



# Optimisation of the Maxwell Underground Mine

## Maxwell Extraordinary CCC Meeting 9 August 2022

# Maxwell Underground Update

# Maxwell Underground – Project Timing & Development

- ✓ All pre-construction environmental management plans approved in 2021
- ✓ Established the Maxwell Community Consultative Committee in September 2021.
- ✓ Planning Agreement established with the Muswellbrook Shire Council in September 2021.
- ✓ ML1820 and ML1822 granted in November 2021.
- ✓ MOD1 – MEA Modification approved in November 2021.
- ✓ EPBC 2018/8287 Approval was varied in December 2021 following MOD1 approval
- ✓ Commenced initial Construction works – May 2022
- ✓ Onboarding of additional key roles – commenced June 2022

Calendar years	2021				2022				2023				2024				2025 onwards			
Mining Leases & Management Plans	█	█	█	█																
Site readiness & Construction preparation				█	█	█														
Construction of Access Rd & MEA						█	█	█	█	█	█	█								
Construction of Mine Access Portals, Drifts & Vent Shaft							█	█	█	█	█	█								
Construction of site infrastructure							█	█	█	█	█	█								
Onboarding Workforce										█	█	█	█	█	█	█				
B&P Operations											█	█	█	█	█	█	█	█	█	█
Development Coal produced to set up for Longwall production														█	█	█	█	█	█	█
Longwall ordered, manufactured, delivered and installed							█	█	█	█	█	█	█	█	█	█				
Design & Construction of overland conveyor										█	█	█	█	█	█	█				
Longwall production																	█	█	█	█



# Maxwell Underground – Construction



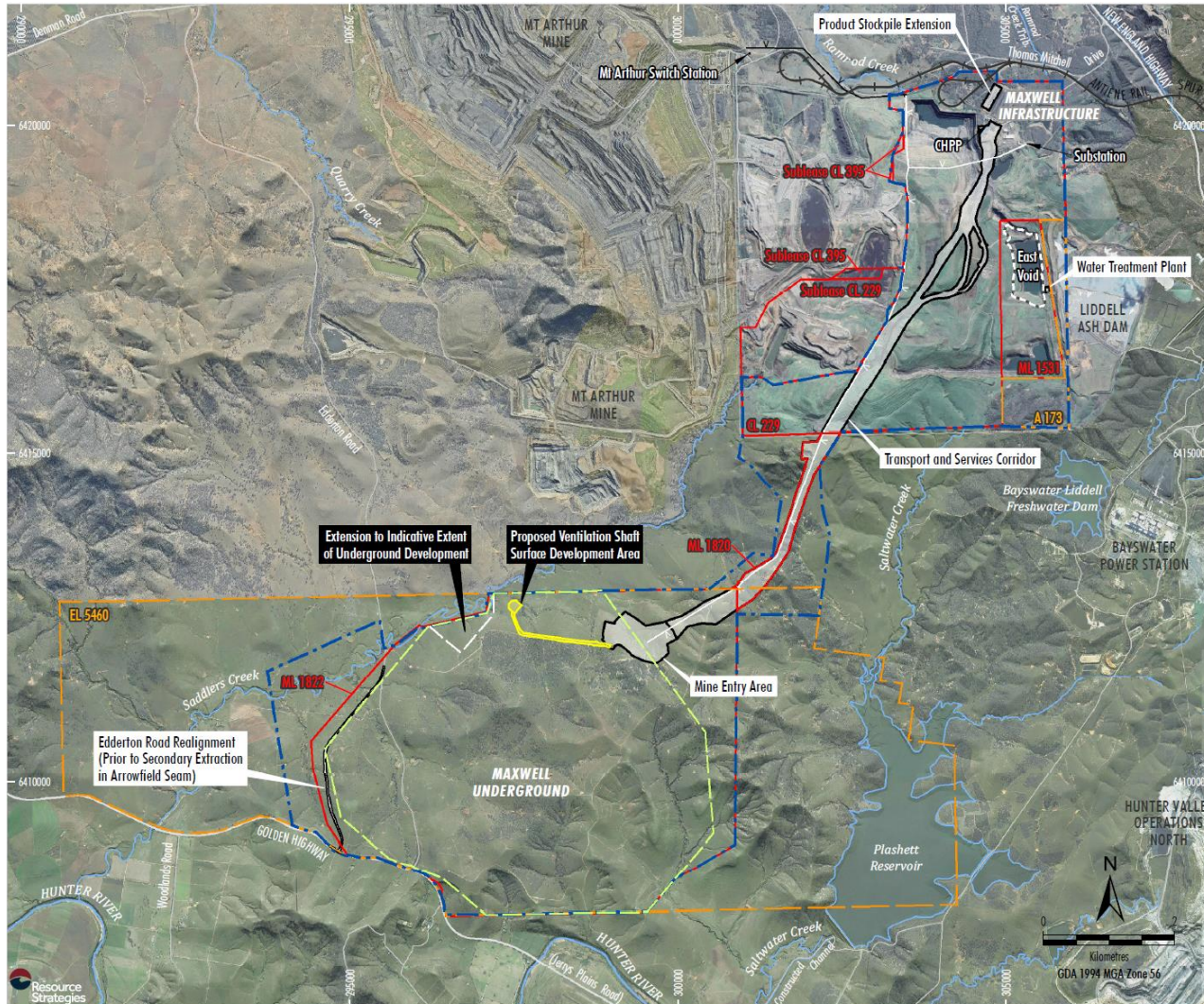
## Proposed Modification

# Proposed Modification – Introduction

- Malabar commenced the planning of the Maxwell Underground Mine in early 2018 and submitted an EIS and DA in September 2019.
- Maxwell Underground Mine Development Consent SSD 9526 was granted by NSW IPC in December 2020. EPBC Approval 2018/8287 granted in March 2021.
- With an expanded technical and engineering team, Malabar has continued to optimise the underground mining layout to improve efficiency and safety.
- An improved underground mine layout has been identified that achieves:
  - Safer working conditions
  - Quicker ramp up to longwall mining (and associated economic and community benefits, including employment state royalties and local council payments)
  - Lower capital cost to first production
  - Minimal net incremental environmental impact relative to the approved underground mine layout.



# Proposed Modification – Overview



- The proposed modification is wholly within the existing Development Application Area and Mining Lease.
- Key changes are:
  - Re-orientation of longwall panels to better align to geotechnical conditions
  - Commencing Woodlands Hill seam production with 145m wide longwall panels, and then increasing the longwall to 300m wide. (The EIS commences with a 300m wide longwall at the outset).
  - Relocation of the Woodlands Hill seam ventilation shaft to suit this revised mine layout.



# Proposed Modification – Overview

The Modification would not change:

- Mining tenements.
- Maximum annual ROM or product coal rate.
- Mining method or resource extraction.
- Coal processing limits.
- Hours of operation.
- Off-site transport.
- Management of reject material.
- Workforce.



# Proposed Modification – Revised Longwall Layout

## Approved



## Proposed



## Modification Benefits



# Benefits of revised longwall layout (orientation and narrower initial panels)

- ✓ Provides a safer environment for our people and equipment for the mine life (+25 years).
- ✓ Mine plan aligns more favourably to the geotechnical environment.
- ✓ Initial three longwalls extracted without undermining Edderton Road (undermining of the road with the initial panel of the Approved EIS plan). Data collected during these initial panels will provide important information for future subsidence monitoring and management program for Edderton Road.
- ✓ Overall reduction in longwall retreat metres that effect subsidence impacts on Edderton Rd.
- ✓ Less development drivage to first longwall coal, resulting in the earlier commencement of longwall production (and associated economic and community benefits).
- ✓ Reduced capital expenditure to steady state production.
- ✓ Reduction in future capital cost by removing requirement to modify longwall equipment.
- ✓ Initial longwall panels extracted in a lower gas regime providing additional time to develop gas management strategies, including beneficial re-use.



# Benefits – Ventilation Shaft Relocation

- ✓ Relocates the ventilation shaft for the Woodlands Hill Seam closer to “pit-bottom” of the surface-to-seam access and in-seam access drift. The benefits include:
  - ✓ Development drivage for the ventilation circuit can be completed more quickly, allowing the ventilation circuit to be functioning for the benefit of the underground working environment.
  - ✓ Minimises underground development drivage to ventilation shaft, hence focusing the development drivage efforts towards first longwall coal.
  - ✓ Reduces life of mine ventilation pressures which improves ventilation efficiency and so minimizes the risk of spontaneous combustion.

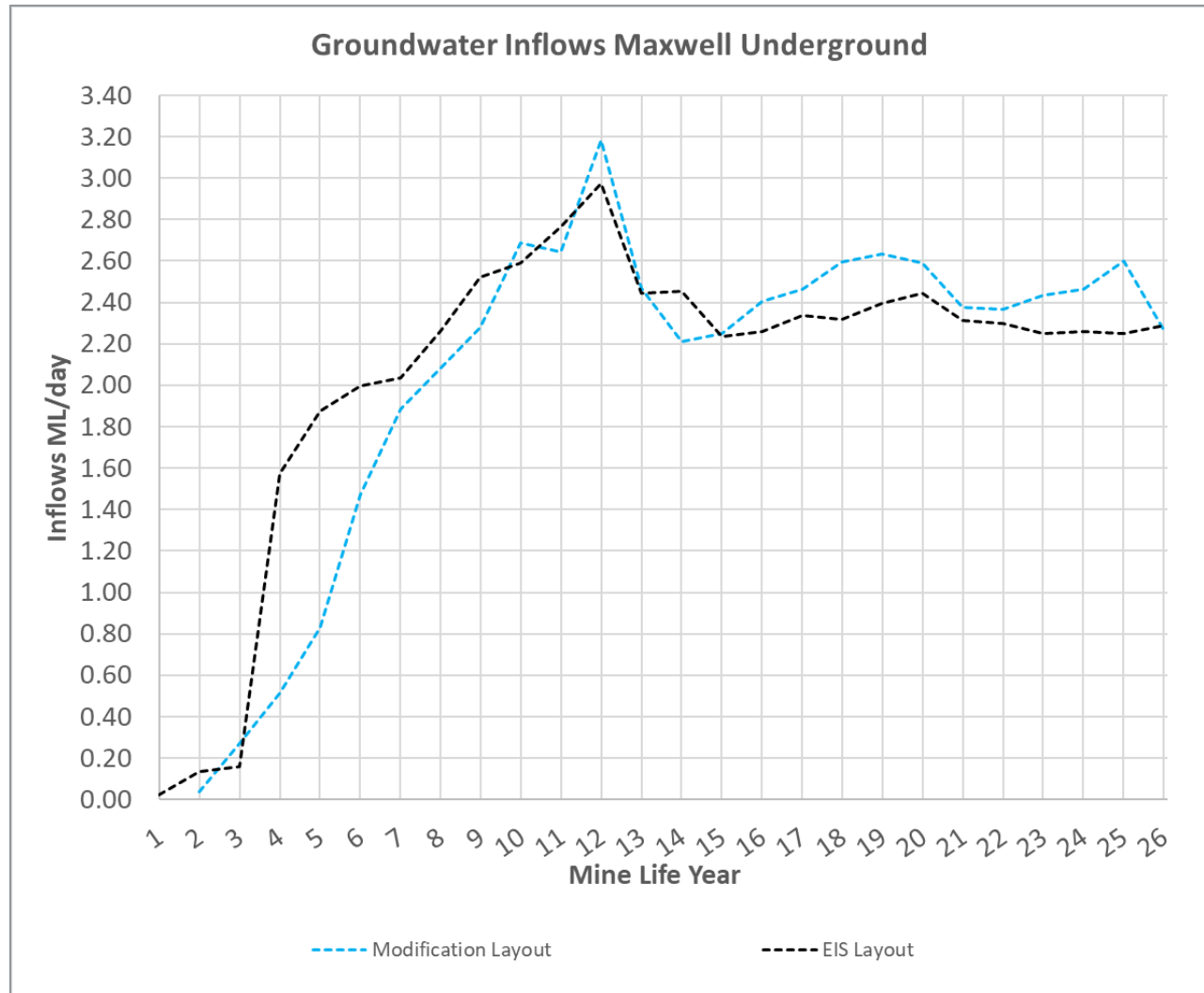
## Key Environmental Considerations

# Subsidence

- No subsidence impacts on privately-owned land
- No subsidence consequences on Hunter River and Saddlers Creek
- No incremental subsidence impact to Golden Highway (remains safe and serviceable)
- Minor increase in the surface area impacted by subsidence (~ 5 per cent)
- No incremental impact on existing land use (long-term lease arrangements for agriculture)



# Groundwater – Inflows



- **Updated groundwater modelling** completed by SLR Consulting Australia Pty Ltd.
- Overall **reduction of ~500ML** in the predicted total groundwater inflows to the underground workings during the life of the mine.
- Predicted **inflows within existing Water Access Licence entitlements**

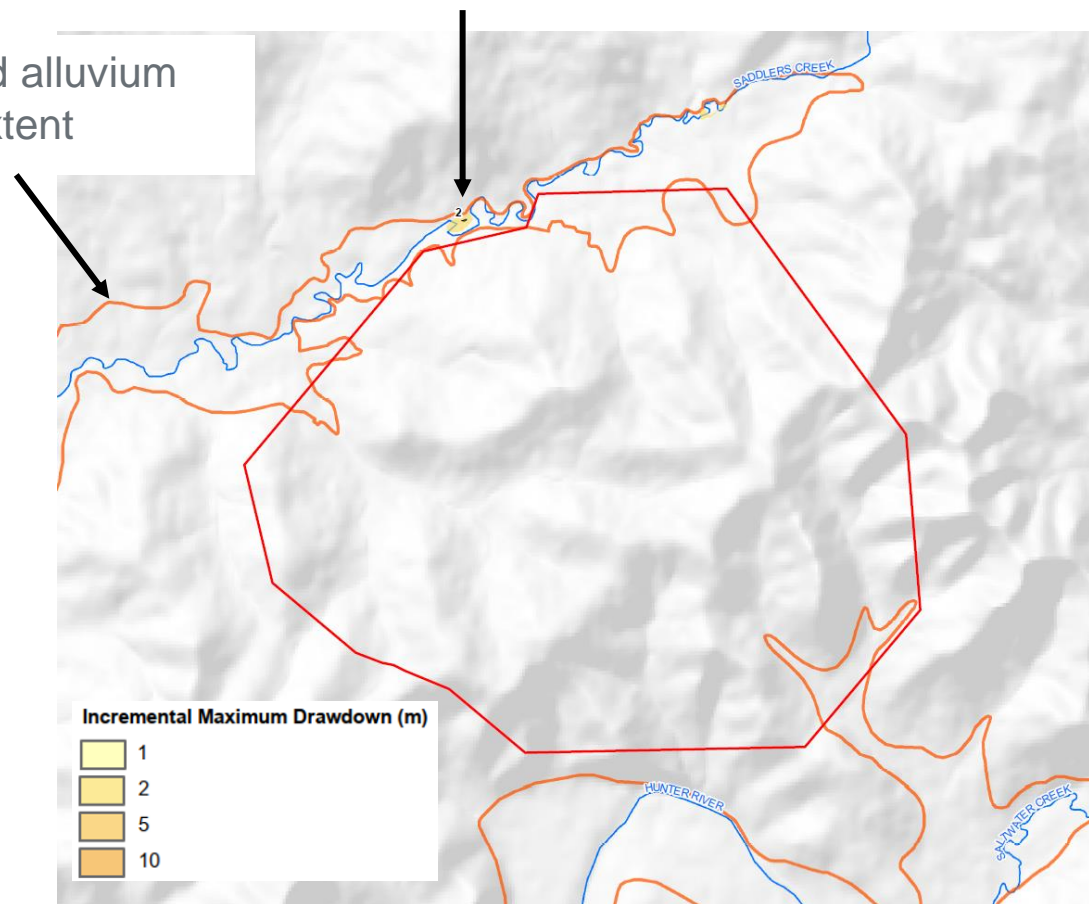
# Groundwater – Incremental Alluvial Drawdown

Approved drawdown in alluvium



Incremental change due to the modification

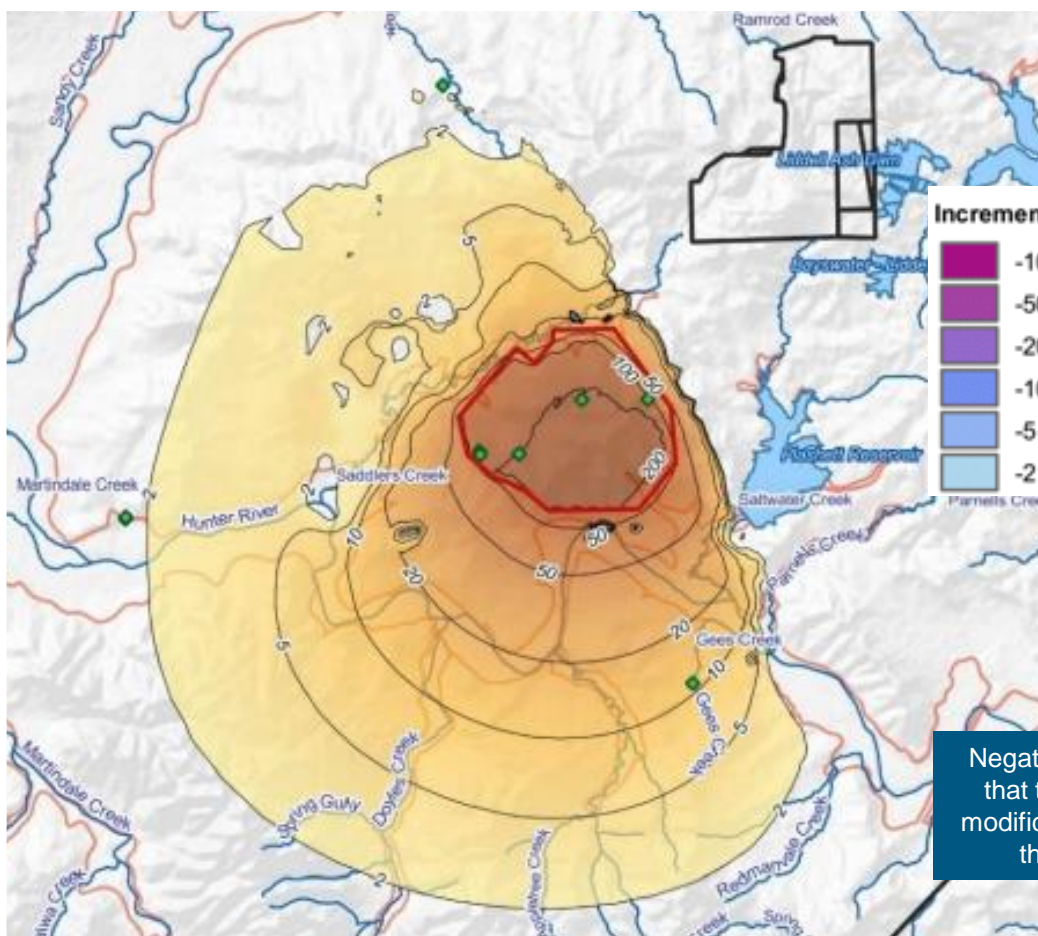
Mapped alluvium extent



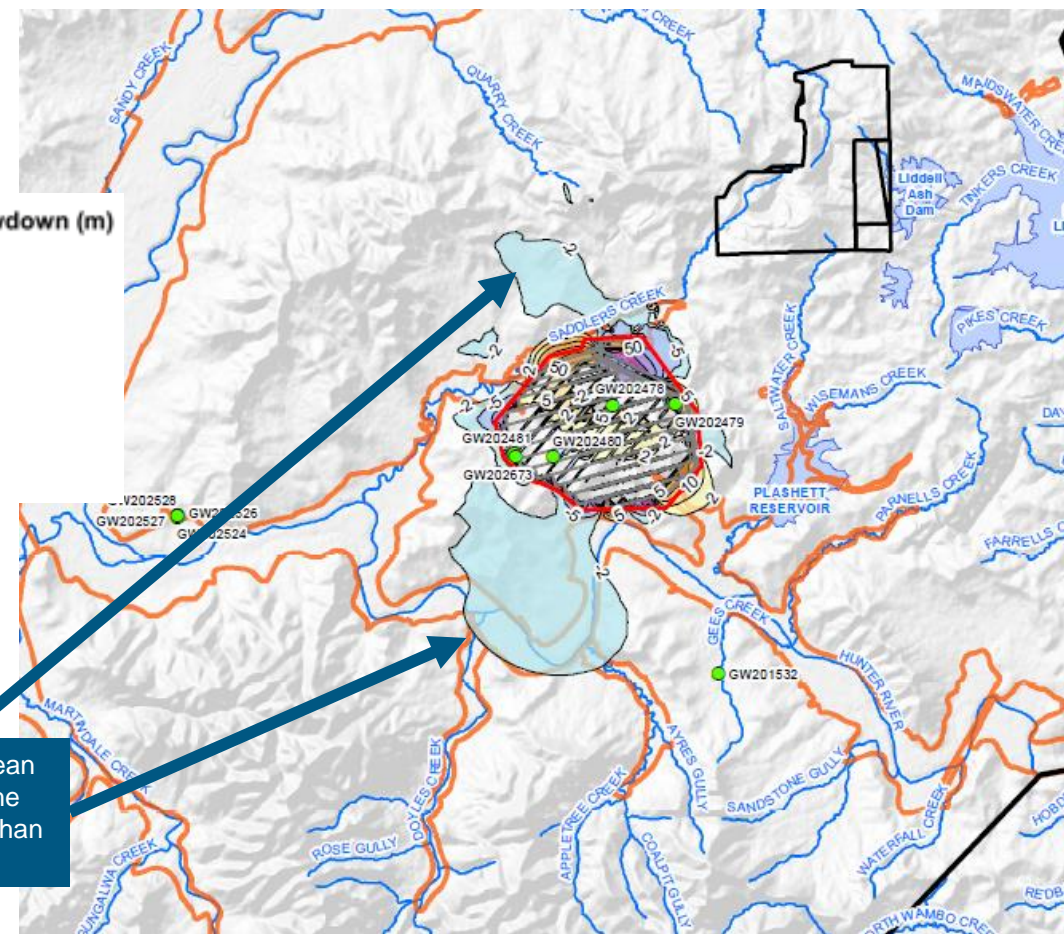


# Groundwater – Incremental Depressurisation in Permian Strata

## Approved depressurisation in Woodlands Hill seam



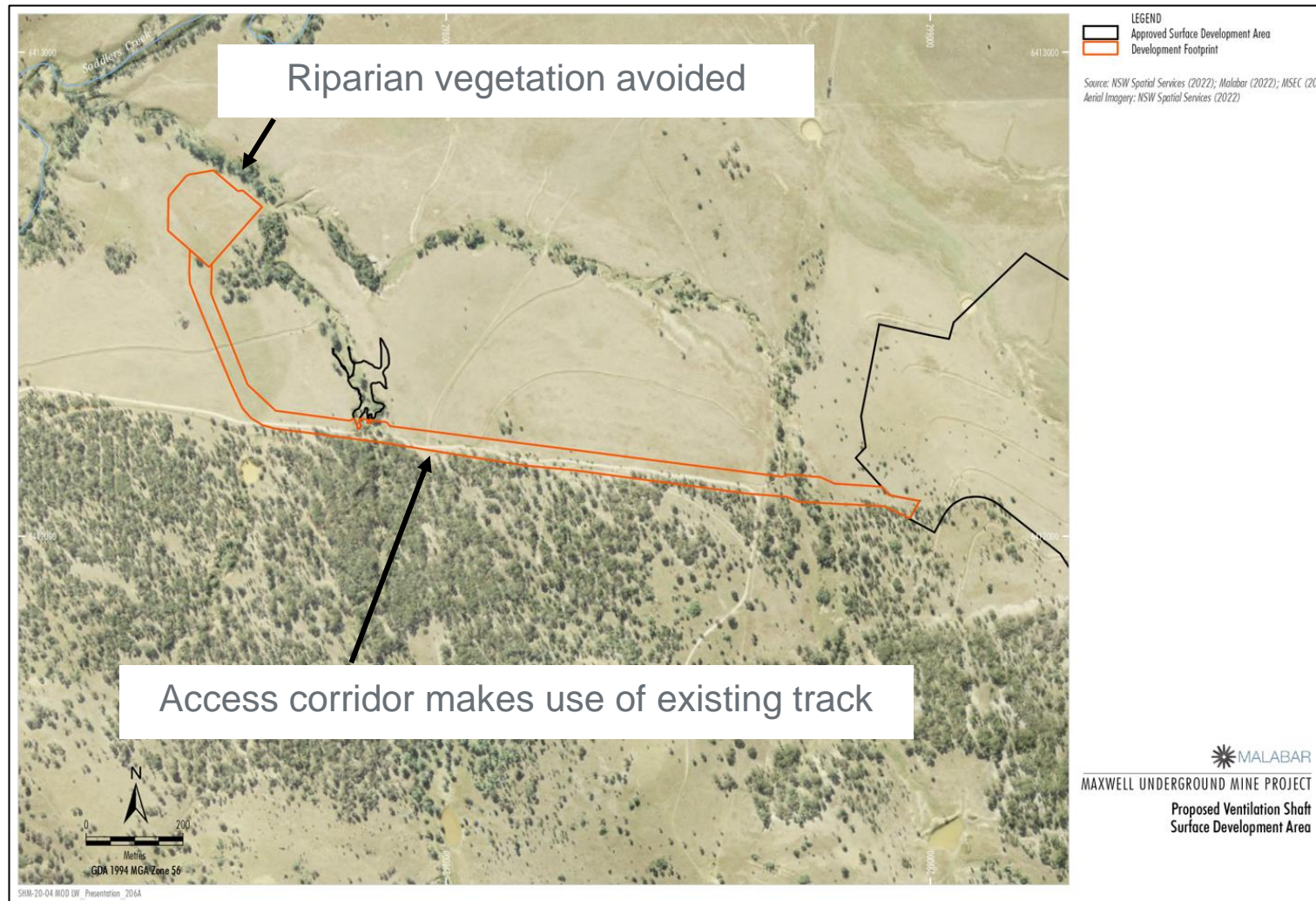
## Incremental change due to the modification



Negative drawdowns mean that the drawdown of the modification will be less than the approved plan.



# Biodiversity

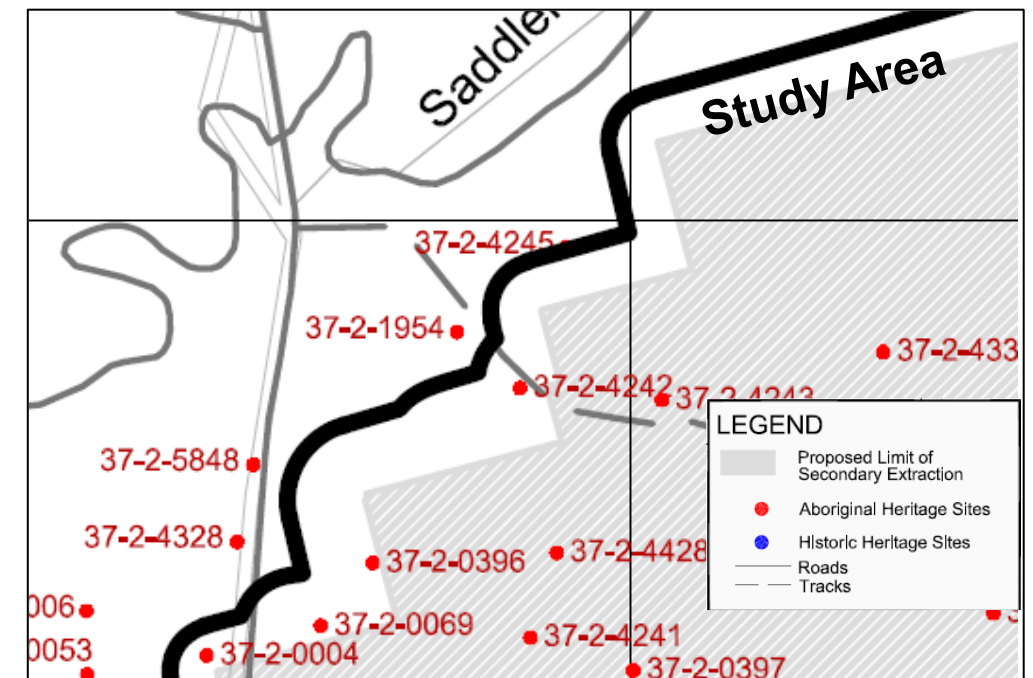


# Aboriginal Cultural Heritage Assessment

- Area comprehensively surveyed as part of ACHA for the Maxwell Underground EIS
- Mine layout designed to avoid Aboriginal site of 'High Significance' – including shortening of LW panels
- Stage 1 (Notification & Registration): Completed as part of ACHA process for Maxwell Underground EIS
- Stage 2 (Presentation): Information session held during proposed methodology consultation period
- Stage 3 (Gathering Information): Proposed Methodology was provided to RAPs for 28 days
  - Four responses – all supporting the methodology
- Stage 4 (Review): Draft ACHA Report provided to RAPs for 28 days
  - Two responses – both supporting the assessment findings

## AHIMS Site 32-2-1954 - High Significance Stone Quarry

- 50 m buffer applied
- WHLW2 – shortened by 40 m
- AFLW1 – shortened by 160 m





# Visual Amenity

- Tree screen planted for approved Mine Entry Area is establishing well
- Ventilation infrastructure has been located and pro-actively designed to be invisible to Coolmore and Godolphin Woodlands Studs
- Ventilation infrastructure also screened from Edderton Road via intervening vegetation



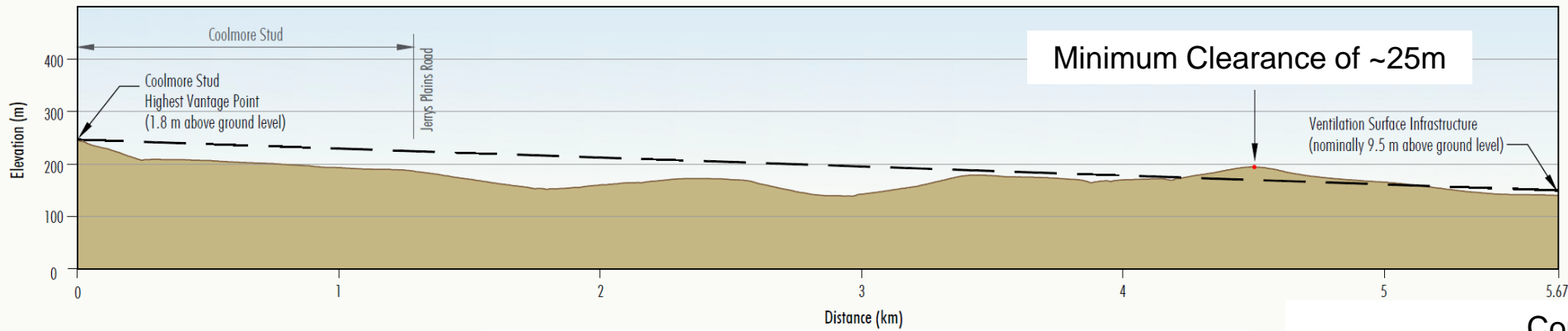
Existing tree screens planted in 2020



Low-profile ventilation ducts so that the maximum height is only 9.5 m above ground



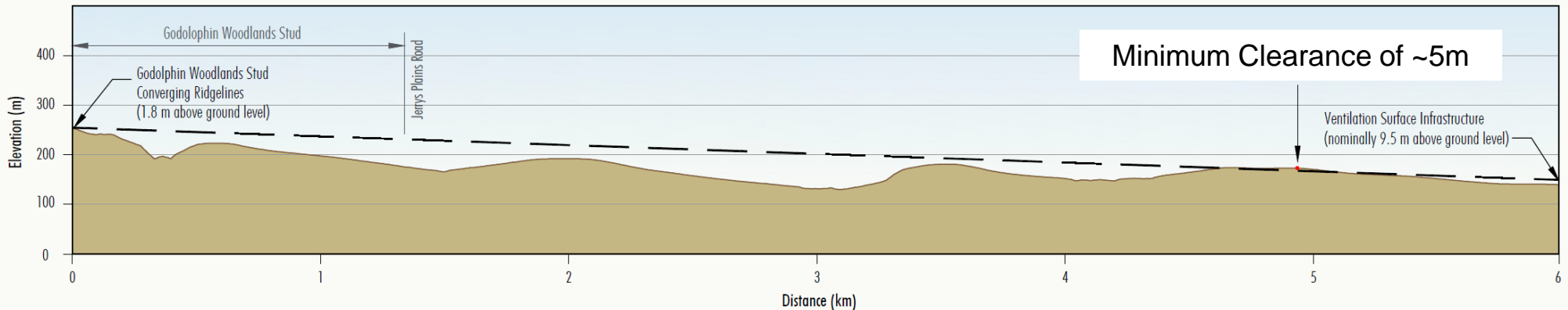
# Visual Amenity – Sight-lines from Thoroughbred Studs



Highest Vantage Point on Coolmore Stud

## Conclusion

The ventilation shaft infrastructure has met Malabar's self-imposed constraints that it will not be visible to the thoroughbred studs.



Highest Vantage Point on Godolphin Woodlands Stud

# Noise and Air Quality

- No exceedances of noise criteria at privately-owned receivers during construction or operation.
- No significant change in dust level at any off-site receptor would occur as a result of the Modification.
- Cumulative dust levels, including background levels and the emissions from all other mines show no discernible change relative to the approved levels.

## Development Consent Noise Criteria


Receiver	Day L <sub>Aeq,15min</sub>	Evening L <sub>Aeq,15min</sub>	Night L <sub>Aeq,15min</sub>
<b>Privately-owned</b> 25, 226b, 228r, 253, 528	40	35	35
<b>Mine-owned</b> 57, 58a, 60c, 536	-	-	-


## Predicted L<sub>Aeq,15min</sub> Operational Noise Levels

Receiver Label	Year 1			Year 3			Year 4 Onwards		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
<b>Privately-owned residential receivers</b>									
<b>25</b>	<20	<20	24	<20	<20	<20	<20	<20	<20
<b>226b</b>	<20	<20	<20	<20	<20	<20	<20	<20	<20
<b>228r</b>	24	<20	26	<20	<20	23	<20	<20	24
<b>253</b>	22	<20	24	<20	<20	<20	<20	<20	<20
<b>528</b>	21	<20	26	<20	<20	20	<20	<20	<20
<b>Mine-owned residential receivers</b>									
<b>57</b>	27	23	28	20	<20	22	20	20	22
<b>58a</b>	<20	<20	<20	<20	<20	<20	<20	<20	<20
<b>60c</b>	38	36	40	27	26	31	27	27	34
<b>536</b>	24	<20	29	<20	<20	25	<20	<20	28

# Maxwell Underground Benefits (EIS)

**350**   
new, direct jobs and many  
more indirect jobs

**\$55m**   
annual wages

  
Certainty - there will never  
be an open-cut mine  
within ML 1822

  
better rehabilitation  
outcomes

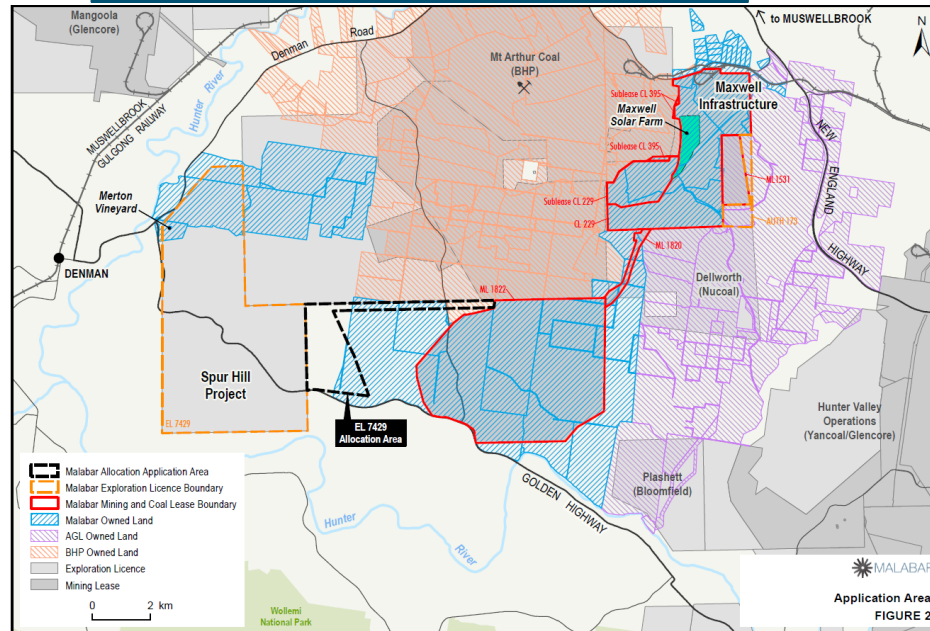
**\$500 to 700m\***  
annual export  
income for NSW 

**\$1 to 1.2bn\***  
royalties to NSW  
over initial 26 years 

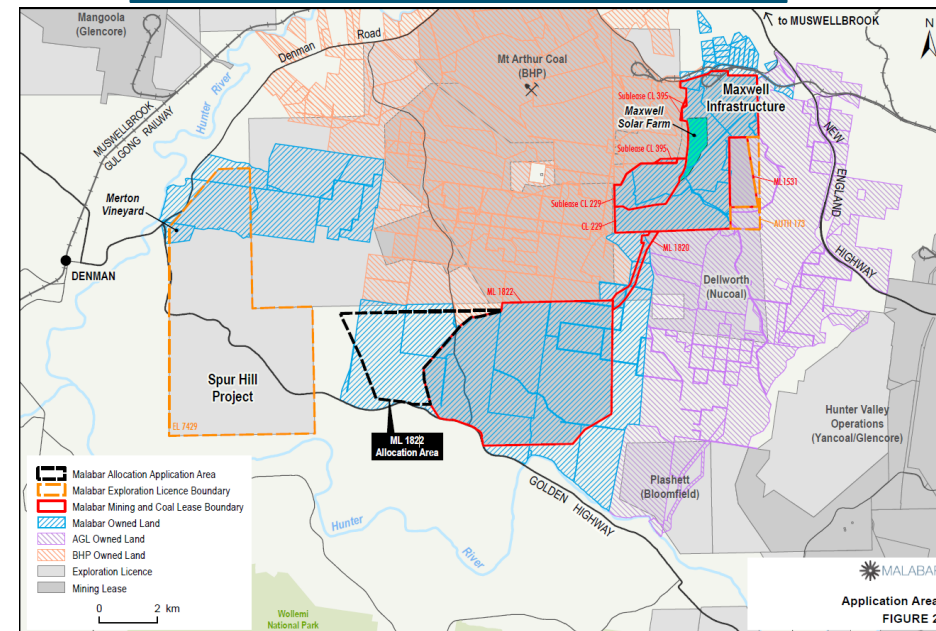


# EL for Operational Allocation Purposes Applications

## Spur Hill Application – ELA6510



## Maxwell Application – ELA6509



- ▶ Two Applications submitted covering area between Maxwell & Spur Hill
- ▶ Both applications submitted for 6 year period with supporting work programs
- ▶ Status:
  - ▶ Public Advertisements complete (29/07/22) – Singleton Argus, Hunter River Times & Financial Review
  - ▶ Market Interest Test – advertisements complete
  - ▶ Next Steps – respond to public submissions as required