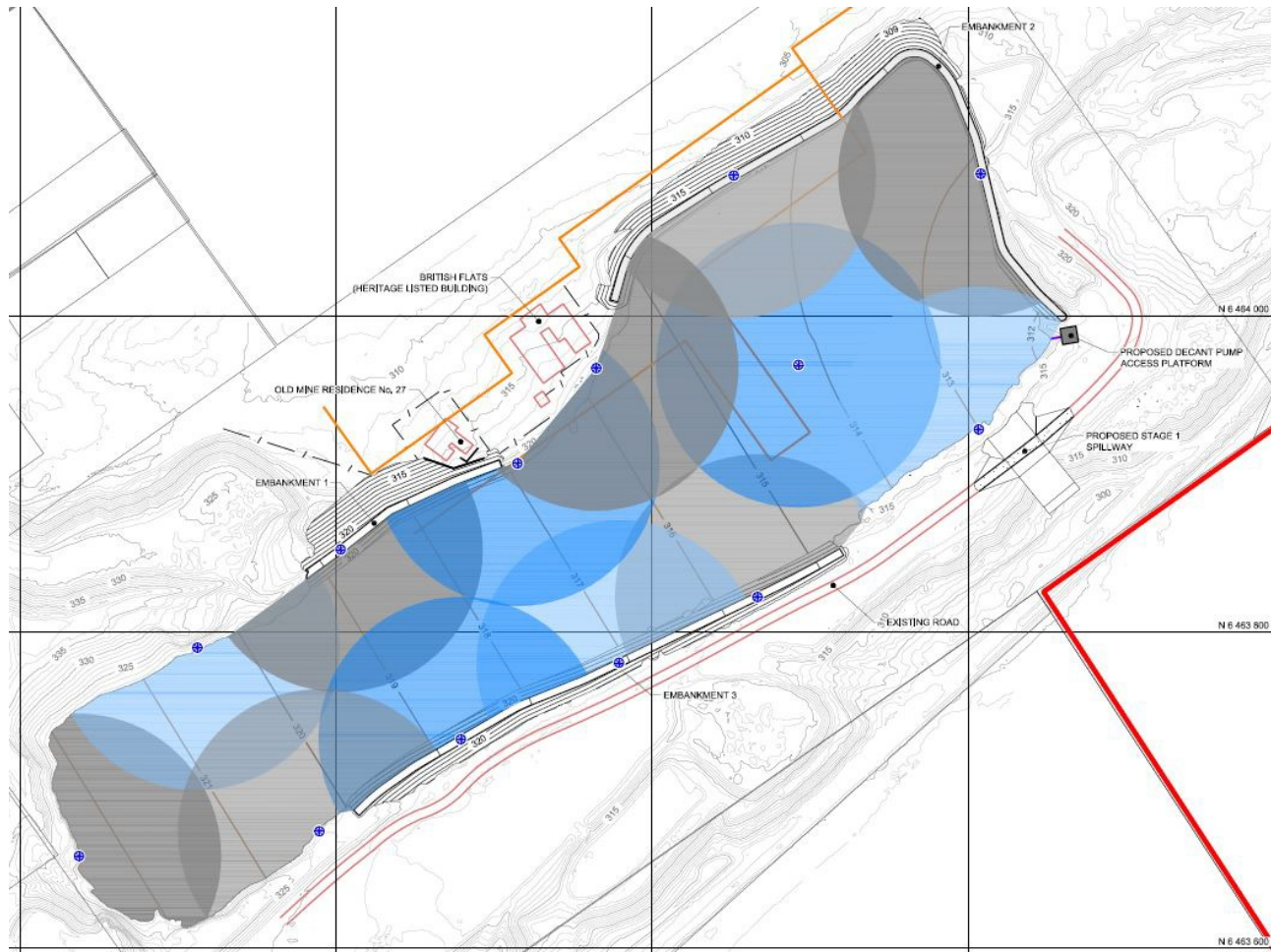
Dust

- ✓ Waste rock embankments
- ✓ Moisture compaction process for laying waste rock
- ✓ Automatic water spray system during operations triggered by dust and wind monitoring equipment
- ✓ Application of chemical suppressant
- ✓ Placement of waste rock at cessation

Heritage

- ✓ Installation of retaining wall to protect old mining residence

TSF – Water Spray System – Gwen Wilson



Next Steps in Application Process

Gwen Wilson

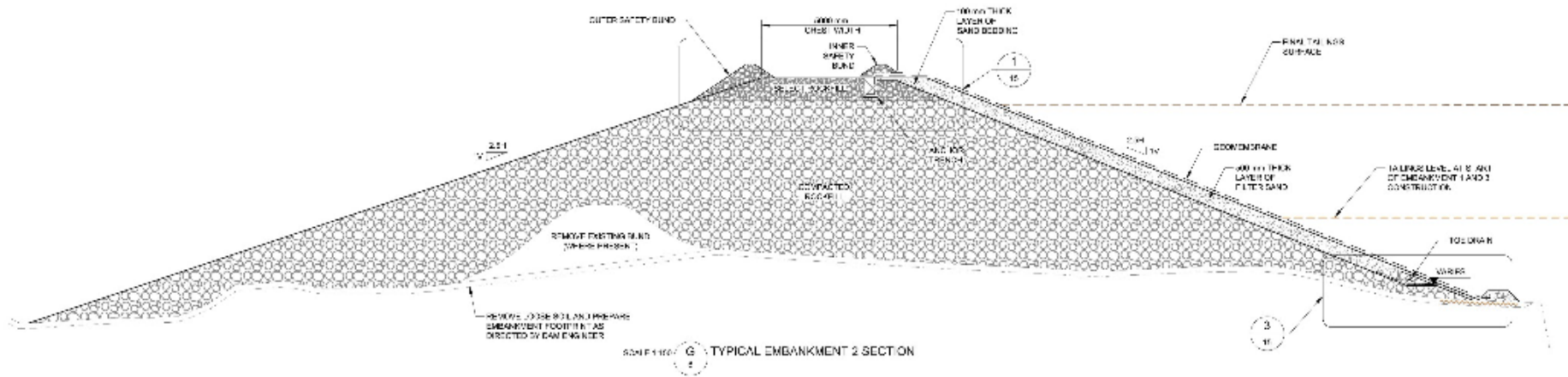
Next Steps

- Submit application to Department of Planning and Environment (DPE)
- Public Exhibition Period – 30 days
- Submissions received by government agencies and members of the public
- Rasp responds to submissions
- DPE reviews and accepts response or seeks changes
- DPE assesses application
- DPE makes determination
- Rasp makes application to update EPA licence
- EPA review (changes) updates
- Rasp makes application to update Mining Operations Plan to Division of Resources & Energy (DRE)
- DRE reviews (changes) updates

Rasp can proceed to construction – anticipate 1st half of 2018

Thank you

TSF Extension – Typical Cross Section of Embankment



Downstream slope comprises: Compacted rockfill (max size 200 mm), Filter Sand true thickness 0.5 m with seepage collection pipes discharging to sumps, and Geomembrane Liner comprising 2 mm HDPE (Embankment No. 2) and 2 mm LLDPE for Embankments 1 and 3