MALABAR

MAXWELL UNDERGROUND MINE PROJECT

MINING OPTIMISATION MODIFICATION

SUBMISSIONS REPORT

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1 INTRODUCTION

The Maxwell Underground Mine Project (the Project) is in the Upper Hunter Valley of New South Wales (NSW), east-southeast of Denman and south-southwest of Muswellbrook (Figure 1), within the Muswellbrook Local Government Area.

The Project is an approved underground coal mining operation owned by Maxwell Ventures (Management) Pty Ltd, a wholly owned subsidiary of Malabar Resources Limited (formerly Malabar Coal Limited) (Malabar).

The Project will produce high quality coal, using underground mining methods. Over 75 per cent of the coal produced from the Project will be capable of being used for steel making, with the balance suitable for use in new-generation High Efficiency, Low Emissions power generators. The Project is part of Malabar's broader strategy to develop long-term sustainable resource assets in the Hunter Valley, which reflect the transition to a low carbon economy and meet the needs of the local community.

Development Consent State Significant Development (SSD) 9526 for the Project was granted by the Independent Planning Commission (IPC) on 22 December 2020. The Project was subsequently approved under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in March 2021 (EPBC 2018/8287).

In 2021, Malabar sought to modify Development Consent SSD 9526 under section 4.55(1A) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for a minor extension to the mine entry area (MEA) (Modification 1) to improve the safety and efficiency of the mine's operation. Modification 1 was subsequently approved on 19 November 2021 and EPBC 2018/8287 was varied on 14 December 2021.

In July 2022 Malabar sought a further modification. The Modification Report for the Maxwell Underground Mine Mining Optimisation Modification (the Modification) was prepared by Malabar to support a request to modify Development Consent SSD 9526 under section 4.55(2) of the EP&A Act.

The Modification Report was placed on public exhibition by the Department of Planning and Environment (DPE) (formerly the Department of Planning, Industry and Environment [DPIE]) from 2 August 2022 to 22 August 2022. During and following the exhibition period, submissions on the Modification were received from the public, government agencies, organisations and the Muswellbrook Shire Council (MSC).

On 23 August 2022, DPE requested that Malabar prepare and submit a Submissions Report for the Modification (this report). Accordingly, the Submissions Report provides Malabar's responses to issues raised in submissions. It has been prepared in consideration of the *State Significant Development Guidelines – Preparing a Submissions Report* (DPIE, 2021).

The remainder of this Submissions Report is structured as follows:

Section 1 Provides an introduction and overview of the approved and modified Project.

Section 2 Provides an analysis of the submissions received during the public exhibition period.

Section 3 Summarises the actions taken since exhibition of the Modification Report, including additional engagement activities and further refinements and assessment of the Modification.

Section 4 Provides responses to aspects raised in submissions and provides information requested.

Section 5 Provides an updated evaluation of the Project.

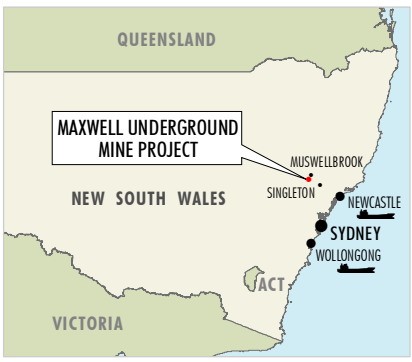
Section 6 Lists the documents referenced in the Submissions Report.

1.1 PROJECT OVERVIEW

The Project involves extraction of run-of-mine (ROM) coal from four seams within the Wittingham Coal Measures, using the following underground mining methods:

- underground bord and pillar mining with partial pillar extraction in the Whynot Seam; and
- underground longwall extraction in the Woodlands Hill Seam, Arrowfield Seam and Bowfield Seam.

Source: NSW Spatial Services (2022)



LEGEND

- Mining Operation
- Proposed Mining Operation
- Railway
- Local Government Boundary
- State Forest
- National Parks and Wildlife Service Estate
- Mining and Coal Lease Boundary
- Indicative Extent of Underground Development

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Regional Location

Figure 1

The substantial existing Maxwell Infrastructure is approved for handling, processing and transportation of coal for the life of the Project. The Maxwell Infrastructure includes existing coal handling and preparation plant (CHPP), train load-out facilities and other infrastructure and services (including water management infrastructure, administration buildings, workshops and services).

The Project area comprises the following (Figure 2):

- Maxwell Underground – comprising the approved area of underground mining operations and the MEA within Mining Lease (ML) 1822.
- Maxwell Infrastructure – the area within Coal Lease (CL) 229, ML 1531 and CL 395 comprising the substantial existing infrastructure (including the CHPP) and previous mining areas.
- The transport and services corridor between the Maxwell Underground and Maxwell Infrastructure – the area within CL 229, ML 1820 and ML 1822 comprising the planned site access road, covered overland conveyor, power supply and other ancillary infrastructure and services.
- The realignment of Edderton Road, a local road, prior to undertaking secondary extraction in the Arrowfield Seam.

An indicative general arrangement showing the key components of the Project is provided in Figure 2.

The approved MEA is located in a natural valley and will support underground mining and coal handling activities and provide for personnel and materials access.

ROM coal brought to the surface at the MEA will be transported to the Maxwell Infrastructure area via internal roads during the construction and commissioning of a covered, overland conveyor system in accordance with Condition A8 of Development Consent SSD 9526. Subsequently, ROM coal will be transported to the Maxwell Infrastructure area via the covered, overland conveyor.

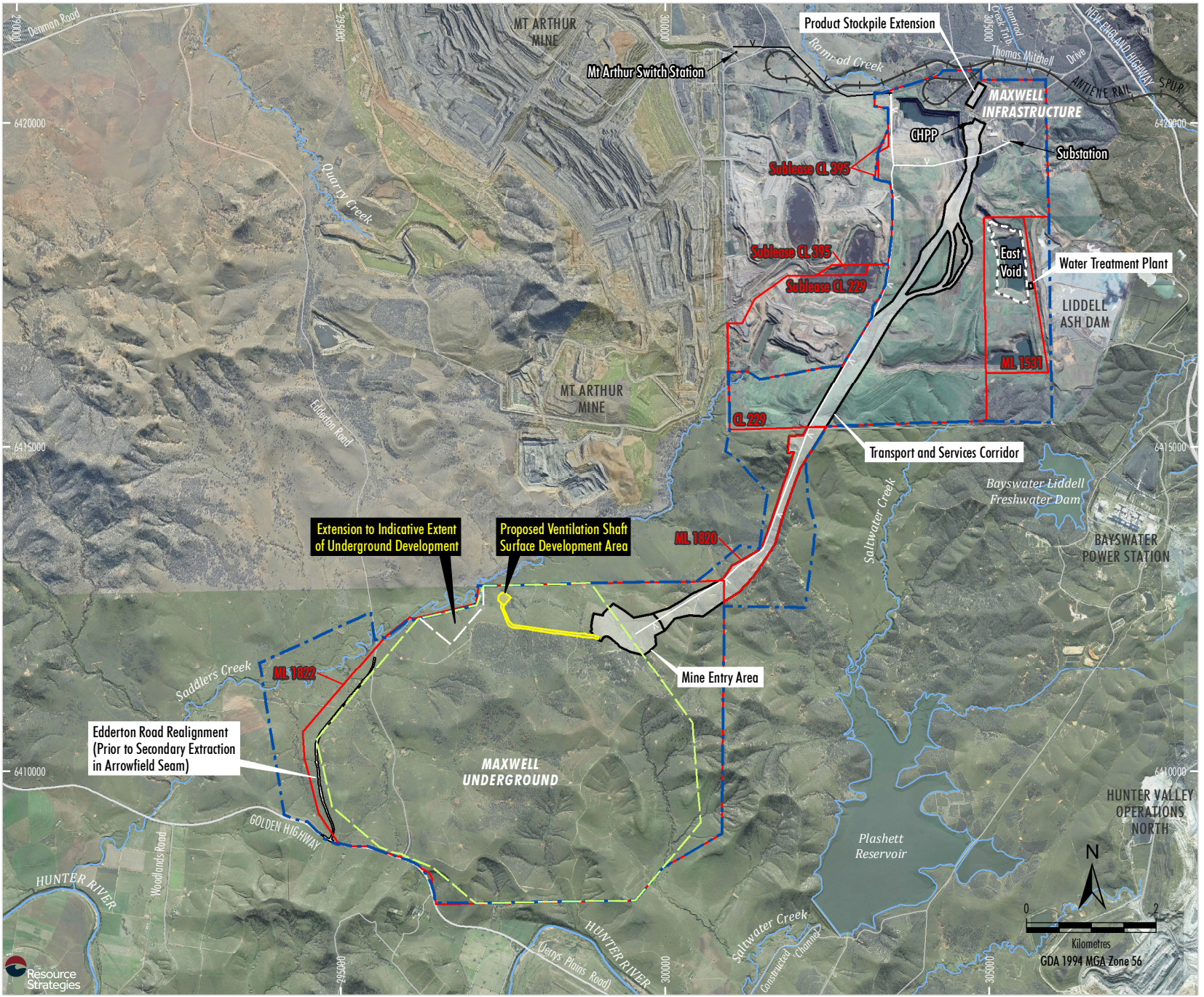
1.2 MODIFICATION OVERVIEW

The Modification is located wholly within the approved Development Application Area and would comprise the following components (Figures 2 and 3):

- re-orientation of the longwall panels in the Woodlands Hill, Arrowfield and Bowfield Seams resulting in a minor increase in the approved underground mining extent;
- reduction in the width of some of the longwall panels in the Woodlands Hill Seam;
- repositioning of the upcast ventilation shaft site and associated infrastructure; and
- other minor works and ancillary infrastructure components (e.g. access road and ancillary water management infrastructure for the repositioned ventilation shaft site).

The Modification would provide the following benefits via the revised longwall layout:

- improved mine safety due to aligning the underground mine plan more favourably with the geotechnical environment;
- improved management of subsidence impacts on Edderton Road;
- less development drivage required to achieve first longwall coal, resulting in earlier commencement of longwall production (and associated economic and community benefits);
- reduction in initial capital expenditure required to achieve steady-state production and future capital costs associated with modifications to longwall equipment; and
- extraction of initial longwall panels in an area with lower gas content, which provides additional time to refine gas management strategies.



LEGEND

- Railway
- Mining and Coal Lease Boundary
- Proposed Ausgrid 66 kV Power Supply Extension #

Approved Maxwell Underground Mine

- Development Application Area
- Indicative Extent of Underground Development
- Indicative Surface Development Area
- CHPP Reject Emplacement Area
- 66 kV Power Supply

Proposed Modification

- Modified Indicative Extent of Underground Development
- Indicative Modification Surface Development Area

Subject to separate assessment and approval.

Source: NSW Spatial Services (2022); MSEC (2021)
Orthophoto Mosaic: 2020, 2019

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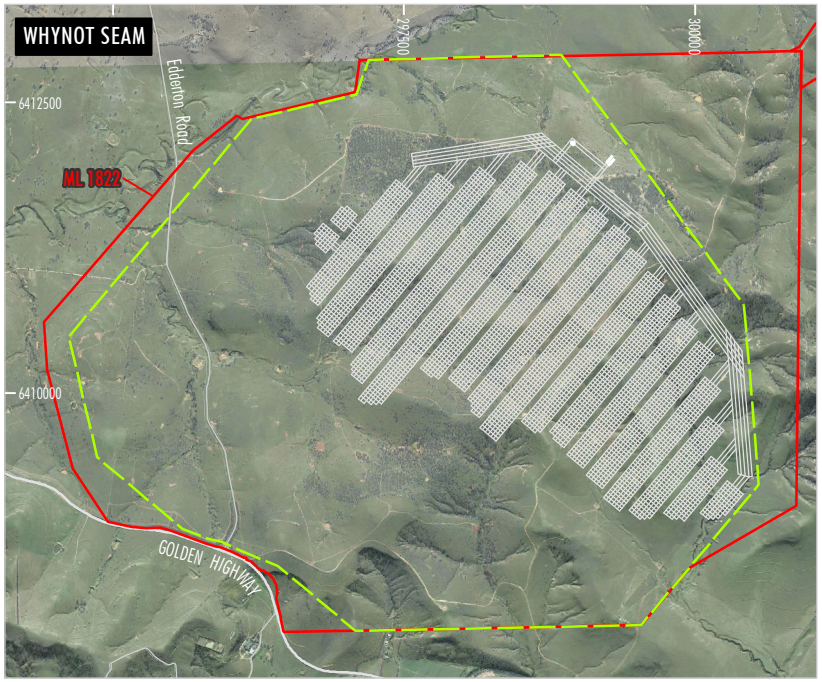
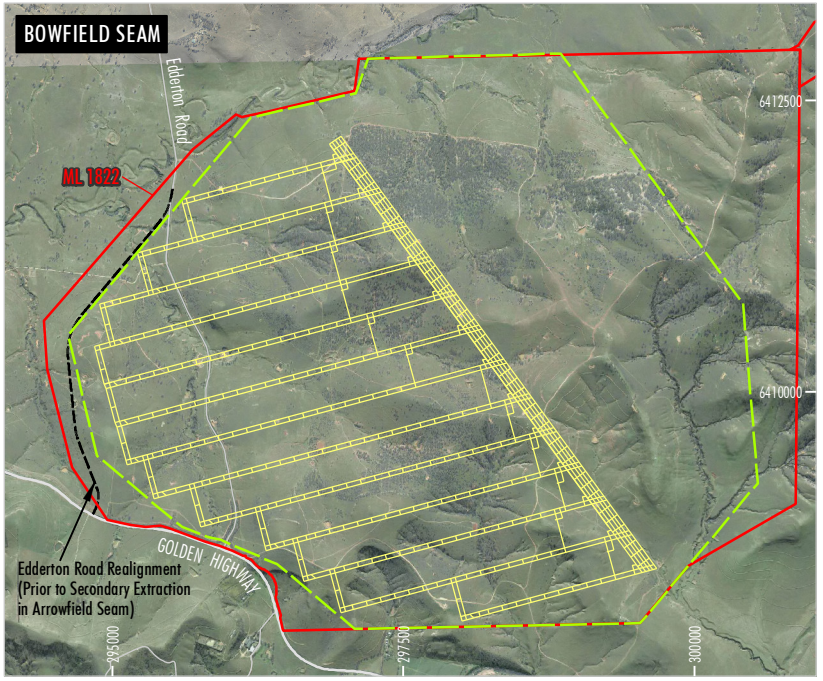
MAXWELL UNDERGROUND MINE PROJECT

Modified General Arrangement

Figure 2

SHM-20-04 MOD LW_RtS_202A





LEGEND

- Mining and Coal Lease Boundary
- Approved Indicative Underground Mining Layout
- Modified Indicative Underground Mining Layout
- Modified Indicative Exent of Underground Development

Source: NSW Spatial Services (2022); Arkhill (2021)
Orthophoto Mosaic: 2019

N

0 2

Kilometres

GDA1994 MGA Zone 56

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Modified Indicative Underground Mining Layout

Figure 3

Resource Strategies

SHM-20-04 MOD LW_RtS_203A

The Modification would provide the following benefits via repositioning of the ventilation shaft:

- minimisation of development drivage required to complete the shaft ventilation circuit, allowing development drivage to focus on achieving first longwall coal production earlier; and
- reduction in life of mine ventilation pressures resulting in improved ventilation efficiency and reducing the risk of spontaneous combustion.

Table 1 provides a comparative summary of the approved Project and the Project incorporating the Modification.

Table 1
Overview of the Approved Maxwell Underground Mine Project and the Modification

Component	Approved Maxwell Underground Mine Project	Proposed Modification
Mining Method	Underground extraction using "bord and pillar" and "longwall" mining methods.	No change to the underground extraction methods. No change to the bord and pillar panels in the Whynot Seam. Re-orientation of the longwall panels in the Woodlands Hill, Arrowfield and Bowfield Seams, resulting in a minor increase in the approved underground mining extent. Reduction in the width of some longwall panels in the Woodlands Hill Seam.
Resource	Coal seams in the Wittingham Coal Measures within ML 1822 (Whynot Seam, Woodlands Hill Seam, Arrowfield Seam and Bowfield Seam).	Unchanged.
Peak Annual Production	Up to 8 million tonnes (Mt) of ROM coal per annum.	Unchanged.
Coal Quality	At least 75% of product coal produced by the Project would be capable of being used in the making of steel (coking coals). The balance would be export thermal coals suitable for the new-generation High Efficiency, Low Emissions power generators.	Unchanged.
Mine Life	Mining operations may be carried out until 30 June 2047.	Unchanged.
Total Resource Recovered	Approximately 148 Mt of ROM coal (i.e. an annual average of approximately 5.7 Mt of ROM coal, yielding an annual average of approximately 4.8 Mt of product coal).	No material changes to total resource recovered (148.5 Mt) or annual average production rate.
Coal Handling and Preparation	Handling and processing of up to 8 Mt of ROM coal per annum. Transport of coal from underground faces to the MEA via an underground conveyor network. Use of a surge stockpile and coal sizing facilities at the underground MEA prior to transporting ROM coal to the Maxwell Infrastructure CHPP. Transportation of early ROM coal via internal roads to the Maxwell Infrastructure CHPP, while a covered, overland conveyor is constructed and commissioned. Subsequently, ROM coal would be transported via the covered, overland conveyor system. Use of the existing Maxwell Infrastructure CHPP with upgrades to coal handling and processing infrastructure.	Unchanged.
Management of Reject Material (i.e. Stone-derived Material)	Emplacement of coarse rejects and tailings primarily within the existing "East Void" in ML 1531 at the Maxwell Infrastructure precinct.	Unchanged.

Table 1 (Continued)
Overview of the Approved Maxwell Underground Mine Project and the Modification

Component	Approved Maxwell Underground Mine Project	Proposed Modification
General Infrastructure	Use of the existing Maxwell Infrastructure with upgrades. Development of an underground MEA and associated facilities that support the underground mining activities and provide for personnel and materials access to the underground mine. Development of infrastructure for power supply, ventilation and gas management for the underground mine.	Repositioning of the upcast ventilation shaft site and supporting infrastructure (e.g. access roads) outside of the approved surface development area for the MEA.
Product Transport	Transport of product coal to market or to the Port of Newcastle for export via the existing Antiene Rail Spur and Main Northern Railway. Transport of up to 7 Mt of product coal per annum along the rail loop (up to 12 train movements per day).	Unchanged.
Water Management	On-site water management system, including: recycling of water on-site; storage of water on-site (including in voids); water treatment; irrigation; and sharing of water with Mt Arthur Mine and other users. Augmentations and extensions to existing water management infrastructure and development of new water management storages, sumps, pumps, pipelines, sediment control, mine dewatering, water treatment and wastewater treatment infrastructure.	Additional ancillary water management infrastructure would be developed at the repositioned ventilation shaft site (e.g. sediment controls).
Workforce	During operation, the Project would directly employ approximately 350 personnel. Initial construction activities would require an average of approximately 90 personnel, and a maximum of approximately 250 personnel. Additional contractors would also be required during short periods over the life of the Project; for example, during longwall relocations, periods of higher underground development activities, scheduled plant shutdowns or other maintenance programs. These activities may require up to approximately 80 additional personnel.	Unchanged.
Hours of Operation	Operated on a continuous basis, 24 hours per day, seven days per week.	Unchanged.

2 ANALYSIS OF SUBMISSIONS

A total of 70 submissions on the Modification were received as follows:

- 8 submissions in the form of comments or suggested conditions were received from government agencies;
- 23 submissions from organisations (including 21 supporting submissions from small to medium enterprises and 2 objecting submissions from the Hunter Thoroughbred Breeders Association [HTBA] and Coolmore and Godolphin Woodlands Studs [jointly]); and
- 39 submissions from members of public (all in support[1]).

60 submissions were received in support of the Modification, while two objections to the Modification were received during the exhibition of the Modification Report (less than 3% of total submissions).

Supporting submissions for the Modification recognised Malabar's support of the community through economic contributions and community sponsorships, as well as the significant economic and social benefits of the Project. Some submissions also recognised that the Modification would improve the safety and efficiency of the Project with negligible incremental impacts to the environment.

Submissions were received from the following government agencies:

- Heritage NSW;
- MSC;
- Subsidence Advisory NSW;
- Department of Planning and Environment – Water (DPE-Water);
- Department of Regional NSW – Mining, Exploration and Geoscience (MEG);
- NSW Resources Regulator;
- NSW Environment Protection Authority (EPA); and
- Biodiversity and Conservation Division within DPE (BCD).

[1] One submission was recorded as 'comment' on the NSW Planning Portal but the submission states it supports the Modification.

3 ACTIONS TAKEN SINCE EXHIBITION

Given the limited number of objections received (2 out of 70 submissions received), no further refinement of the Modification is considered to be required. Additional information is provided in Section 4 to address queries raised in the submissions.

Since the commencement of the exhibition period of the Modification, Malabar has undertaken further engagement with interested stakeholders as detailed below.

Muswellbrook Shire Council

Malabar met with MSC on 16 August 2022 to provide an update on the status of the Project and an overview of the Modification.

Feedback received from MSC representatives was focused on matters related to the approved Project (i.e. no issues were raised in regard to the Modification).

Community Consultative Committee

Malabar provided an overview of the Modification to the Maxwell Community Consultative Committee (CCC) at the meeting on 9 August 2022. The meeting was attended by:

- the independent chairperson of the CCC;
- the deputy chairperson of the CCC;
- councillors from MSC;
- a representative from Coolmore and Godolphin Woodlands Studs;
- an Independent Minute Taker; and
- community representatives.

The Maxwell CCC attendees raised queries related to the approved Project (i.e. no issues were raised in regard to the Modification).

Near Neighbours

Malabar met with representatives from the Coolmore and Godolphin Woodlands Studs on 8 August 2022 to provide an update on the status of the Project and an overview of the Modification.

At the meeting, clarification was requested regarding proximity of mining to the Hunter River and receivers selected for the Noise Assessment. A response to these queries was provided via email on 15 August 2022.

4 RESPONSES TO SUBMISSIONS AND REQUESTS FOR INFORMATION

The majority of submissions received from organisations and members of the public supported the Modification. Accordingly, responses to these submissions are not required.

Responses to submissions and requests for information received from government agencies as well as the two objecting submissions are provided in the sub-sections below.

4.1 GOVERNMENT AGENCIES

4.1.1 Muswellbrook Shire Council

Built Features Management Plan

Issue

MSC requested that Edderton Road (and the Edderton Road realignment) as well as a Road Maintenance Management Plan be included in the Built Features Management Plan (BFMP), which would be updated incorporating the Modification.

Response

Malabar agrees with MSC's request and will include Edderton Road (and Edderton Road realignment) as well as a Road Maintenance Management Plan in the BFMP as part of relevant Extraction Plans. The BFMP will be prepared in consultation with MSC.

4.1.2 Heritage NSW

Heritage NSW states the following in its submission:

> *Heritage NSW is satisfied that the updating of the existing ACHMP will adequately manage and mitigate any impacts to ACH as a result of the proposed modification proceeding. Heritage NSW has no additional concerns or comments, and as such, does not need to be consulted with respect to MOD2 in the future.*

Accordingly, no further response to the Heritage NSW submission is required.

4.1.3 Subsidence Advisory NSW

Subsidence Advisory NSW states the following in its submission:

> *The area is located outside of a declared Mine Subsidence District, and future surface development of the land does not require Subsidence Advisory's approval.*
>
> *Subsidence Advisory has no further comment on the proposal.*

Accordingly, no further response to the Subsidence Advisory NSW submission is required.

4.1.4 Department of Regional NSW – Mining, Exploration and Geoscience

MEG states the following in its submission:

> *The Modification will generate similar benefits as to the overall Maxwell Underground Mine Project (the Project) of:*
>
> - *on average 350 operational workers over the life of the mine from 2022-23 to 2046-47 with an additional requirement for up to 250 construction workers during the construction phase.*
> - *production value of around $14 billion in current dollars*
>
> *MEG notes the Modification will result in an approximate reduction in capital investment of about $100 million due to optimisation and efficiencies from the revised mine layout noted above.*
>
> *MEG considers the Modification will provide an appropriate return to the NSW Government. The Maxwell Modification is considered to be an efficient use of resources. If the Modification does not proceed the economic and social benefits outlined above will not be realised.*

Accordingly, no further response to the MEG submission is required.

4.1.5 Department of Planning and Environment – Water

Water Take and Licencing

Issue

DPE-Water requested confirmation that Malabar has sufficient water entitlement held in water access licences for the maximum predicted take for each water source for the Project (incorporating the Modification), noting that the Modification would result in an increase in the take in the Hunter Unregulated Alluvial Source.

Response

Malabar currently holds sufficient entitlements in all water sources for the Project (as modified).

It is noted that water take from the Hunter Regulated River Alluvial Water Source would remain well within Malabar's existing entitlements of 125 units. Malabar also holds 198 units in the Management Zone 1B (Hunter River from Goulburn River Junction to Glennies Creek Junction) of the Hunter Regulated River Water Source.

Controlled Activities

Issue

DPE-Water requested confirmation that the Project (incorporating the Modification) works are undertaken in accordance with the *Guidelines for Controlled Activities on Waterfront Land* (Department of Industry, 2018).

Response

The Project (as Modified) would be undertaken in accordance with the *Guidelines for Controlled Activities on Waterfront Land*, as required.

4.1.6 NSW Resources Regulator

NSW Resources Regulator states the following in its submission:

> *Overall, the proposed modification does not substantially change the subsidence risks at the site as compared with the previously approved project. It is considered that the subsidence risks associated with the project can be managed with established risk control practices.*

Accordingly, no further response to the NSW Resources Regulator submission is required.

4.1.7 NSW Environment Protection Authority

EPA states the following in its submission:

> *The EPA has reviewed the Proposal and supporting documentation. The EPA does not object to the proposed modification to the consent.*

Accordingly, no further response to the EPA submission is required.

4.1.8 Biodiversity and Conservation Division

Threatened Flora Survey

Issue

BCD requested further information regarding the threatened flora survey effort undertaken for the Modification (particularly in regard to width of survey transect, density of vegetation survey methodology and extent of habitat covered) in consideration of BCD's threatened plant survey guidelines (*Surveying threatened plants and their habitats – NSW survey guide for the Biodiversity Assessment Method*).

Response

The threatened flora survey effort was undertaken in consideration of BCD's threatened plant survey guidelines.

Dr Colin Driscoll conducted threatened flora surveys using a transect width of 10 m for all species, which satisfies the requirement for all strata in open vegetation (as shown on Figures 8a and 8b in the Biodiversity Development Assessment Report [BDAR] for the Modification).

Section 5.1 of the BCD's flora survey guidelines recommends that multi-species searches are restricted to a maximum of five species in the same stratum per traverse. There were no more than three species in the same stratum that required surveying within each plant community type present, as different species were targeted in different plant community types (refer to Table 8 in the BDAR). Therefore, in accordance with the recommendation, less than five species in the same stratum were searched for concurrently during each traverse.

Provision of Supporting Information

Issue

BCD requested that supporting information for maps, GIS data and plot field data sheets used in the BDAR for the Modification be provided.

Response

Malabar will provide the following information requested by BCD:

- plot field data sheets for all vegetation quadrats used for the assessment;
- GIS files for all maps in the BDAR; and
- JPEG files for all maps in the BDAR.

BAM Compliance

Issue

BCD raised concern that the information presented in the BDAR for the Modification does not fully meet the requirements of the NSW *Biodiversity Assessment Method* (BAM) (DPIE, 2020). BCD requested the following in their submission:

- The biodiversity risk weighting for all species-credit species considered for the project.

- Confirmation of the unit of measure (count or area of suitable habitat) for all species that require a species polygon.
- Confirmation of the threatened entities that may be dependent upon, or may use habitat features associated with any of the prescribed impacts.
- Measures to mitigate and manage impacts, with details of action, outcome, timing and responsibility.

Response

The BDAR provides adequate detail to meet the requirements of the BAM, as follows:

- The biodiversity risk weighting for all species-credit-species is only required for the species which have been assessed as being present on the subject land. This is provided in text (Section 4.4.1 of the BDAR).
- The unit of measure for the species that require a species polygon is stated in Table 13 in the BDAR to be the 'Area of Habitat' in hectares (and therefore 'area' not 'count' for all species). The area values are consistent with the BAM Calculator (BAM-C) reports attached to the BDAR.
- Threatened entities that may be dependent upon, or may use habitat features associated with any of the prescribed impacts have been described in Section 7.3 of the BDAR, which includes the Striped Legless Lizard and Squirrel Glider. It is noted that there are no habitat features present and/or no features that are known to sustain threatened entities (Sections 5.1 to 5.4 of the BDAR).
- The responsibility to carry out measures to mitigate and manage impacts is that of Malabar. As this is a modification to an existing project, these measures have already been established and are reflected in management plans which provide further detail of Malabar's responsibilities, and would be updated to incorporate the Modification.

4.2 OTHER SUBMISSIONS

62 public submissions were made on the Modification, comprising 60 supporting submissions and two objections.

Supporting submissions for the Modification recognised Malabar's support of the community to date through economic contributions and leasing of Malabar-owned land and water licences, as well as the significant economic and social benefits the Project would deliver through employment and training initiatives. Some submissions also recognised that the Modification would improve the efficiency of the Project with negligible incremental impacts to the environment.

Objecting submissions were received from the HTBA and the Coolmore and Godolphin Woodlands Studs (jointly). These two objecting submissions raised the following:

- Concerns that the Modification would increase subsidence related risks to the Hunter River and Saddlers Creek and result in exceedances of the subsidence performance measures set out in Condition C1 of Development Consent SSD 9526.
- Concerns that the groundwater predictions are highly dependent on subsidence angle of draw assumptions.
- A request that the consent requirement to update the groundwater model every three years is extended to include modifications (including the Modification).
- A concern that updated noise modelling predictions were not presented for receivers located on the Godolphin Woodlands Stud.

Detailed responses to these concerns are provided below.

In May 2017, Malabar publicly announced its intention to acquire the Maxwell exploration tenements and the Maxwell Infrastructure. As part of this announcement, Malabar confirmed its commitment to investigate development of the coal resource solely as an underground mine.

Key senior Malabar personnel have undertaken extensive consultation with the equine enterprises, with a number of meetings and additional correspondence held with the equine enterprises since 2018 (refer to Section 5 of the Environmental Impact Statement [EIS] for the approved Project). Meetings with the equine enterprises have continued as part of the ongoing operation of the site and have also been held during the preparation of the Modification Report and again during the public exhibition period for this Modification. The equine enterprises are also represented on the Maxwell CCC, enabling them to receive regular project updates and provide feedback as the Project progresses.

Malabar incorporated a number of design measures and constraints into the original Project (now approved) to address the concerns the equine enterprises had raised and avoid and mitigate potential impacts. Key design measures that Malabar incorporated into the approved Project include:

- limiting the requirement to develop new infrastructure through the use of the substantial existing Maxwell Infrastructure;
- placement of the MEA in a natural valley, and reducing the height of infrastructure components, to restrict direct views of the MEA from the Golden Highway and neighbouring horse studs;
- use of the existing site access to the Maxwell Infrastructure from Thomas Mitchell Drive, to limit Project traffic movements on the Golden Highway and Edderton Road;
- sealing the extended site access road to the MEA no later than 6 months after the date of commencement of first workings;
- use of a covered overland conveyor to transport coal extracted by longwall mining machinery to further reduce potential dust and noise impacts;
- voluntary relinquishment of the portion of Malabar's exploration licence that extended south of the Golden Highway beneath the neighbouring Godolphin Woodlands Stud;
- avoiding direct subsidence impacts on the Hunter River, the Hunter River alluvium and Saddlers Creek by imposing constraints on the design of the mine layout;
- limiting the extent of the underground mine layout to beneath freehold land owned by Malabar (i.e. there would be no direct subsidence impacts to land owned by neighbouring horse studs);
- use of water treatment systems that maximise the re-use of water on-site and remove any requirement to source water externally for mining operations (e.g. from the Hunter River); and
- development of a site water management system that avoids the need for controlled release of mine-affected water to the Hunter River.

Malabar has implemented a consistent approach to the design of the proposed Modification, including designing the proposed ventilation fans and associated infrastructure so that they would not be visible from the Godolphin Woodlands Stud or the Coolmore Stud.

Malabar will continue to work closely and collaboratively with the equine enterprises as the Project develops.

Subsidence

Issue

The HTBA and Coolmore and Godolphin Woodlands Studs objections refer to a report prepared by Mr Peter Scott (dated 24 November 2020) that was presented to the IPC as part of the assessment and determination process for the approved Project. Mr Scott's 2020 review of the EIS Subsidence Assessment misinterpreted the subsidence prediction methodology applied by Mine Subsidence Engineering Consultants (MSEC, 2019) and peer reviewed by Professor Bruce Hebblewhite (i.e. the Incremental Profile Method applied by MSEC does not rely on angle of draw to determine potential subsidence impacts).

In submissions on the Modification, the HTBA and Coolmore and Godolphin Woodlands Studs have referred again to Mr Scott's 2020 report to raise the following concerns regarding the Modification:

- the increased proximity of the angle of draw to the Hunter River and Saddlers Creek; and

- the Modification would result an exceedance of the subsidence performance measures set out in Condition C1 of Development Consent SSD 9526, particularly with respect to the Hunter River and Saddlers Creek.

Response

The Maxwell Project Subsidence Assessment (Appendix A of the EIS) was prepared by Dr James Barbato (MSEC) and peer reviewed by Professor Bruce Hebblewhite (Chair of Mining Engineering at the University of NSW). Professor Hebblewhite's peer review letter is provided in Attachment 6 of the EIS.

The NSW IPC considered Mr Scott's 2020 report and stated the following in its Statement of Reasons when approving the Project:

> *Objectors to the Project commissioned a subsidence expert who questioned the adequacy of the SA, with particular reference to the angle of draw used to assess impacts of subsidence. The Commission examined the concerns raised in the public submissions and finds that the EIS meets the requirements of the SEARs and all applicable legislative and guideline requirements. The Commission also notes the findings in Professor Hebblewhite's peer review of the SA (paragraphs 193 and 199) and the conclusions of DPE (paragraphs 205 to 208) and agrees that the SA is appropriate to predict the potential subsidence impacts; that the predicted subsidence will be wholly located within Malabar-owned land (except for Edderton Road); that suitable remediation measures are proposed; and any residual impacts can be appropriately monitored and mitigated through the Recommended Conditions.*

In relation to the subsidence prediction methodology, the peer reviewer, Professor Bruce Hebblewhite, noted:

> *It is noted that much of the Study Area is agricultural land with relatively few sensitive features that could be adversely impacted by the subsidence effects discussed. To this extent, the application of the MSEC IPM prediction methodology is considered to provide reasonable levels of confidence for subsidence prediction and impact assessment, given that "worst-case" scenarios have been adopted in the cases where greatest uncertainty exists.*

MSEC (2022) state the following regarding potential impacts of the Project (as modified) on the Hunter River and Saddlers Creek (emphasis added):

- *The thalweg of the Hunter River is located at a minimum distance of 470 m from the modified mining area. At this distance, the predicted vertical subsidence at the river channel is expected to be negligible. The predicted conventional tilts, curvatures and strains are not expected to be measurable.*
- *The river channel itself is therefore not expected to experience adverse impacts resulting from the conventional or valley-related effects due to the Project (as modified).*
- *The thalweg of Saddlers Creek is located 125 m from the modified mining area, at its closest point. At this distance, the predicted vertical subsidence at the creek channel is expected to be negligible. The predicted conventional tilts, curvatures and strains are not expected to be measurable.*
- *The creek channel itself is therefore not expected to experience adverse impacts resulting from the conventional or valley-related effects due to the Project (as modified).*

These findings are consistent with the key findings of the Subsidence Assessment prepared for the approved Project (MSEC, 2019). Accordingly, the Modification is not considered to present additional risk of material adverse subsidence impacts occurring to the Hunter River or Saddlers Creek.

Malabar is confident that it could continue to operate the Project (as modified) in accordance with the requirements of Condition C1 of Development Consent SSD 9526.

Groundwater Predictions

Issue

The HTBA raised the following concerns regarding the groundwater predictions for the Modification:

- A misapprehension that the groundwater model relied on the subsidence angle of draw to predict groundwater drawdowns and inflows and that these could be underestimated if the angle of draw was different to what has been modelled.
- The Modification is predicted to result in an increase in drawdown within the alluvials of Saddlers Creek and how this could occur in the context of overall inflow volumes decreasing over the life of the Project.
- Groundwater inflows for the post-mining period have not been reported for the Modification.

Response

HydroSimulations (2019) developed and calibrated a numerical groundwater model for the EIS Groundwater Assessment. The calibration of the numerical groundwater model showed generally good agreement to the comprehensive groundwater level/pressure data (HydroSimulations, 2019). Dr Frans Kalf in the peer review of the Groundwater Assessment accepted the calibration of the groundwater model (Attachment 6 of the EIS).

The numerical groundwater model calibration was verified for the Modification using updated groundwater monitoring data collected from 2018 to 2021. The verification indicates the groundwater model continues to calibrate well to the updated data and is fit for purpose.

The IPC stated the following in its Statement of Reasons when approving the Project:

> *The Commission is satisfied with the groundwater modelling undertaken by the Applicant and agrees with DPIE and the peer reviewer, Dr Kalf, that the Project has been suitably assessed and the groundwater model is 'fit for purpose' for this approval. The Commission is also satisfied the groundwater model achieves primarily a Class 2 confidence level under the Australian Groundwater Modelling Guidelines model confidence level classification table.*

The HTBA's assertion that the predicted groundwater drawdowns and inflows are particularly sensitive to adopted angle of draw assumptions is incorrect. The groundwater model for the Modification adopted the same conservative methodology used in the EIS Groundwater Assessment to assess the potential impacts of the Modification (i.e. the modelling commented on in the above quote from the IPC).

The proposed realignment of longwall panels is logically predicted to result in an increase in drawdown in some areas (including a small section of the Saddlers Creek alluvium) and a decrease in drawdown in other areas, relative to the approved Project, including a reduction in depressurisation of the deeper strata beneath the Hunter River. On balance, the Modification would result in a modest overall reduction of approximately 500 megalitres in groundwater inflows over the life of the Project (SLR, 2022).

At the completion of mining, Malabar would discontinue dewatering of the Maxwell Underground and subsequently, groundwater levels in the coal seams and the overlying water-bearing strata would recover. Consistent with the EIS Groundwater Assessment, this recovery period is represented in the numerical groundwater model for the Modification by a 1,000-year recovery simulation. The predicted impacts of the Modification are assessed for both the operational period and the post-mining recovery period (e.g. Figure 16 of the Modification Groundwater Review shows the predicted incidental take of water from the alluvium for the full 1,000+ year simulation period).

Groundwater Model Updates

Issue

The HTBA requested that the existing conditioned requirement to update the numerical groundwater model every three years be extended to include a requirement to update the numerical groundwater model for modifications.

Response

As described above, the numerical groundwater model was reviewed and updated to incorporate additional groundwater monitoring data collected from 2018 to 2021. The verification process indicated that the groundwater model continued to calibrate well to the updated data and the model was fit for purpose (i.e. the model has been updated for the Modification).

Accordingly, no further updates to the groundwater model are required.

Noise Modelling Predictions

Issue

Godolphin Woodlands Stud and HTBA raised concerns that noise modelling predictions were not presented for receivers located on the Godolphin Woodlands Stud.

Response

The Noise Assessment modelled potential impacts of the Modification at five key representative receivers on the basis that *"Compliance at those five key receivers would infer compliance at all the southern receivers identified in the EIS"*.

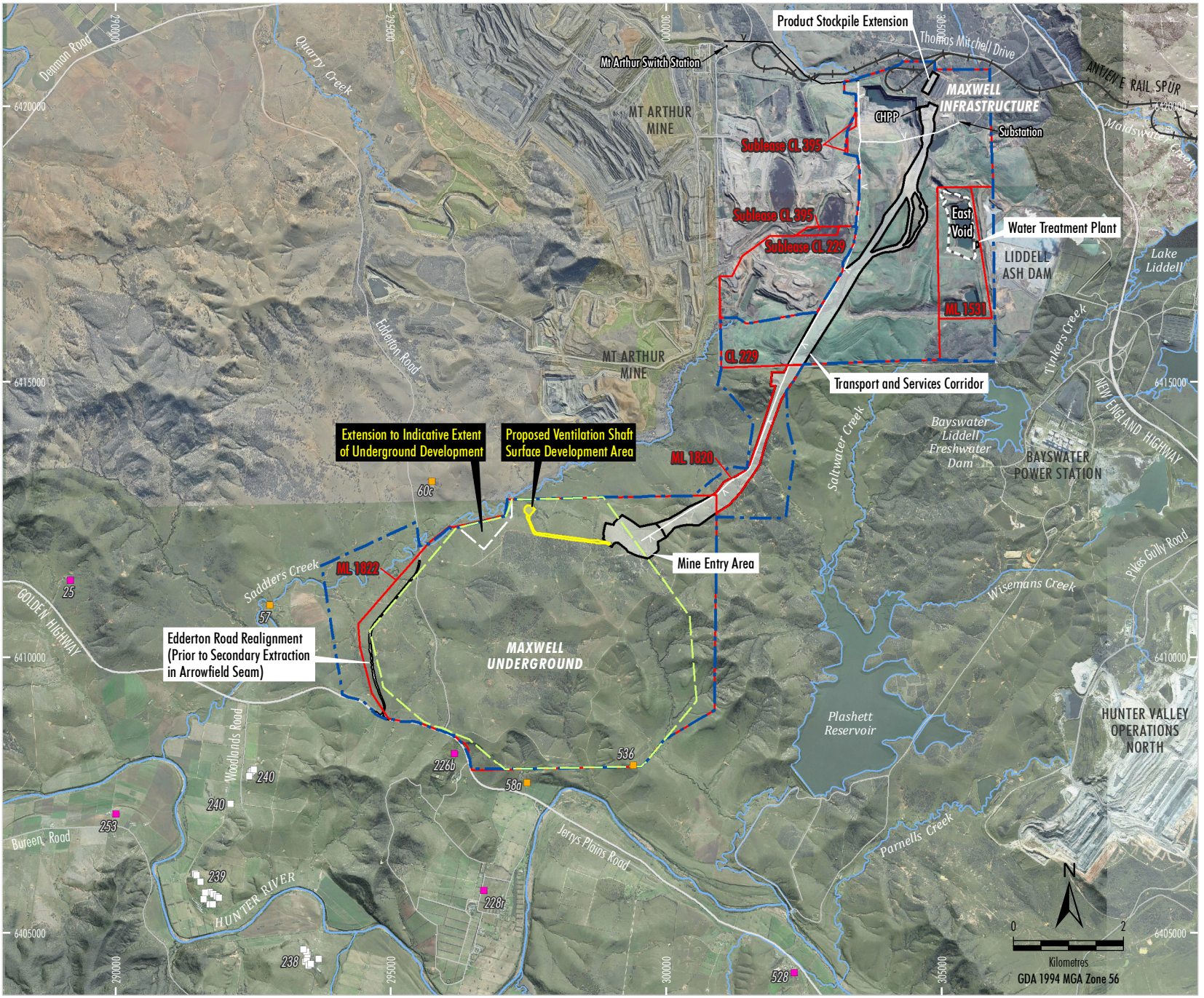
Figure 4 shows the representative receivers modelled in the Noise Assessment and the receivers located on the Godolphin Woodlands Stud.

Receiver 226b is one of the representative receivers used in the Noise Assessment. Receiver 226b is located on Coolmore Stud and is approximately 4.5 kilometres (km) from the proposed ventilation shaft pad. The nearest receiver on the Godolphin Woodlands Stud is approximately 6.8 km from the proposed ventilation shaft pad. Noise predictions at Receiver 226b remain well below the noise criteria specified in Condition B1 of Development Consent SSD 9526 and this would also be the case for existing residences at the Godolphin Woodlands Stud, given that they are materially further away.

Receiver 57 (a Malabar-owned receiver) is also located closer to the ventilation shaft pad (approximately 4.9 km compared to 6.8 km) and has less topographic shielding than the nearest receivers on the Godolphin Woodlands Stud. Predicted noise levels at Receiver 57 also remain well within the noise criteria specified in Condition B1 of Development Consent SSD 9526 for the receivers on Godolphin Woodlands Stud.

The NSW EPA has reviewed the Modification proposal and supporting documentation (including the Noise Assessment) and raised no concerns regarding the noise model, its predictions, nor its conclusions.

Malabar is confident that the revised location of the ventilation shaft would not affect its ability to meet the noise conditions set out in Condition B1 of Development Consent SSD 9526.



LEGEND

- Mining and Coal Lease Boundary
- Proposed Ausgrid 66 kV Power Supply Extension #

Approved Maxwell Underground Mine

- Development Application Area
- Indicative Extent of Underground Development
- Indicative Surface Development Area
- CHPP Reject Emplacement Area
- 66 kV Power Supply

Proposed Modification

- Modified Indicative Extent of Underground Development
- Indicative Modification Surface Development Area

Representative Receivers Used in Noise Assessment

- Mine-owned Dwelling
- Privately-owned Dwelling

Godolphin Woodlands Stud Receivers

- Privately-owned Dwelling

Subject to separate assessment and approval.

Source: NSW Spatial Services (2022); MSEC (2021, 2019)
Orthophoto Mosaic: 2020, 2019

MALABAR

MAXWELL UNDERGROUND MINE PROJECT

Representation Receivers Modelled in Noise Assessment

Figure 4

SHM-20-04 MOD LW_RtS_204A

5 PROJECT EVALUATION

This Submissions Report provides responses to issues raised by submissions from government agencies, local councils, organisations and members of the public during the exhibition period for the Modification Report.

A total of 70 submissions on the Modification were received as follows:

- 8 submissions in the form of comments or suggested conditions were received from government agencies;
- 23 submissions from organisations (including 21 supporting submissions from small to medium enterprises and 2 objecting submissions from the HTBA and from Coolmore Australia and Godolphin Australia, respectively); and
- 39 submissions from members of public (all in support[2]).

60 submissions were received in support of the Modification, while two objections to the Modification were received during the exhibition of the Modification Report (less than 3% of total submissions).

Responses to submissions received from government agencies and organisations are provided in Section 4.

The Modification would involve minimal additional environmental impact compared to the approved Project. The Modification would increase certainty of the Project being developed to its full capacity and the associated realisation of "significant economic benefits for the local area, region and State" and would provide the following benefits:

- improved mine safety due to aligning the underground mine plan more favourably with the geotechnical environment;
- improved management of subsidence impacts on Edderton Road;
- less development drivage required to achieve first longwall coal, resulting in earlier commencement of longwall production (and associated economic and community benefits);
- reduction in initial capital expenditure required to achieve steady-state production and future capital costs associated with modifications to longwall equipment;
- extraction of initial longwall panels in an area with lower gas content, which provides additional time to refine gas management strategies;
- minimisation of development drivage required to complete the shaft ventilation circuit, allowing development drivage to focus on achieving first longwall coal production earlier; and
- reduction in life of mine ventilation pressures resulting in improved ventilation efficiency and reducing the risk of spontaneous combustion.

Malabar would operate the modified Project in accordance with the existing environmental management plans and environmental monitoring programs. The modified Project would continue to operate in accordance with Development Consent SSD 9526 and would be substantially the same as the approved Project.

In weighing up the main environmental impacts (costs and benefits) assessed and described in the Modification Report as well as the submissions received during the public exhibition period, the Modification is, on balance, considered to be in the public interest of the State of NSW.

[2] One submission was recorded as 'comment' on the NSW Planning Portal but the submission states it supports the Modification.

6 REFERENCES

Department of Industry (2018) *Guidelines for Controlled Activities on Waterfront Land*.

Department of Planning, Industry and Environment (2020) *Biodiversity Assessment Method*.

Department of Planning, Industry and Environment (2021) *State Significant Development Guidelines – Preparing a Submissions Report*.

HydroSimulations (2019) *Maxwell Project: Groundwater Assessment – In support of an EIS*.

Mine Subsidence Engineering Consultants (2019) *Maxwell Project: Environmental Impact Statement – Subsidence Assessment*.

Mine Subsidence Engineering Consultants (2022) *Maxwell Underground Mine Project: Modification Application – Subsidence Assessment*.

SLR Consulting Australia (2022) *Maxwell Underground Mine Project – Modification 2 Groundwater Review*.