



MAXWELL PROJECT

APPENDIX L

Social Impact Assessment





MAXWELL PROJECT SOCIAL IMPACT ASSESSMENT



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EXECUTIVE SUMMARY

Introduction

Malabar Coal Limited (Malabar) is seeking Development Consent for the Maxwell Project (the Project) under the New South Wales (NSW) *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Project is an underground coal mining development located in the Jerrys Plains locality, south of Muswellbrook. The Project would make use of existing facilities at the former Drayton Mine, which include a coal handling and processing plant, stockpile facilities, workshops, offices, and train loading facilities, collectively renamed “Maxwell Infrastructure”.

The Project would require a construction workforce average of 90 full-time equivalent (FTE) personnel over the three-year construction period, with a peak of 250 personnel.

The Project’s operation would require an average of 350 personnel during the first ten years, commencing with 160 personnel.

This Social Impact Assessment (SIA) has been prepared in accordance with the Secretary’s Environmental Assessment Requirements (SEARs) and in accordance with the NSW Department of Planning and Environment’s (DP&E’s) Social Impact Assessment Guideline for State Significant Development 2017 (SIA Guideline).

Area of Social Influence

The SIA includes a focus on nearby properties including homes, farms, wineries and horse studs. Nearby communities that may experience benefits along with social impacts as a result of the Project include Jerrys Plains, Muswellbrook and Denman.

The primary region of social influence includes the Muswellbrook Local Government Area (LGA), where the Project is located, and the adjoining Singleton LGA, collectively described as the Project region. Along with Muswellbrook, Singleton is likely to be a residential base for Project personnel, and has been considered with respect to population, housing and social infrastructure.

More diffuse employment and supply chain benefits are also likely in the wider Hunter Valley region.

The Project is a proposed State Significant Development and has the potential to result in significant socio-economic benefits at the local and State levels. The net benefits of the Project to NSW residents are estimated in the Economic Assessment prepared for the Project (Environmental Impact Statement [EIS] Appendix M).

Method and Consultation Process

This SIA has drawn on the following sources to establish the social baseline for the area and identify potential changes to social conditions as a result of the Project:

- review of studies and community feedback received on the Project;
- consideration of DP&E recommendations on the Project’s SIA Scoping Report (August 2018);
- review of plans, strategies and the demography of the Project region;
- review of the findings of other relevant EIS studies;
- consultation undertaken by Malabar for the Project, which has included:
 - DP&E;
 - representatives of the Muswellbrook Shire and Singleton Councils;
 - State and Federal elected representatives;
 - infrastructure providers; and

- the owners of the Coolmore and Godolphin Woodlands Studs;
- consultation undertaken by Elliott Whiteing for this SIA, which included:
 - interviews with Muswellbrook Shire and Singleton Council representatives;
 - consultation with neighbouring landholders and community members through community information sessions and Community Consultative Committees (CCCs);
 - SIA workshop with community and Government agencies;
 - correspondence with the Coolmore and Godolphin Woodlands Studs;
 - interviews with representatives of Hollydene Estate Winery, Jerrys Plains Public School, Muswellbrook Public School, Muswellbrook South Public School, Muswellbrook Hospital, Singleton Hospital, NSW Rural Fire Service Hunter Valley Operations and Dalswinton Rural Fire Brigade, and a NSW Farmers Association's local representative; and
 - consultation with a Wanaruah Local Aboriginal Land Council (LALC) representative, with input also sought via the Project's Registered Aboriginal Parties.

Potential Benefits

The Maxwell Project is likely to have the following benefits and opportunities:

- an average of 90 FTE and a peak of approximately 250 FTE construction jobs over a three year construction period, with emphasis on local supply and employment;
- an average of 350 personnel during the first ten years, 270 personnel during the second ten year period and 190 personnel for the remaining six years of operation, with consequent social benefits at family and community levels;
- local employment benefits and workforce diversity, including Indigenous people, women and people who are new to the underground coal mining industry;
- positive contributions to local and regional amenity due to population increases and associated economic stimulus;
- support for local community objectives and aspirations including improved health and wellbeing and economic diversity;
- community investment through arrangements with Muswellbrook Shire Council, in addition to Malabar's Sponsorship and Donations, that focus on support for:
 - local community infrastructure, including health, education and childcare; and
 - local community values and cohesion, including support for local events, sporting organisations, and community-led projects;
- positive contributions to local agriculture and agricultural suppliers and services, as Malabar is actively improving its agricultural and viticultural properties so that these will be long-term sustainable and productive businesses;
- direct supply opportunities available to businesses based in the Project region and adjoining LGAs, supporting the vitality and growth of local and regional businesses;
- payment of royalties and taxes to the NSW and Commonwealth Governments, which contribute to providing services and infrastructure for the people of NSW; and
- payment of rates to the Muswellbrook Shire Council.

Social impacts and residual impacts

Assuming implementation of social impact mitigation and enhancement strategies as specified, the Project will potentially have the following social impacts:

- recommencement of activities at Maxwell Infrastructure and train movements along the Antiene Rail Spur potentially affecting residential amenity for neighbouring landholders as a result of noise and/or dust, which would be less than previous impacts experienced during open cut operations at the former Drayton Mine over a period of over 30 years;
- potential for stress and/or anxiety for some neighbouring landholders due to uncertainties or concerns about environmental or social impacts associated with the Project;
- minor changes to road use and traffic conditions on Thomas Mitchell Drive, Edderton Road and the New England and Golden Highways;
- whilst EIS technical reports indicate no potential for changes to the landscape or environmental qualities which would be detrimental to the nearby horse studs, negative perceptions may persist until successful environmental management and cooperation with neighbours can be demonstrated;
- potential for community concern about impacts on water resources, which has been assessed through studies supporting the EIS as having minimal impacts, and will be addressed through communication and monitoring strategies as detailed in the relevant section of the EIS;
- potential effects on community cohesion due to community conflict about the Project, offset by Malabar's intended community investments;
- small incremental increases in demand for services including GPs, hospitals, police and emergency services, childcare, education and training, Council services and facilities, within the limits of projected population growth for the Project region;
- increased demand (including potential cumulative demands) for rental housing; and
- potential for cumulative competition for skilled labour at a local and regional level.

Measures to avoid, mitigate, manage and offset the potential environmental impacts of the Project are described in the EIS and its specialist studies. Residual social impacts following the Project's implementation of Malabar commitments and social impact management strategies (see Sections 6.1-6.7) include:

- emerging or unanticipated environmental impacts at individual neighbouring properties, to be identified and addressed through regular engagement;
- potential for anxiety or stress among individual neighbouring landholders regarding property-specific or more general environmental impacts, to be addressed through ongoing and adaptive management strategies;
- potential for ongoing reservation, negative perception or opposing community views about the Project's interaction with the region's equine and viticulture operations, or perceived conflict with regional economic transition goals, to be addressed by Malabar's demonstrable commitment to improve the sustainability and quality of its agricultural and viticultural assets; and
- cumulative impacts on housing affordability, social infrastructure capacity, local labour and skill shortages, to be addressed through a cumulative impact monitoring framework with local and state agencies and other nearby operations.

The SIA considers the potential for Project impacts and opportunities to affect different population and socio-economic groups, in particular neighbouring landholders, low income households, local Aboriginal households, women, young people and unemployed people. The Project's Social Impact Management Strategies seek to engage these stakeholders, specifically in relation to potential impacts, and to maximise their access to associated Project opportunities and benefits.

Social Impact Management and Benefit Enhancement Strategies

Strategies designed to mitigate social impacts and optimise Project benefits for local communities include:

- **Stakeholder Engagement and Relationships (Section 6.2):**
 - provision of adequate, timely information about the Project, expected impacts and associated management and monitoring strategies for all potentially affected stakeholders;
 - access to Project opportunities and benefits; and
 - dedicated personnel and an engagement program which builds long-term stakeholder relationships;
- **Neighbour Amenity (Section 6.3):**
 - developing good neighbour relations based on regular, transparent and responsive engagement;
 - minimising amenity impacts at neighbouring properties;
 - contributing positively to local character and landscape values; and
 - providing timely and accurate feedback on the potential impacts of the Project;
- **Community Infrastructure and Wellbeing (Section 6.4):**
 - managing Project-related demand on services and facilities;
 - assisting social infrastructure and service planning with accurate data;
 - agreements with key service providers; and
 - supporting local initiatives that contribute to workforce and community wellbeing.
- **Housing and Workforce Management (Section 6.5):**
 - maximising local employment (Muswellbrook and Singleton LGAs) including Indigenous people, women, young people and locals previously unskilled in mining and/or underground mining;
 - monitoring numbers of personnel moving to the Muswellbrook and Singleton LGAs and advising Councils of anticipated workforce numbers;
 - encouraging non-local operational personnel and their families to settle locally; and
 - supporting workforce health and wellbeing.
- **Local Business (Section 6.6):**
 - enabling local business businesses and suppliers to participate in Project procurement opportunities; and
 - supporting initiatives and service industries that promote liveability, workforce settlement and associated economic growth.

Section 6.7 describes the Project's strategies in relation to mine closure and decommissioning, as they relate to future plans for mined land, workforce management, and community and stakeholder engagement. These strategies are captured in the action plans at Sections 6.2, 6.3 and 6.5.

1. INTRODUCTION

Maxwell Ventures (Management) Pty Ltd, a wholly owned subsidiary of Malabar Coal Limited (Malabar), is seeking Development Consent for the Maxwell Project (the Project). The Project is a State Significant Development (SSD), and Development Consent is therefore being sought from the New South Wales (NSW) Independent Planning Commission, Minister for Planning or delegate under the New South Wales (NSW) *Environmental Planning and Assessment Act 1979* (EP&A Act). An Environmental Impact Statement (EIS), including a Social Impact Assessment (SIA), is required as part of the Development Consent application process.

This report documents the Project SIA as follows:

- Section 1 establishes the purpose of this report;
- Section 2 outlines the requirements for the SIA and the methodology applied;
- Section 3 describes the process and results of stakeholder engagement;
- Section 4 details the social baseline for the Project's social area of influence;
- Section 5 details the potential impacts and benefits of the Project, including an evaluation of their significance to local and regional communities;
- Section 6 describes the Project's social impact management, mitigation, enhancement and monitoring strategies; and
- Section 7 concludes the SIA with a summary of the Project's social impacts and benefits.

2. SCOPE OF ASSESSMENT

2.1 The Project

2.1.1 Project overview

Malabar is an independent Australian-owned mining company based in the Hunter Valley in New South Wales. In May 2017, Malabar publicly announced its intention to acquire Exploration Licence (EL) 5460 and the former Drayton Mine (now known as Maxwell Infrastructure). The transfer of ownership of EL 5460 and the Maxwell Infrastructure to Malabar was formally completed on 26 February 2018.

The Project is located east-southeast of Denman, north-west of Jerrys Plains and south-southwest of Muswellbrook within the Muswellbrook Local Government Area (LGA) (Figure 2-1). In response to stakeholder concerns about the potential impacts of an open cut mine, Malabar confirmed its commitments to:

- investigate development of the resource in EL 5460 solely as an underground mine;
- accept conditions imposed on EL 5460 preventing any open cut development; and
- relinquish the portion of EL 5460 that was south of the Golden Highway.

The Project would involve an underground mining operation that would produce high quality coal over a period of approximately 26 years. The Project's underground mining area is located entirely within EL 5460. Part of EL 5460 that would not form part of the Project lies within the Singleton LGA (Figure 2-1).

Existing Maxwell Infrastructure would be used as part of the Project, including a coal handling and preparation plant (CHPP), rail facilities and other infrastructure and services (including water management infrastructure, administration buildings, workshops and services). The Project would also include the development of some new infrastructure to support underground mining.

A mine entry area would be developed for the Project in a natural valley in the north of EL 5460 (Figure 2-2) to support underground mining and coal handling activities, and provide for personnel and materials access. Run-of-mine (ROM) coal brought to the surface at the mine entry area would be transported to the Maxwell Infrastructure. Early ROM coal would be transported via internal roads during the construction and commissioning of a covered, overland conveyor system. Subsequently, ROM coal would be transported via a covered, overland conveyor system.

The majority of coal produced would be capable of being used in the steel manufacturing industry. The balance would be export thermal coals suitable for High Efficiency, Low Emissions (HELE) power generation.

With underground mining expected to occur for approximately 26 years, the Project would operate to approximately 2046. Exploration activities would also continue to be conducted in the Development Application area during the life of the Project, to investigate geological features, seam structures and coal characteristics as input to detailed mine planning.

The Project would support continued rehabilitation of previously mined areas and overburden emplacement areas within the Project area. The volume of the East Void would be reduced through the emplacement of reject material generated by Project coal processing activities and would be capped and rehabilitated at the completion of mining.

At the completion of Project mining activities, infrastructure would be decommissioned (where an agreement to retain infrastructure is not in place with relevant stakeholders), and final landform earthworks and revegetation would be completed.

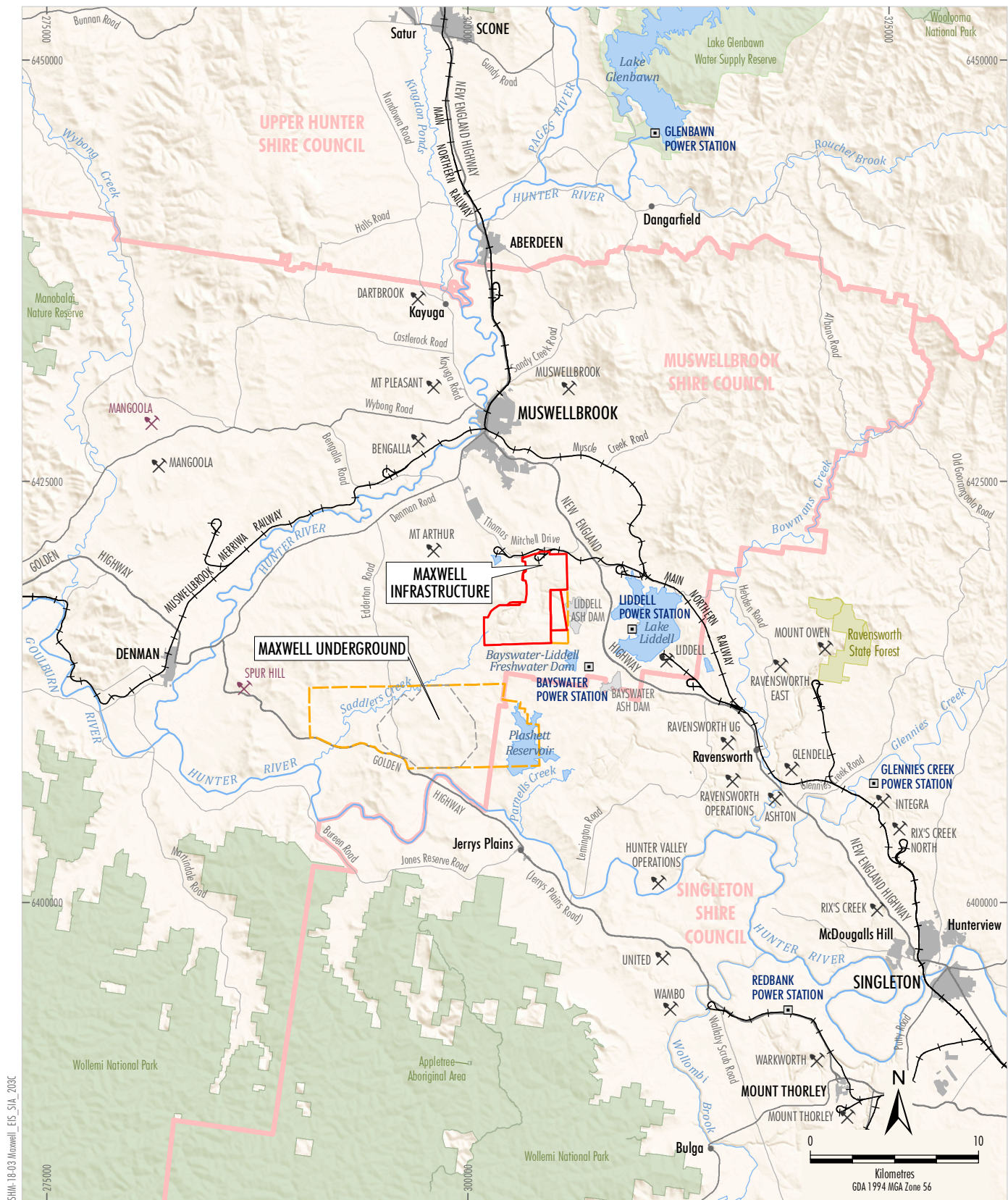
The Project general arrangement is shown on Figure 2-2.

The Project area comprises the following main domains:

- Maxwell Underground – comprising the proposed area of underground mining operations and the mine entry area within EL 5460;
- Maxwell Infrastructure – the area within existing mining leases comprising substantial existing infrastructure (including CHPP) and previous mining areas;
- The transport and services corridor between the Maxwell Underground and Maxwell Infrastructure – comprising a site access road, a covered, overland conveyor, power supply and other ancillary infrastructure and services; and
- A potential realignment of Edderton Road.

It is anticipated that the Project would operate 24 hours per day, seven days per week. Rail transport of product coal would operate in accordance with the separate Development Consent (DA 106-04-00) for the Antiene Rail Spur and would also occur 24 hours per day, seven days per week.

Malabar also owns the Spur Hill Underground Coking Coal Project in the adjacent EL 7429. Malabar is continuing to undertake work to enhance the geological understanding of the zone where EL 5460 meets the Spur Hill Underground Coking Coal Project exploration licence (EL 7429). Any future integration of the Project and the Spur Hill Underground Coking Coal Project would be subject to future separate, rigorous assessments and approvals, including an SIA and assessment of any potential cumulative impacts.



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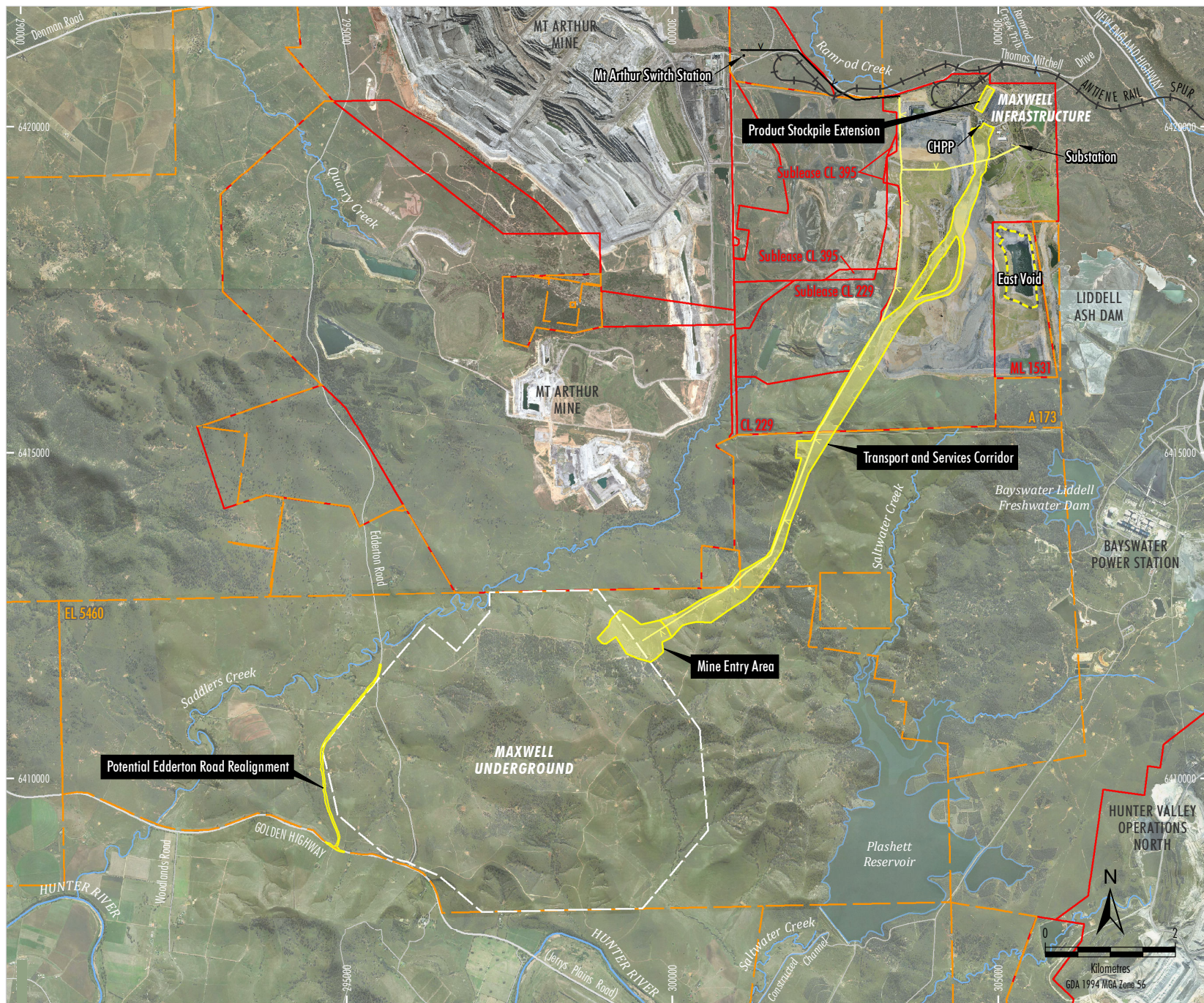


- LEGEND**
- Mining Operation
 - Proposed Mining Operation
 - Railway
 - Local Government Boundary
 - State Forest
 - National Parks and Wildlife Service Estate
 - Maxwell Project Exploration Licence Boundary
 - Maxwell Project Mining and Coal Lease Boundary
 - Indicative Extent of Underground Development

Source: © NSW Department of Planning and Environment (2019);
NSW Department of Finance, Services and Innovation (2019);
Office of Environment and Heritage NSW (2019)

MALABAR COAL
MAXWELL PROJECT
Project Location

Figure 2-1



MALABAR COAL
MAXWELL PROJECT
Project General Arrangement

Figure 2-2

2.1.2 Project workforce

Construction

Construction is planned to commence in late 2020 or as soon as practicable after all necessary consents, approvals and licences have been obtained. Early construction activities would involve construction of access roads to the mine entry and then the entry itself, commencement of civil works, CHPP and other infrastructure upgrades, and establishment of power supply and other services. Construction of access to the Whynot Seam (bord and pillar mining with partial pillar extraction) and the access to the Woodlands Hill Seam (longwall extraction) are expected to commence in 2021.

The construction workforce would increase to approximately 250 personnel by mid-2021, reduce to approximately 50 personnel by the end of 2021, then increase to approximately 160 personnel in mid-2022. Construction is expected to be substantially complete by the end of 2023.

The construction phase would provide a range of contract employment opportunities of up to three years' duration, with an average of 90 full-time equivalent (FTE) jobs available across the three-year period.

Underground mine construction would require personnel with highly specialised skills, including for underground road ways, electrical installation, underground and overland conveyor belt installations, civil engineering works and trades service providers. Malabar expects to source many of these personnel locally.

Assumptions regarding the origin of the construction workforce are outlined in Section 5.4.1.

Operation

Mining operations are planned to commence in 2021. The operational workforce would build to approximately 160 personnel during 2021 and then to approximately 300 operational personnel in 2022, with a peak of approximately 430 operational personnel in 2023.

Employment numbers would vary over time, primarily driven by the underground roadway development tasks. The workforce complement would average approximately:

- 350 personnel during the first ten years (assumed to be 2021-2030);
- 270 personnel during the second ten-year period (assumed to be 2031-2040); and
- 190 personnel for the remaining six years of operation (assumed to be 2040-2046).

2.2 Social impact assessment requirements

2.2.1 SEARs

The Secretary's Environmental Assessment Requirements (SEARs) for the Project were issued on 3 September 2018 and revised on 20 November 2018 and 17 January 2019. The SEARs require "a detailed assessment of the potential social impacts of the development that builds on the findings of the Social Impact Assessment Scoping Report, in accordance with the Social Impact Assessment Guidelines for State Significant Mining, Petroleum Production and Extractive Industry Development (2017)" (SIA Guideline), paying particular consideration to:

- how the development might affect people's:
 - way of life;
 - community;
 - access to and use of infrastructure, services and facilities;

- culture;
- health and wellbeing;
- surroundings;
- personal and property rights;
- decision-making systems; and
- fears and aspirations;
- the principles in Section 1.3 of the SIA Guideline (see Table 2-1);
- the review questions in Appendix D of the SIA Guideline (see Appendix C); and
- the recommendations made in Attachment 3 to the SEARs (see Appendix C).

The SIA has been prepared in accordance with the SEARs, and also reflects relevant issues raised by the Muswellbrook Shire Council in its input to the SEARs (dated 29 August 2019), which included:

- design of the Project so that the principle access road is Thomas Mitchell Drive, rather than Edderton Road;
- a potential requirement for a Voluntary Planning Agreement (VPA) for Edderton Road;
- maintenance of productive land within the site through the Project lifetime and post-mining;
- compatibility of the proposed development with equine related land uses;
- detailed analysis of social, economic and environmental impacts anticipated in respect to equine industries in the vicinity of the Project;
- inclusion of measures to support local jobs and businesses and maximise the number of mine workers living in Muswellbrook, Denman or Singleton;
- management of traffic issues, particularly at shift changes;
- impacts of Project water requirements on water available for non-coal related uses; and
- any impact on passenger rail service movement, including future ability to increase frequency of services between Muswellbrook and Newcastle.

2.2.2 SIA Guideline

The SIA Guideline provides direction on assessing the impacts of state significant resource industry projects under the EP&A Act. The SIA addresses the provisions of the SIA Guideline, including:

- application of key principles (see Table 2-1) including:
 - inclusion of a range of stakeholder viewpoints;
 - identification of impacts that are material (i.e. matter the most, and/or pose the greatest risk to those expected to be affected), and assessment that is proportionate to the scope and scale of potential social impacts;
 - assessment of social impacts throughout the Project's life cycle, including the distributive equity of impacts and benefits;
 - integration of other EIS findings with relevance to social values;
 - development of action-oriented, adaptive impact management strategies;
 - provision of a rigorous, impartial and transparent SIA;
- consideration of all potential social impacts including cumulative impacts;

- preparation of a social baseline documenting conditions and trends without the Project, with respect to the matters identified as material during scoping (Section 4);
- assessment of all social impacts and benefits with potential for a material effect on social values, including integration of EIS results with a bearing on the social environment (Section 5);
- significance assessment of identified social impacts and benefits, and justification of significance ratings (Section 5.11); and
- development of adaptive management and monitoring strategies, and determination of the residual social risk (Section 6).

Table 2-1: SIA Guideline principles

Principles	Description	Section
Action-oriented	Delivers outcomes that are practical, achievable and effective.	Section 6 (Management strategies) designed to delivered desired outcomes. Recommendations are specific, measurable, achievable and time-based.
Adaptive	Establishes systems to actively respond to new circumstances/information and support continuous improvement.	Section 3 captures stakeholder inputs and Malabar's recognition of inputs. Section 6 (Management strategies) contain monitoring mechanisms and adaptive mitigation measures. Section 6.2 outlines stakeholder engagement and relationship management strategies. Section 6.8 provides a social monitoring and reporting program.
Distributive equity	Considers how social impacts are distributed across vulnerable groups and between current and future generations.	Sections 5 and 6 consider local and regional impacts, over time and distributive social equity for vulnerable groups.
Impartial	Is undertaken in a fair, unbiased manner and follows relevant ethical standards.	Section 7.4 (Assessors qualifications) includes certification of objective and ethical assessment.
Inclusive	Seeks to understand the perspectives of the potentially affected groups, informed by respectful, meaningful, tailored and effective engagement.	Stakeholder engagement process and inputs (Section 3) included consultation with a range of potentially affected groups and used a variety of engagement mechanisms. Section 6.2 outlines stakeholder engagement and relationship strategies.
Integrated	Uses relevant information and analysis from other assessments and supports effective integration of social, economic and environmental considerations.	The SIA and EIS engagement processes have been integrated, with the findings from other studies integrated into the SIA.
Life cycle focus	Seeks to understand potential impacts (including cumulative impacts) at all Project stages, from pre-construction to post closure.	Sections 5 and 6 address considerations at pre-construction, construction, operations, decommissioning and post-closure.
Material	Identifies which potential social impacts matter the most, and/or pose the greatest risk to those affected.	SIA considers the likelihood, scale, severity and sensitivity of potential impacts.

Principles	Description	Section
Precautionary	If there is a threat of serious or irreversible damage to the environment, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental (including social) degradation.	Section 5.11 considers residual risks.
Proportionate	Scope and scale of SIA should correspond to the potential social impacts.	SIA scoping included preliminary assessment of potential material impacts. SIA provides detailed assessment based on the SIA Scoping Report and feedback received.
Rigorous	Uses appropriate, accepted social science methods and robust evidence from authoritative sources.	Sections 2.3 and 2.4 describe and justify the methods and evidence sources.
Transparent	Information, methods and assumptions are explained, justified and accessible, and people can see how their input has been considered.	Stakeholder engagement inputs are documented and references to relevant assessment sections are drawn.

2.3 SIA methodology

The *International Principles for Social Impact Assessment* define SIA as “the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions¹”. As social environments are complex and dynamic, this requires an ongoing process of management and monitoring throughout the life of a Project.

The objectives for this SIA were to:

- develop a comprehensive baseline of social conditions based on research, analysis and stakeholder engagement;
- identify the potential for direct, indirect and cumulative social impacts, and their distribution;
- focus the assessment on potential social impacts and opportunities that matter to local stakeholders and/or may have material effects for social conditions;
- undertake an inclusive stakeholder engagement process to inform the baseline, impact assessment and mitigation development;
- provide a detailed assessment of likely impacts and benefits, and their significance for each stage of the Project (construction, operation and post-mining);
- consider biophysical impacts and their interaction with social values;
- develop strategies to avoid or mitigate social impacts, and actions that would enhance social benefits; and
- provide a monitoring and reporting strategy to support management of social impacts.

The following subsections outline the process undertaken for the SIA.

¹ Vanclay, F., (2003).

2.3.1 Scoping and preliminary significance assessment

A scoping report was submitted to the NSW Department of Planning and Environment (DP&E) as part of the Project's Request for SEARs. The SIA Scoping Report² identified and evaluated the potential significance of social impacts and benefits which may occur as a result of the Project, the geographic area in which they may occur, and the investigations required as part of the SIA. The scoping process included:

- consideration of the location, nature and history of the Project and Project elements that may affect the social environment over the life of the Project;
- review of data and documentation to identify community priorities, social characteristics and local community views on mining in general and the Project;
- consultation with stakeholders about existing social conditions and the range of social impacts and benefits that may occur as a result of the Project;
- identifying the Project's area of social influence and stakeholders who may be affected by the Project;
- consideration of key matters and the likelihood that social impacts (including cumulative impacts) would result from the Project;
- evaluating the likelihood of social impacts and benefits in relation to each key matter; and
- describing and evaluating potential material social impacts.

DP&E reviewed the SIA Scoping Report against the requirements of the SIA Guideline and provided a series of recommendations for this SIA. A summary of how each of the DP&E recommendations have been addressed is provided in Appendix C.

2.3.2 SIA engagement

The experience and views of local community members are critical inputs to the SIA. SIA-specific engagement was undertaken during June, November and December 2018 to gain a clear understanding of community views about the Project's potential social impacts and benefits.

The approach to SIA engagement informed participants about the environmental impact assessment process for State significant projects in NSW, and how SIA contributes to that process. Participants were also provided with important information about the Project, including its location, relevant history, proposed new infrastructure, mining methods, estimated Project workforce and timeframes. Consultation also referred to the social baseline or other EIS findings to support specific lines of enquiry.

SIA consultation participants were informed about how their inputs would be collated and presented in the SIA, with specific requests for attribution or anonymity honoured in this process. This included:

- interviews with Muswellbrook Shire and Singleton Council representatives;
- consultation with neighbouring landholders and community members through community information sessions and Community Consultative Committee (CCC) meetings;
- a workshop with social infrastructure providers, community and business stakeholders involving input from Muswellbrook Police, Muswellbrook Chamber of Commerce and Industry, NSW TAFE – Muswellbrook, Joblink Plus Singleton, Wanaruah Local Aboriginal Land Council (LALC), Muswellbrook Shire Council, Singleton Council and Denman News;

² Elliott Whiteing, (2018).

- interviews (face-to-face or phone) with representatives of Jerrys Plains Public School, Muswellbrook Public School and Muswellbrook South Public School, Muswellbrook Hospital, Singleton Hospital, NSW Rural Fire Service (RFS), Hunter Valley Operations and Dalswinton Rural Fire Brigade (RFB) and NSW Farmers Association;
- consultation with Indigenous community representatives with input also sought via the Project's Registered Aboriginal Parties (RAPs);
- correspondence with neighbouring equine operations; and
- an interview with the nearest viticulture operation.

Further detail on stakeholder engagement is provided in Section 3.

2.3.3 Social baseline

The social baseline (Section 4) documents the social conditions and trends in the area of influence for matters identified as material to the SIA. The baseline was informed by stakeholder consultation as noted in relevant sections, and describes:

- the Project's surroundings, including the settlement pattern, amenity, natural heritage, and public and community safety;
- the history of the former Drayton Mine and associated projects;
- personal and property rights, including adjacent land uses, landholder interests and values, including residents' fears about potential impacts;
- cultural values, including Aboriginal values, historic heritage relating to the Project area, rural values and attitudes to mining;
- community, including population size and growth, cultural diversity and social indicators, and decision-making;
- way of life, including community cohesion, employment, and access to housing and recreation;
- access to and use of infrastructure, services and facilities; and
- health and wellbeing, including physical and mental health.

Stakeholder inputs and other baseline data enabled analysis of the likelihood of potential impacts and would support monitoring of the Project's social impacts and benefits. Table 2-2 provides information on the reliability of key data sources used in the SIA.

Table 2-2: Data quality summary

Data type/set	Source	Currency	Reliability	Uncertainties
Demographic data	Australian Bureau of Statistics (ABS) Census of Population and Housing	2016	Minor variances in totals due to ABS rounding procedures Indigenous people traditionally under-represented in Census (~10%)	Change since 2016
Population and housing projections	NSW DP&E	2016	Good	Effect of newly proposed projects and economic trends on projections
Housing data	SQM Research	2018	Good	Effect of cumulative impacts

Data type/set	Source	Currency	Reliability	Uncertainties
Public Health Information Development Unit (PHIDU)	ABS Census of Population and Housing and other sources as referenced	Variable, as referenced	Variable, as referenced	Local relevance of modelled estimates; changes to social health determinants
Social infrastructure provision	Stakeholder feedback and various research sources	2018	Good	Potential for gaps in capacity data
Labour force	Department of Jobs and Small Business Labour Market Portal	2018	Subject to seasonal fluctuations	Under-representation of rural unemployment
Project and EIS technical results data	Malabar and Project EIS consultants	2018-2019	Assumed to be reliable	Unanticipated changes in environmental and social conditions which may affect how impacts are experienced
Research references	As referenced	Various	Variable, as referenced	

2.3.4 Impact and benefit assessment

Potential social impacts and benefits were assessed based on analysis of:

- stakeholder inputs on their experience of social impacts and benefits resulting from existing and local mining operations, and reactions to proposed mining projects;
- EIS findings on changes to environmental values; and
- the likelihood of material changes to social conditions and trends as a result of the Project.

This included analysis of the predicted nature and scale of potential social impacts for the life of the Project, including their duration and distribution. For impacts where there are no valid metrics, the assessment refers to the range of relevant stakeholder views on the issue, and makes an assessment based on the SIA consultants' experience with other mining projects applied in relation to the likelihood of changes to social values. This SIA includes cumulative social impact assessment, addressing the impacts of other projects in the Project region which may coincide with Project impacts.

Other EIS specialist studies have examined potential impacts on environmental values which influence social values (including air quality, surface water, groundwater and noise impacts) from a scientific and standards-based perspective. The SIA has examined these results from the perspective of potential effects on social values and conditions.

The assessment of impacts, benefits and their significance to local and regional communities is detailed in Section 5.

2.3.5 Mitigation, management and monitoring

The development of mitigation and management strategies was informed by stakeholder inputs, Malabar's existing management strategies, and industry practice. The SIA management and monitoring framework is presented in Section 6 and includes:

- recommended mitigation strategies, actions and responsibilities;
- performance outcomes;

- adaptive management strategies for identified impacts; and
- a monitoring framework in accordance with the SIA Guideline's requirements.

2.4 Areas of social influence

Figure 2-1 shows the location of the Project in relation to local communities and LGA boundaries. The Project's areas of social influence include:

- landholdings in the Project's immediate surroundings;
- the nearby communities of:
 - Jerrys Plains, a small community which is approximately 10 kilometres (km) south of the underground mine entry area, 18 km south of the site access gate in a direct line, and approximately 40 km by shortest route to the site access gate;
 - Denman, which is developing as a district centre within the Muswellbrook LGA and is approximately 17 km west of the proposed underground mine entry area and 25 km west of the site access gate in a direct line, and approximately 40 km by shortest route to the site access gate; and
 - Muswellbrook, which is the municipal centre for the Muswellbrook LGA and is approximately 16 km north of the proposed underground mine entry area and 8 km north-west of the site access gate in a direct line, and approximately 10 km by shortest route to the site access gate;
- the Project region, which includes the Muswellbrook LGA in which the Project is located, and the neighbouring Singleton LGA.

Along with Muswellbrook, Singleton is likely to be a residential base for Project personnel, which is considered in the SIA with respect to potential impacts on population, housing and social infrastructure. As the Project is likely to draw personnel from the Hunter Valley region, labour force data for the Hunter Valley Statistical Area 4 (SA4) have also been provided.

As such the SIA study area includes landholdings in the vicinity of the Project, nearby communities as identified, the Muswellbrook and Singleton LGAs, and the Hunter Valley SA4 as relevant to workforce availability (see Figure 2-3).

Statistical geography

The statistical areas used as the primary basis for demographic, employment, housing and health data are summarised in Table 2-3.

The nearby communities are represented by the Jerrys Plains, Denman and Muswellbrook State Suburbs (SSCs). At the 2016 Census of Population and Housing, the Muswellbrook SSC had a population of 12,075 people, with 3,040 families and 5,495 dwellings. The Jerrys Plains SSC had a population of 385 people, with 78 families and 140 dwellings. Of note, the Jerrys Plains SSC decreased in area during 2011-2016.

SSCs equating to the rural area within and in the vicinity of the Project include Bengalla, which in 2016 had a population of 26 people, Mangoola which had a population of 46 people, and Dalswinton which had a population of 50 people. Detailed analysis of demographic data for these SSCs was not possible given the small populations of these suburbs, however potential impacts on nearby landholders are considered in detail in the SIA.

Some data for local communities are only available at Statistical Area 2 (SA2) level. The three SA2s for which data are provided include Muswellbrook (the town), Muswellbrook Region SA2 encompassing the remainder of Muswellbrook LGA including Denman, and Singleton Region SA2 which includes most of Jerrys Plains, with the western extent of the Jerrys Plains SSC located within the Muswellbrook Region SA2.



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MALABAR  COAL
 MAXWELL PROJECT
 SIA Study Area

Figure 2-3

Table 2-3: Statistical areas used in baseline

Place	Area of influence	Statistical Area	Size 2011	Size 2016
Primary statistical areas				
Denman SSC	Nearby community	State Suburb	116.7 km ²	116.7 km ²
Jerrys Plains SSC	Nearby community	State Suburb	655.8 km ²	214 km ²
Muswellbrook (town)	Nearby community	State Suburb	262.4 km ²	262.4 km ²
Muswellbrook LGA	Project region	Local Government Area	3,404.9 km ²	3,404.9 km ²
Singleton LGA	Project region	Local Government Area	4,892.7 km ²	4,892.7 km ²
Hunter Valley SA4	Labour force region	Statistical Area 4	21,491.3 km ²	21,491.3 km ²
NSW	State	State and Territory 3	800,810.8 km ²	800,810.8 km ²
Supplementary statistical areas				
Muswellbrook SA2	Muswellbrook town	Statistical Area 2	262.4 km ²	262.4 km ²
Muswellbrook Region SA2	Muswellbrook LGA rural areas	Statistical Area 2	3,142.5 km ²	3,142.5 km ²
Singleton SA2	Singleton town	Statistical Area 2	127.2 km ²	127.2 km ²
Singleton Region SA2	Singleton LGA rural areas	Statistical Area 2	4,067.8 km ²	4,067.2 km ²

Note: km² = square kilometres.

Data sources

Data derived from the ABS Census of Population and Housing (2016 and 2011) have been analysed using ABS's Census Tablebuilder. Census Tablebuilder enables more sophisticated analysis of Census data, including:

- comparison of data over time where statistical areas have changed, e.g. the Jerrys Plains SSC reduced in size between 2011 and 2016, requiring concurrence analysis;
- re-allocation of data which are not stated, inadequately described or not further defined, which if excluded, would result in an under-count of responses. For example, if 80% of local respondents indicate Australia as their country of birth, 80% of the 'not stated' responses will be allocated to Australia for this dataset; and
- filtering by specific datasets, e.g. analysis of changes in place of usual residence during a five year period should exclude data for people born in that period.

Other data sources included:

- Australian Department of Jobs and Small Business;
- Hunter Research Foundation;
- NSW Bureau of Crime Statistics and Research;
- NSW Department of Education and Communities;
- NSW Ministry of Health;
- NSW Department of Planning and Environment;
- NSW Department of Trade and Investment, Regional Infrastructure and Services;

- NSW Department of Family and Community Services;
- NSW Housing;
- Muswellbrook Shire Council;
- Singleton Council;
- SQM Research;
- Torrens University Public Health Information Development Unit; and
- websites and other documentation representing key stakeholders and industries.

3. STAKEHOLDER ENGAGEMENT

Malabar regularly engages with local stakeholders regarding the ongoing rehabilitation of the Maxwell Infrastructure, and the progress of the Project, through a variety of communication platforms including the Maxwell Infrastructure CCC, the Spur Hill CCC and the Antiene Rail Spur CCC. Malabar has also undertaken a consultation program to facilitate stakeholder inputs to the EIS.

Consultation to facilitate stakeholder inputs to the SIA is described below. The results of research undertaken by the Hunter Research Foundation (HRF) in 2015 and a telephone survey undertaken for Malabar in September 2017 have also been considered and are discussed in Section 4.1.5.

3.1 SIA engagement

Consultation for the SIA was integrated where possible with the Project's EIS consultation program, supported by a targeted enquiry framework for each consultation activity. Table 3-1 identifies the SIA stakeholders and the engagement mechanisms used to inform the SIA.

Table 3-1: SIA engagement framework

Stakeholder Group	Potentially Affected/Interested Stakeholders	Engagement Mechanism
Adjacent and nearby landholders	<ul style="list-style-type: none"> • Private landholders in the vicinity of the Project 	<ul style="list-style-type: none"> • Newsletter and feedback link • Community information sessions (Maxwell Infrastructure and Jerrys Plains) • Maxwell Infrastructure CCC • Spur Hill CCC • Antiene Rail Spur CCC
Muswellbrook and Singleton communities	<ul style="list-style-type: none"> • Residents, businesses and organisations • Maxwell Infrastructure CCC • Spur Hill CCC 	<ul style="list-style-type: none"> • Newsletter and feedback link • Community information sessions (Maxwell Infrastructure and Jerrys Plains) • Maxwell Infrastructure CCC • Spur Hill CCC
Jerrys Plains community	<ul style="list-style-type: none"> • Residents, businesses and organisations 	<ul style="list-style-type: none"> • Newsletter and feedback link • Community information sessions (Jerrys Plains)
Denman community	<ul style="list-style-type: none"> • Residents, businesses and organisations • Spur Hill CCC 	<ul style="list-style-type: none"> • Newsletter and feedback link • Community information sessions (Jerrys Plains) • Spur Hill CCC
Local governments	<ul style="list-style-type: none"> • Muswellbrook Shire Council • Singleton Council 	<ul style="list-style-type: none"> • Meetings with EIS and SIA team • Participation in social infrastructure providers workshop

Stakeholder Group	Potentially Affected/Interested Stakeholders	Engagement Mechanism
Aboriginal peoples who have connection to the Project area and its cultural values	<ul style="list-style-type: none"> RAPs Wanaruah LALC Other Aboriginal persons and organisations 	<ul style="list-style-type: none"> Site presentation Newsletter and feedback link Community information session invitations Social infrastructure providers workshop
Local businesses and business associations	<ul style="list-style-type: none"> Muswellbrook Chamber of Commerce and Industry Singleton Business Chamber Upper Hunter Mining Dialogue Local retail and hospitality businesses Mining-related support services (local and regional) 	<ul style="list-style-type: none"> Community information sessions Muswellbrook Chamber of Commerce and Industry participation in SIA workshop
Businesses - equine industry	<ul style="list-style-type: none"> Coolmore Stud Godolphin Woodlands Stud Other thoroughbred breeders, suppliers and support services for the equine industry 	<ul style="list-style-type: none"> Newsletter and feedback link Community information sessions Offer of options for face to face or phone SIA interviews with operators of Coolmore and Godolphin Woodlands Studs (not taken up) Letter requesting responses to questions about potential impacts (one written response received, and one email received deferring the response to the EIS display stage) Meetings and other engagement conducted by Malabar
Businesses - viticulture industry	<ul style="list-style-type: none"> Hollydene Estate Winery Upper Hunter Winemakers' Association 	<ul style="list-style-type: none"> Community information sessions invitation Interview with Hollydene Estate Winery Information through Spur Hill CCC (Upper Hunter Winemakers' Association representation)
Social infrastructure providers	<ul style="list-style-type: none"> Muswellbrook Shire and Singleton Councils Muswellbrook Police NSW TAFE, Muswellbrook campus Wanaruah LALC Joblink Plus Singleton Denman News 	<ul style="list-style-type: none"> Social infrastructure providers workshop (Muswellbrook)
	<ul style="list-style-type: none"> Muswellbrook Public School Muswellbrook South Public School 	<ul style="list-style-type: none"> Face to face meetings
	<ul style="list-style-type: none"> Jerrys Plains Public School Muswellbrook Hospital Singleton Hospital NSW RFS 	<ul style="list-style-type: none"> Phone interviews
Workforce representatives	<ul style="list-style-type: none"> Construction and mining industry workers Construction, Forestry, Maritime, Mining and Energy Union (CFMMEU) 	<ul style="list-style-type: none"> Website information Community information sessions participation (CFMMEU representatives)
Community and environmental groups	<ul style="list-style-type: none"> NSW Farmers Association Singleton Shire Healthy Environment Group Hunter Region Landcare 	<ul style="list-style-type: none"> Consultation with NSW Farmers Association via interview at Maxwell Infrastructure Community Information Session Invitations to Singleton Shire Healthy Environment Group and Landcare issued, not taken up
Elected Representatives	<ul style="list-style-type: none"> State members of parliament (MPs) Federal MPs Ministers 	<ul style="list-style-type: none"> Meetings and other engagement conducted by Malabar

3.1.1 Council engagement

Malabar has established relationships with Muswellbrook Shire and Singleton Council and has held regular meetings throughout the EIS process.

An SIA-specific meeting with Muswellbrook Shire Council representatives was held as part of the SIA scoping process in July 2018. The SIA team also met with each Council in November 2018 to discuss potential impacts and benefits, and to identify additional information pertinent to the SIA.

A summary of SIA findings was provided to both Councils for their feedback prior to finalising the SIA.

Council officers also participated in an SIA workshop, details of which are discussed below.

3.1.2 Landholders and community members

During November 2018, Malabar hosted two local community information sessions:

- Jerrys Plains on Wednesday 21st November 4.00 pm – 6.30 pm at the Jerrys Plains School of Arts Hall; and
- Muswellbrook on Thursday 22nd November 12.00 pm – 2.30 pm at Maxwell Infrastructure, Thomas Mitchell Drive, Muswellbrook.

The community information sessions were structured to provide community members with access to a range of Project information and technical expertise, including representatives from the EIS team for groundwater, subsidence, air quality and social impact assessment. Malabar's executive staff also attended to provide community members with an opportunity to discuss their concerns with Project personnel.

Community information sessions and the opportunity to provide input to the SIA were promoted via:

- direct mail to approximately 150 local landowners near the Project;
- advertising in local newspapers including Denman News, Hunter Valley News and The Singleton Argus;
- emails to the Chairs of the Maxwell Infrastructure and Spur Hill CCCs, for distribution to their members;
- direct email invitations to key industry and business stakeholders (such as Councils, adjacent landholders, Chambers of Commerce and the CFMMEU); and
- through the Jerrys Plains Public School Newsletter.

Approximately 40 local stakeholders attended the Jerrys Plains session and eight stakeholders attended the Maxwell Infrastructure session. Attendance across the two sessions included:

- twenty-four personnel from neighbouring equine operations;
- six residents from the Jerrys Plains area (town and surrounding properties);
- eight residents from the Denman area (town and surrounding properties);
- three residents from the Muswellbrook postcode;
- two residents from the Singleton postcode;
- a representative of the Wanaruah LALC;
- two representatives of the CFMMEU; and
- two other interested stakeholders.

Information on the Project and a feedback form were made available online and at the information sessions to facilitate broader input on the Project's potential impacts and benefits. One feedback form was received and the results have been integrated into Section 3.2.

During the information sessions, the SIA team facilitated engagement to collect community feedback on the scope of social impacts and benefits being assessed, and to seek their input on the impacts and opportunities of most importance to them.

In addition to discussions with SIA team members and access to feedback forms, A1 posters listing the Project's scope of potential social impacts and benefits were provided and participants were invited to use sticky dots to identify which impacts and benefits were of most importance, using two dots to signify issues of high importance and one dot for issues of moderate importance. Approximately 26 participants provided input to the poster activity across the two sessions.

Stakeholders were able to comment on multiple issues, provide comments and identify other issues not already listed. This provided an indication of overall views on the level of importance of each issue, as tallied in Table 3-2 (which includes stakeholders' written comments in brackets). These inputs were contextualised through conversations with participants, as summarised in Section 3.2.

Table 3-2: Community feedback on social impacts and benefits

Social impacts and benefits	Participants' overall rating of importance	
	Jerrys Plains Session	Maxwell Infrastructure Session
Potential to affect equine or viticulture industry	18	1
Impacts on community health	18	1
Dust impacts on homes, properties or water tanks	13	1
Increased traffic volumes	11	1 (road/community safety)
Potential future use of mined land	11	1
Concerns about your property's water access	10	2 (the way our water is hooked up via aquifers)
Impacts on environmental qualities	10	2
Potential for travel time impacts	7 (access to Edderton Road)	
Noise affecting your home or public areas	6	
Effects on local character/landscape	6	1
Potential for conflict about the Maxwell Project between community members	6	
Demands on community/health facilities	5	
Decreased housing affordability	4	
Malabar contributions to community projects and services	4	
Cultural heritage impacts	4	1 (loss of cultural landscape)
Potential for local businesses to benefit	2	
Increased local employment options	2	
Other – Impacts to prime agricultural and grazing land	3	
Other – Impacts to Hunter River and limited water resource	2	
Other – Potential to affect Lucerne farms (loss of supply increases costs)		1

3.1.3 Community consultative committees

Maxwell Infrastructure CCC

In March 2018, the former Drayton Mine CCC was renamed with a mandate to provide ongoing community representation for the Maxwell Infrastructure. Presentation materials and minutes from this meeting are published online, with a focus on:

- establishing new local relationships with Malabar;
- noting train noise, particularly idling trains, has been a historic issue for nearby residents which would require mitigation; and
- a review of environmental performance indicators for the former Drayton Mine including enquiries and complaints, rainfall history, blasting, air quality, attended noise monitoring, water storage and waste management.

An SIA team member attended the July 2018 CCC to discuss the scope of the SIA and receive inputs from members on the impacts and benefits they anticipated would occur as a result of the Project.

On 6 September 2018, DP&E provided a letter to Malabar which outlined that the continued operation of the Maxwell Infrastructure CCC would satisfy the CCC requirements for the Project outlined in the SEARs.

A summary of draft SIA findings was prepared by Elliott Whiteing and presented by Malabar to CCC members at the June 2019 meeting. No specific feedback on the findings was received.

Spur Hill CCC

SIA team members attended the July 2018 meeting of the Spur Hill CCC meeting to introduce and invite input on the scope of the SIA. At the CCC's October 2018 meeting, community members were provided with an update on Spur Hill Underground Coking Coal Project, as well an overview of the Project, current Drayton Mine rehabilitation works and the proposed Maxwell Solar Project.

A summary of draft SIA findings was prepared by Elliott Whiteing and presented by Malabar to CCC members at the May 2019 meeting.

At the meeting, the CCC members discussed Malabar's local recruitment strategies, which are outlined in Section 6. Other existing baseline issues already discussed in the SIA were also raised by CCC members at this meeting, including Muswellbrook's retail offering and the availability of rental housing (Sections 4.4.2 and 4.4.3, respectively).

3.1.4 Indigenous stakeholders

An Aboriginal Cultural Heritage Assessment (ACHA) has been prepared for the Project by AECOM (2019). The consultation process for the ACHA acknowledges the right of Aboriginal people to be involved, through direct participation, on matters that directly affect their heritage. Involving Aboriginal people in all facets of the assessment process ensures that they are given adequate opportunity to share information about cultural values, and to actively participate in the development of appropriate management and/or mitigation measures.

Aboriginal community consultation for the ACHA was undertaken in accordance with Office of Environment and Heritage's (OEH) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (Department of Environment, Climate Change and Water, 2010) (Consultation Requirements) and clause 80C of the NSW *National Parks and Wildlife Regulation 2009*. The ACHA Consultation process involved³:

- consultation with regulatory agencies to assist in identifying Aboriginal people who may hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places;
- writing to the Aboriginal people identified by the regulatory agencies, and placing a notice in the local newspaper, to invite Aboriginal people to be involved in the consultation process;
- notification of the names of each Aboriginal person who registered an interest (RAPs) to the OEH regional office and LALC. Aboriginal people were also offered the option to withhold their details from being forwarded to these parties;
- presentation of information about the ACHA study area and proposed development to RAPs, including an information session open to all RAPs held on 10 August 2018;
- consultation with RAPs to gather information about the cultural significance of the site, including:
 - a request with the draft assessment methodology for any initial comments regarding the Aboriginal cultural heritage values of the ACHA study area;
 - a request during the information session held on 10 August 2018 for any information regarding the Aboriginal cultural heritage values of the ACHA study area;
 - participation by some RAPs in the fieldwork component of the ACHA;
 - offers made to RAPs for private interviews, in case the information is considered culturally sensitive; and
 - provision of a draft report to all RAPs for comment prior to finalisation.

The SIA team cooperated with the ACHA team to provide RAPs with an opportunity to provide input specifically to the SIA. This included an introduction to the SIA in October 2018, and a written invitation to participate in consultation for the ACHA and SIA in early December 2018. All RAPs were invited to the ACHA session, however no-one attended the session. Each RAP was subsequently contacted by the Project's Cultural Heritage team by phone in the following weeks to capture verbal comments and encourage written comments.

Consultation for the SIA also occurred with a representative of the Wanaruah LALC based in Muswellbrook, which delivers a range of support services to protect the interests of local Aboriginal people. This included provision of information about the Project and a discussion with a LALC representative as part of the community information session at Maxwell Infrastructure.

³ AECOM, (2019).

3.1.5 Equine industry

A total of 24 personnel from the Coolmore and Godolphin Woodlands Studs attended the Project's Community Information Sessions at Jerrys Plains and Maxwell Infrastructure in November 2018.

During November 2018, the SIA team wrote to the two horse studs' management teams inviting further input to the SIA process through either a face to face meeting, a phone interview or response in writing to SIA questions. Concerns identified through one written response are summarised in Section 3.2. The potential for impacts on the horse studs is discussed in Section 5.1.3.

3.1.6 Viticulture industry

Consultation with a neighbouring business operator, Hollydene Estate Winery indicated that no social impacts were anticipated as a result of the Project. Hollydene Estate Winery anticipates some increase in traffic from the Project, but no significant change to the local landscape, the winery's tourism values, or existing local air quality or noise conditions. Representatives from the winery identified examples of how the Project was maximising local benefits through local stakeholder engagement and local contracting opportunities, which are discussed further in Section 3.1.8. The winery operator commended the Malabar team for their approach to stakeholder engagement and relationship development.

3.1.7 Farming industry

Consultation with a representative from the NSW Farmers Association (Wybong) in an interview conducted as part of the community information session at Maxwell Infrastructure highlighted a number of concerns and key considerations for the Project in relation to the potential for effects on groundwater, air quality, the landscape and use of agricultural land, which are summarised in Section 3.2.

3.1.8 Regional workforce and union stakeholders

The community information sessions held at Jerrys Plains and the Maxwell Infrastructure were attended by a small number of local mining industry workers who were interested in understanding the Project's plans, workforce requirements and timeframes. The Jerrys Plains and Maxwell Infrastructure sessions were also attended by representatives from CFMMEU who were supportive of the Project, noting its positive contribution to local employment, particularly in the context of potential future mine closures in the region.

3.1.9 Community and government agencies

An SIA workshop was held on Wednesday 21 November 2018 to seek input from key community, business, health and emergency service providers to the assessment process. The workshop was attended by nine local stakeholders with representation from:

- Muswellbrook Shire and Singleton Councils;
- Muswellbrook Police;
- NSW TAFE, Muswellbrook campus;
- Muswellbrook Chamber of Commerce and Industry;
- Wanaruah Local Aboriginal Land Council;
- JoblinkPlus Singleton; and
- Denman News.

Face to face meetings were also held with Muswellbrook and Muswellbrook South Public Schools. Phone interviews were held with Jerrys Plains Public School, Muswellbrook Hospital, Singleton Hospital, NSW RFS Hunter Valley Operations and Dalswinton RFB. Detailed results are incorporated in relevant sections.

3.2 Stakeholder inputs to SIA

Table 3-3 presents a summary of stakeholder inputs to the SIA following the consultation outlined in Section 3.1.

Table 3-3: Stakeholder inputs to SIA

Stakeholders' inputs on social baseline characteristics	Stakeholders' views on potential Project impacts and benefits	Stakeholders' suggested mitigations and enhancements
Muswellbrook Shire Council		
<p>Muswellbrook Shire Council's priorities include:</p> <ul style="list-style-type: none"> Increased employment opportunities Improving amenity and liveability in Muswellbrook Economic diversification Housing affordability Addressing social disadvantage Maintaining adequate levels of social infrastructure for changing and growing community needs <p>Refer also to Council's Strategic Planning Statement 2018</p> <p>Existing impacts of mining industry contractors renting housing in Muswellbrook which include decreased housing availability, homelessness and effects on neighbourhood amenity</p> <p>Cumulative numbers of non-local personnel leading to decreased activation of town centres, and a re-orientation of the local retail sector towards the non-resident workforce</p>	<p>Potential exacerbation of traffic volumes on local roads (e.g. Thomas Mitchell Drive and Edderton Road) thereby impacting residents or businesses</p> <p>Potential for fatigue for personnel travelling long distances for site, and implications for increased road safety risks</p> <p>Employment opportunities and support for population growth</p> <p>Impacts on housing availability or cost, with consequent potential for impacts on homelessness</p> <p>Potential increased demands for social infrastructure</p> <p>Polarisation of community views and values</p> <p>Conflicting land uses, particularly with respect to equine and viticulture industry clusters</p> <p>Contribution to cumulative impacts and cyclical trends affecting housing and social infrastructure capacity</p> <p>Potential cumulative demand for rail transport crowding out passenger service</p>	<p>Being aware of the potential impacts of workforce influxes on housing affordability, and engaging with Council regarding anticipated workforce build-up</p> <p>Supporting job growth</p> <p>Supporting Aboriginal community with training and employment</p> <p>The need for local residents to be supported to engage in training relevant to underground mining</p> <p>Mitigating Project impacts on community amenity and character</p> <p>Community engagement/education on Project water resource management</p> <p>Opportunity for local community groups to benefit from funding to initiate local projects or initiatives</p> <p>Collaborate with other rail users or operators to manage demand on Muswellbrook rail line and maintain/increase access for passenger service</p>
Singleton Council		
<p>Interest in Project's workforce profile and potential draw of underground mining skills from Singleton, Cessnock and Maitland</p> <p>Housing development in LGA has capacity for growth</p>	<p>Potential impacts on social infrastructure capacity, including limited mental health services</p> <p>SIA to consider distributional equity and gendered issues relating to Project employment and social impacts</p>	<p>Project to consider promoting a healthy lifestyle for employees</p> <p>Further engagement on the Project's potential environmental impacts and management plans (subsidence and water resource focus)</p>

Stakeholders' inputs on social baseline characteristics	Stakeholders' views on potential Project impacts and benefits	Stakeholders' suggested mitigations and enhancements
<p>LGA has adequate access to general practitioner (GP) services and hospital services, but a gap in mental health services</p> <p>Singleton Council's priorities include:</p> <ul style="list-style-type: none"> maintaining adequate levels of social infrastructure for changing and growing community needs a creative, vibrant, inclusive, safe and healthy community, aligned with current initiatives to activate main street protection and enhancement of a sustainable environment 	<p>Potential change to environmental qualities such as the Hunter River and watercourses</p> <p>Contribution to cumulative impacts and cyclical trends affecting housing and social infrastructure capacity</p>	
Surrounding Landholders		
<p>Historic opposition to Drayton South Coal Project perceiving environmental and social impacts</p> <p>Properties rely on groundwater, and rainwater tanks</p> <p>The Project would be able to access underground mining workers from the local area</p>	<p>Increase in dust, including coal dust, affecting amenity or rainwater tanks</p> <p>Traffic impacts or disruption to Edderton Road or Golden Highway</p> <p>Recognition of the Project's less intrusive underground mining method</p> <p>Potential for subsidence to affect underground water systems</p> <p>Potential for landforms or land use within the mining lease area to affect drainage to dams on nearby properties</p> <p>Potential for mine traffic to affect the amenity of local residents living close to roads used by the Project or its personnel</p>	<p>Information provision and good neighbour relationships</p> <p>Availability of Project employment, contracting and associated business opportunities for local residents and families providing consequent benefits</p> <p>Malabar community investment</p>

Stakeholders' inputs on social baseline characteristics	Stakeholders' views on potential Project impacts and benefits	Stakeholders' suggested mitigations and enhancements
Community and health agencies		
<p>Generally, accessible community services and facilities, commensurate with population demand</p> <p>Childcare services have capacity to provide for some increased demand</p> <p>Local public schools in Muswellbrook, Denman and Jerrys Plains have capacity to support growth</p> <p>Observed increase in drug, alcohol and amphetamine use in Muswellbrook, associated mental health presentations</p> <p>Observed increase in mental health presentations for both Muswellbrook and Singleton Hospitals</p> <p>Health services in Muswellbrook have capacity to support growth, and are focused on increasing access to child and family health services which are currently limited</p> <p>High road traffic incidence and fatalities affecting police resource availability</p> <p>RFS maintains sufficient capacity across local brigades but challenges remain in recruiting volunteers</p>	<p>Potential increased demand for health and education services in Muswellbrook</p> <p>Potential impacts on retention of service staff through cyclical changes of mining industry</p> <p>Opportunity to extend training and skills development offerings</p> <p>Potential impacts on people already experiencing social disadvantage, including low income families and Indigenous people</p> <p>Potential to increase demand on child and family health services</p>	<p>Early advice to Public Schools on workforce numbers and likely distribution of new locals</p> <p>Collaboration with police on road safety and workforce fatigue and antisocial behaviour management</p> <p>Opportunities for partnership on local health initiatives</p> <p>Contributions to local communities through Malabar community engagement and investment</p> <p>Opportunity for RFS to work closely with Project on joint working arrangements</p>

Stakeholders' inputs on social baseline characteristics	Stakeholders' views on potential Project impacts and benefits	Stakeholders' suggested mitigations and enhancements
Aboriginal community members and representatives		
<p>Existing and ongoing change to cultural landscape causing distress</p> <p>Barriers to social and economic participation for local Aboriginal people</p> <p>Housing or health impacts have a disproportionate impact on Aboriginal people</p> <p>Strong interest in accessing employment and training opportunities</p>	<p>Further potential impacts on Aboriginal objects, cultural values and landscapes of significance</p> <p>Increased access to training and employment opportunities</p> <p>Potential impacts on cost of living, including potential displacement of low socio-economic households</p>	<p>Contribution to Aboriginal community plans for central keeping place for cultural artefacts</p> <p>Support access to training and employment opportunities</p> <p>Strategies to mitigate impacts to housing availability and affordability</p>
Community members		
<p>Rural community values and protection of local environment qualities</p> <p>Strong support for local viticulture and equine industries</p> <p>Some interest in employment or supplementary income opportunities</p> <p>Legacy issues (community concerns and conflicts) associated with opposition to Drayton South Coal Project</p> <p>Existing experience with the cumulative impacts of open cut mining</p>	<p>A wide variety of views on the Project were provided by different community members, including:</p> <ul style="list-style-type: none"> Potential effects on community health and wellbeing Potential effects on the operation, reputation and viability of valued equine and viticulture industries Potential for cumulative air quality impacts, resulting in increased dust at houses, properties or in rainwater tanks Potential for increased traffic volumes on local roads affecting access and safety Potential impacts on private properties' access to water resources Potential impacts to local and regional environmental qualities Potential impact to access and use of Edderton Road Potential effects on housing access or affordability Potential impacts on agricultural land use, including grazing land, viticulture and horse studs 	<p>Engagement and education process on Project water resource use, environmental and community health impact management</p> <p>Strategies to maximise local access to employment and business opportunities</p> <p>Support sealing of Project site access road</p> <p>Maintain/improve connectivity between Jerrys Plains and Muswellbrook</p> <p>Strategies to mitigate impacts to housing availability and affordability</p>

Stakeholders' inputs on social baseline characteristics	Stakeholders' views on potential Project impacts and benefits	Stakeholders' suggested mitigations and enhancements
	<ul style="list-style-type: none"> Local employment opportunities and support for increase in stable, long-term population Opportunities for local businesses and supplementary income Opportunity to improve local unemployment rate Potential retention of skilled workers and young people Impacts on visual amenity and local character of Muswellbrook 	
Businesses		
<p>Muswellbrook business centre struggling, however service industries in the Muswellbrook industrial area doing well</p> <p>Denman business centre being regenerated and doing well</p> <p>Muswellbrook Chamber of Commerce a strong advocate for local business engagement</p>	<p>Potential for:</p> <ul style="list-style-type: none"> Participation in the Project's supply chain Population-driven demand for services and products Competition for labour and skills Support for population growth and stability if Project employees relocate from other regions 	<p>Project supply policies and strategies which target local businesses</p>
Equine and Viticulture industries		
<p>Maintaining the economic viability and international reputation of the horse studs, and of the Hunter thoroughbred industry</p> <p>Maintaining an image and visual presentation that is consistent with the horse studs' 'brandscape' (scenic setting)</p> <p>Maintenance of a strong and sustainable viticulture industry</p> <p>Environmental qualities that enable continued operation, including water access and quality</p>	<p>Perception of Project impacts on the operation, reputation and viability of nearby horse studs and associated impacts on supporting industries</p> <p>Potential impact on aquifers</p> <p>Opportunities for local contractors and businesses to supply the Project.</p>	<p>Good neighbour engagement</p>

Stakeholders' inputs on social baseline characteristics	Stakeholders' views on potential Project impacts and benefits	Stakeholders' suggested mitigations and enhancements
Community and environment groups		
Changes to landscape as a result of mining, including subsidence	Air quality, with dust a primary community concern in relation to health	Future, productive use of land as mining winds down
Land acquisition for mines across the district leading to loss of local families and community disappearing	Community concern about noise impacts, referencing revised NSW Voluntary Land Acquisition and Mitigation Policy (VLAMP)	Rehabilitation which creates connections with other rehabilitated land parcels
Potential for mining to impact on groundwater availability for future farming uses		Provision for local businesses to benefit from Project supply opportunities
Mines working to outdated approval documents with regard to rehabilitation, landform and future land use		Ensuring local employment actually means local, rather than just a local residential address

3.3 Malabar recognition of stakeholder inputs

Stakeholder inputs highlight the importance of ongoing community engagement about the Project, expected impacts, mitigation and monitoring strategies. In particular:

- underground mining methods (as proposed by Malabar) significantly reduce the environmental impacts in comparison to open cut mining methods;
- the mine's entry has been placed carefully in a valley approximately 5 km north of the Golden Highway, and therefore it cannot be seen from the Highway or the local horse studs, which addresses concerns that were raised in past proposals for the area;
- there would be limited new infrastructure at the underground entry;
- freehold land within the application area is owned by Malabar, with the exception of a small area within the transport and services corridor and Maxwell Infrastructure, which is owned by AGL Energy Ltd (AGL), with no potential for direct impacts on other properties;
- there would be minimal impact to existing agricultural activities within the application area;
- the Project would have no direct or subsidence impacts on land used by Equine or Viticulture Critical Industry Clusters (CICs), or on the Golden Highway;
- Edderton Road impacts could either be managed along its existing alignment (through road maintenance) or relocated around the mining area by agreement with other stakeholders;
- the mine's general layout (Figure 2-2) avoids encroachment on the Hunter River alluvium and Saddlers Creek and the Project's water needs would be sourced from existing water storages at the Maxwell Infrastructure site and water recovered and recycled during underground operations; and
- Malabar is actively improving its agricultural properties and viticultural operations so that these will be long-term sustainable and productive businesses that can co-exist with underground mining operations.

4. SOCIAL BASELINE

The subsections below provide a detailed analysis of the social environment in the Project's area of influence.

Muswellbrook is the nearest town to the Project site access (approximately 10-minute drive), and together with Singleton, is anticipated to be the primary residential base for employees (Section 5.4.1).

Jerrys Plains and Denman are the nearest small communities to the Project area. The Jerrys Plains locality is south of the Project area, with the historic rural village of Jerrys Plains located near the Hunter River, an approximately 35-minute drive to the Project site access. Denman is a picturesque country town, located approximately 12 km west of the Project area. The social baseline for each of these communities is considered in order to determine the sensitivity of the communities to any potential Project impacts. However, the majority of new local employees are expected to settle in Muswellbrook given it is nearest to the Project site access, and has greater access to local facilities and services and more housing availability.

4.1 Surroundings and property use

This subsection describes surroundings in the Project region, including:

- land use;
- town centres;
- connectivity;
- residential and public amenity; and
- mining in the region.

4.1.1 Local land use

This subsection describes land use in the vicinity of the Project, which includes the Maxwell Underground, transport and services corridor, Maxwell Infrastructure and the nearby Antiene Rail Spur.

All freehold tenure within the mining area is owned by Malabar and is primarily used for cattle grazing. Freehold land within the Maxwell Infrastructure area is owned by Malabar and AGL.

Nearby land uses include mining, quarrying, power generation, horse studs, viticulture, residential properties and livestock grazing operations.

Malabar's engagement process has identified approximately 150 households located on residential lots and small acreages within approximately 5 km of the Project, with whom it communicates regularly. The area supports access to land for outdoor activities, an agricultural landscape, privacy, and a quite rural environment which is historically and environmentally linked to the Hunter River.

Land to the north of the Maxwell Underground is part of the Mt Arthur Mine, which is operated by BHP. Land adjoining the eastern boundary of the Maxwell Underground is owned by AGL and contains Plashett Reservoir, Bayswater Power Station and Liddell Power Station.

To the south of the Project area lies the Golden Highway. Thoroughbred breeding operations Coolmore Stud and Godolphin Woodlands Stud primarily operate south of the highway. The Coolmore and Godolphin Woodlands Studs include accommodation for their workers' families, which are located 7 - 10 kms from the mine entry area.

Malabar-owned land extends more than 2.5 km west of the Maxwell Underground. Further west lies rural land owned by private landholders and primarily used for grazing. Key agricultural sectors and industries include cattle grazing, cropping, thoroughbred breeding and viticulture/winemaking (with an expanding base in the Muswellbrook and Singleton LGAs). Singleton and Muswellbrook are identified as the largest towns in the region, initially settled for agricultural purposes and, more recently, where growth associated with the mining industry is most prevalent.

The Golden Highway is the primary road connection between Singleton and Dubbo and passes through Denman. The Golden Highway is the primary goods and services transport route between the NSW coast and central western NSW. It is also an identified tourist route.

The New England Highway is the primary road connection, and goods and services transport route, between Newcastle and the New England region and passes through Singleton and Muswellbrook.

The Landscape and Visual Impact Assessment for the Project describes that the region comprises a range of different landscapes, which vary as a result of topography, vegetation cover and land use types. Detailed descriptions of the visual character of the landscapes in the vicinity of the Project are provided in EIS Appendix N.

Natural setting

The Project is located within the Muswellbrook-Jerrys Plains Landscape Conservation Area recognised by the National Trust Register, which is a non-statutory register. The landscape includes natural features such as the Hunter River and its alluvial flats, views and vistas of the river flats, bluffs of the Wollemi National Park, and undulating rolling hills. The Project design locates key Project infrastructure (such as the mine entry area and transport and services corridor) outside of the Muswellbrook-Jerrys Plains Landscape Conservation Area which significantly mitigates impacts on this area as discussed in EIS Appendix H.

The provisional Development Application Area includes land mapped as “Environmentally Sensitive Land” under the *Muswellbrook Local Environmental Plan 2009* (Muswellbrook LEP). A preliminary investigation of environmentally sensitive areas of State significance (as defined in the *State Environmental Planning Policy (State and Regional Development) 2011*) has identified that no Project land or component is located within other areas of specific environmental sensitivity (Section 3.2 of the Scoping Report).

Equine industry

The Hunter thoroughbred industry is one of the largest and most important breeding clusters in the world (DP&E, 2017c) and is central to the Upper Hunter Valley’s Equine CIC.

There are no equine enterprises located within the Project area and the Project would not cause any change to land use with respect to land identified as Equine CIC.

There are two major equine enterprises operating to the south of the proposed Maxwell Underground and the Golden Highway, including:

- Coolmore Stud; and
- Godolphin Woodlands Stud.

The results of engagement with local equine industry stakeholders are provided in Section 3.2.

Viticulture

The Hunter region is Australia’s oldest wine-making region and *‘the economic value and cultural significance of viticulture and wine tourism are essential components of the region’s identity and economy’*⁴. The Project would not cause any change to land use with respect to land identified as Viticulture CIC.

Vineyards within 15 km of the Project area include:

- Hollydene Estate Winery, which is located on land owned by Coolmore Australia and is south of the Maxwell Underground. The winery operates a cellar door and restaurant business and has Muswellbrook Shire Council development consent for the establishment of tourist and visitor accommodation on the estate (NSW Planning Assessment Commission [PAC], 2017a);
- Merton Vineyard and Small Forest Winery, approximately 10 km west of the proposed mining area, and owned by Spur Hill Agriculture Pty Ltd which is a Malabar subsidiary; and
- Two Rivers Vineyard, south of Denman, and approximately 12 km west of the proposed mining area.

The results of engagement with local vineyard owners are provided in Section 3.2.

⁴ Department of Primary Industries, (2013).

Local tourism uses

The Golden Highway passes through Jerrys Plains and Denman and is the primary goods and services transport route between the NSW coast and central-western NSW. The Golden Highway is also an identified tourist route. Local tourism attractions in the immediate vicinity of the Project consist primarily of vineyards and cellar doors, but also include some restaurants and bed and breakfast accommodation.

In Denman (as discussed below) village shops, hotels, and community events (such as the food and wine festival in May) also generate visitors to the region. The landscape is an attraction in itself, as it is naturally beautiful including elements such as horse studs, vineyards, agricultural uses and small towns.

4.1.2 Nearby communities

Jerrys Plains

Jerrys Plains, an historic rural village located near the Hunter River, is the closest community to the Project at approximately 10 km south east of EL 5460. Jerrys Plains is located within the Singleton LGA, approximately 25 km northwest of Singleton and 25 km south of Muswellbrook. The area was initially settled in the 1820s and the present village site was surveyed in 1840⁵. Jerrys Plains supports residents within the village centre as well as those on surrounding rural properties.

In 2016, the Jerrys Plains SSC had a population of 385 people and a total of 140 private dwellings. Available services include a primary school and service station.

Jerrys Plains offers a quiet, rural lifestyle with wide open spaces and rural vistas complementing the village character. The village is located on the Golden Highway, so some homes in the village are affected by traffic noise. The Jerrys Plains Public School services the village and surrounding properties and is a key community hub. The Jerrys Plains tavern, service station and veterinary hospital are the only services in Jerrys Plains.

Rural values (such as deriving recreation and a livelihood from the land, cooperation and courtesy) are prominent in the Jerrys Plains and Denman areas. Mining families have also become part of the local communities, which has contributed to the size and diversity of the local population, and to higher employment and income levels.

The Golden Highway provides the primary road connection between Singleton and Dubbo providing connections for Jerrys Plains and Denman to the nearest centres of Singleton and Muswellbrook.

Denman

Denman is a picturesque country town, located approximately 12 km west of the Project area and is recognised as the developing centre of the Upper Hunter's tourism industry (Muswellbrook Shire Council, 2018a). Denman is within the Muswellbrook LGA, approximately 20 km south-west of Muswellbrook. Denman village was gazetted in 1853⁶ and was initially developed as a service centre for the dairy industry and later hay production. The Denman area supports a mixture of industries including coal mining, tourism, agriculture, and CICs for the equine and viticulture industries.

⁵ Sydney Morning Herald, (2014a).

⁶ Sydney Morning Herald, (2014b).

In 2016, the Denman SSC had a population of 1,789 people and a total of 842 private dwellings. Denman has a good range of local-level social infrastructure, including primary schools, a small hospital, aged care facilities, health services, a range of sporting and community facilities, a vibrant main street, a range of shops and services and community events, all of which generate visitors to the region. Muswellbrook Shire Council is planning an upgrade of the town centre to create opportunities for improved retail, commercial, public spaces and activities in Denman.

Denman Road provides the main connection to Muswellbrook from Denman, with linkages to the New England and Golden Highways.

Denman offers the amenity of a busy small town, characterised by a traditional rural streetscape and a quiet and peaceful lifestyle, enlivened by community events and a panoramic backdrop of hills and ranges. Muswellbrook Shire Council are currently progressing the Denman Town Master Plan which focuses on visibility, access, and a mix of uses and amenities.

Denman offers an excellent range of social and community infrastructure for the scale of the town and district. It also has a range of quality restaurants and cafes that serve locals as well as tourists.

Social capital is strong in Denman, with strong networks within neighbourhoods, and between sporting, community and cultural groups. There is also evidence of local cooperation in the development of the town's social, cultural and commercial infrastructure, and the maintenance of its small-town character. Denman's social character and location are strong contributors to its tourism values.

Muswellbrook

Muswellbrook is the municipal centre for the Muswellbrook LGA and is located approximately 10 km north of the Maxwell Infrastructure. In 2016, the Muswellbrook SSC had a population of 12,075, with 5,495 dwellings.

Muswellbrook was established in 1833, initially centred on wheat and wool production, and later dairying and mining⁷. By 1870, Muswellbrook's population had grown to more than 1,400 people, influenced by the construction of a railway and railway station the previous year⁸. By 1907, coal discoveries led to the formation of the original Muswellbrook Coal Company initially underground followed by larger-scale open cut mining⁹.

Muswellbrook Shire Council's Local Strategic Planning Statement identifies Muswellbrook and Denman as the Shire's largest towns, with Muswellbrook developing as the Shire's regional centre and a centre of educational excellence, while Denman develops as a district centre and hub for the Upper Hunter tourism industry.

Muswellbrook functions as a regional centre for the Muswellbrook LGA and Denman is recognised by Muswellbrook Shire Council as a second centre for urban growth and future district centre¹⁰. Muswellbrook offers a range of local and district-level services such as a district hospital, primary, high and trade schools, training facilities, community and civic centres, recreational facilities and government services. Muswellbrook is positioned at the junction of the Main Northern Railway Line and the Muswellbrook-Gulgong Railway Line, with Muswellbrook Railway Station serviced by local and long-distance rail services, interstate coaches and local bus services¹¹.

The New England Highway is the primary road connection between Newcastle and the New England region and passes through Singleton and Muswellbrook, however there are plans in the future for bypasses of both Muswellbrook and Singleton.

⁷ Muswellbrook Shire Council, (2015b).

⁸ Muswellbrook Shire Council, (2013a).

⁹ Muswellbrook Shire Council, (2013b).

¹⁰ Muswellbrook Shire Council, (2018b).

¹¹ Muswellbrook Shire Council, (2013b). REMPLAN Economy Profile – Muswellbrook Shire, (2018).

General amenity in the Muswellbrook LGA includes:

- a working-town atmosphere;
- a range of housing choices from small attached dwellings to large farming properties, with associated lifestyle values;
- access to a range of social infrastructure, professional services and shops in the town centres;
- access to a range of sporting, cultural and recreational pursuits; and
- access to a train and bus service for passenger travel to Newcastle with connections to Sydney with Newcastle Airport offering regular flights to other centres.

4.1.3 Hunter Valley

The Upper Hunter region, located approximately three hours north of Sydney, forms the inland part of the broader Hunter region. The region encompasses the LGAs of Singleton, Muswellbrook, Dungog, Upper Hunter and Gloucester. The Upper Hunter region is generally rural in character, featuring some of New South Wales' most productive agricultural land¹² with dairy, cropping, horse breeding, viticulture and beef cattle industries being major contributors to the region's traditional agricultural economy¹³. The region is also recognised as containing approximately 40% of the state's identified coal reserves and significant coal seam gas reserves¹⁴.

The Hunter Valley Region, as identified by the Hunter Valley SA4, includes the Muswellbrook, Singleton, Maitland, Upper Hunter, Dungog, Cessnock and Port Stephens LGAs, where residents and businesses are likely to benefit from Project opportunities and may also experience issues such as competition for labour or in-migration of Project personnel.

The Muswellbrook LGA (in which the Project is located) is centrally located in the Upper Hunter Valley and at the junction of significant environmental and physical infrastructure assets, including:

- the junction of the Hunter and Goulburn River valleys;
- the Wollemi National Park which provides the connection between the Blue Mountains and the Liverpool Ranges;
- the junction of the Main Northern Railway Line and the Muswellbrook – Gulgong Railway Line; and
- an important connection between the Golden Highway and the New England Highway¹⁵.

The LGA covers an area close to 3,400 km² with national park covering 43%¹⁶ of this area and, at the 2016 Census, was home to 16,086 people. As noted by the Muswellbrook Shire Council's Local Strategic Planning Statement 2018, Muswellbrook LGA plans to play an important role in mending the discontinuity of natural vegetation along the Great Dividing Range.

The LGA includes the town of Muswellbrook and a number of rural communities, including Sandy Hollow, Denman, Wybong, Baerami, Martindale, Widden, McCullys Gap and Muscle Creek¹⁷.

¹² NSW Department of Planning and Infrastructure, (2012).

¹³ NSW Department of Planning and Infrastructure, (2012).

¹⁴ NSW Department of Planning and Infrastructure, (2012).

¹⁵ Muswellbrook Shire Council, (2018b).

¹⁶ Muswellbrook Shire Council, (2015a). REMPLAN Economy Profile – Muswellbrook Shire, (2018a).

¹⁷ Muswellbrook Shire Council, (2018a).

Muswellbrook LGA's economy is characterised by coal mining, thermal coal power generation, agriculture, horse breeding and viticulture. Muswellbrook Shire is home to the largest critical mass of thoroughbred horse rearing in Australia, located between Widden Valley through Sandy Hollow to Jerrys Plains¹⁸.

The LGA is a main centre for NSW power generation and the major centre of Upper Hunter coal mining. It is recognised as having the largest concentration of open cut mining operations and major expansion of mining approvals over the last few years and the second highest rate of coal extraction in New South Wales¹⁹.

There are a number of large mining operations in proximity to the Project, including BHP's Mt Arthur Mine, Hunter Valley Operations (Yancoal/Glencore Joint Venture), New Hope Group's Bengalla Mine, and Glencore's Mangoola Mine. MACH Energy's Mount Pleasant Operation, east of the Muswellbrook township has recently commenced production. The Project region's cumulative context is further discussed in Section 5.8.

The Singleton LGA is located in the south of the Upper Hunter Valley. The Singleton LGA has an area of 4,893 km² and includes Singleton (the municipal centre), and the villages and rural localities of Broke, Bulga, Howes Valley, Putty, Warkworth, Jerrys Plains, Mount Olive, Carrowbrook, Mirranie, Elderslie, Belford and Branxton. At the 2016 Census, the Singleton LGA had a population of 22,987 people.

Singleton's healthy economic profile features a vibrant retail precinct, a diverse mining and industrial base, and surrounding farming land. It has positioned itself as a tourism destination with a proud country community spirit. Singleton is also home to the Australian Army's Lone Pine Barracks and School of Infantry. Singleton Council's website recognises that coal mining and related industries have played a significant historical role in the region's development since the late 1800s, and that Singleton's local economy is predominantly driven by mining²⁰.

4.1.4 Local mining development

Coal mining has played a significant part in the development of the Project region. The coal industry first developed in Singleton around the 1850s at Rix's Creek and Glendon where coal was sold for domestic use in home fires. Rix's Creek became home to a substantial mine developed by James Singleton, and by the late 1800s, Singleton had become home to approximately 16 different mines²¹.

The Muswellbrook Coal Mine was the first established in the Muswellbrook LGA in 1907, providing fuel for the generation of electricity for domestic supply. During the 1970s and 1980s, Liddell and Bayswater Power Stations were constructed in the Muswellbrook Shire, relying on local coal mines²².

As such, coal mining represents a core part of the region's history and heritage, an important part of the region's economic and employment profile, and a mainstay in the current energy mix.

Former Drayton Mine and Associated Projects

The former Drayton Mine is located approximately 10 km north-east of the Maxwell Underground, immediately adjacent to the Mt Arthur Mine (Figure 2-2). Mining operations at the former Drayton Mine occurred within mining authorities Mining Lease (ML) 1531, Coal Lease (CL) 229 and CL 395.

¹⁸ Muswellbrook Shire Council, (2018b)

¹⁹ REMPLAN Economy Profile – Muswellbrook Shire Council, (2018).

²⁰ REMPLAN Economy Profile – Singleton Council, (2018).

²¹ University of Newcastle, (2013).

²² Muswellbrook Shire Council, (2015b).

Operations at the former Drayton Mine commenced in 1983. On 1 February 2008, the former Drayton Mine received Project Approval 06_0202 for a thermal coal, open cut mining operation with a maximum extraction rate of 8 million tonnes per annum (Mtpa) of ROM coal, and for the continued use and maintenance of surface infrastructure. Coal was mined using open cut mining techniques.

The Antiene Rail Spur (approved under Development Consent DA 106-04-00) was utilised to transport export thermal coal from the former Drayton Mine to the Port of Newcastle via the Main Northern Railway.

Modification 1 to Project Approval 06_0202 was granted by the then NSW Minister for Planning on 16 October 2009 to allow an 8 hectare extension of the approved mining disturbance footprint to the north and the establishment of a new conservation area to provide an appropriate offset for this additional disturbance. Modification 2 to Project Approval 06_0202 was granted by the Minister for Planning and Infrastructure on 17 February 2012 to facilitate the development of an explosives storage facility and the disposal of raw tailings within the East Void, rather than the co-disposal of dry product as previously approved.

Anglo American plc lodged its first project application, including an EIS, to develop the coal reserve within EL 5460 as an open cut mine in November 2012 (the Drayton South Coal Project), however the application was refused by the NSW PAC (now known as the Independent Planning Commission [IPC]) (as delegate of the Minister for Planning) in October 2014.

A second development application and EIS for an open cut mining operation was lodged by Anglo American plc in May 2015. The second development application for the Drayton South Coal Project attempted to address the PAC recommendations through changes to the open cut mine design. The key change to the Drayton South Coal Project, included positioning the open cut mine completely behind the second ridgeline, thus removing the Redbank and Houston mining areas, to increase the buffer between the open cut mine and the horse studs (Hansen Bailey, 2015).

The second development application for open cut mining was refused by the PAC (as delegate of the Minister for Planning) in February 2017 for reasons including potential air quality and blast noise impacts on existing land uses, unacceptable negative economic and social impacts in the locality, incompatibility with 'the particular nature, operations and requirements of existing land uses', and potential impacts on the sustainability of the Equine CIC (PAC, 2017b).

Open cut mining at the former Drayton Mine ceased in October 2016 under the operation of Anglo American plc. Anglo American plc made the following statement²³:

As a direct result of the New South Wales Planning Assessment Commission (PAC) recommendation in late 2015 to reject Anglo American's Drayton South project, the existing Drayton operation in the Hunter Valley will cease mining operations by the end of September 2016...

The closure of the Drayton Mine resulted in approximately 400 redundancies.

Nearby Operations and Projects

Existing and proposed mining operations are presented in Table 4-1. The relevance of these projects and operations to the assessment of social impacts and cumulative social impacts is noted, with further analysis provided in Section 5.8.

²³ Australian Mining Review, (2016).

Table 4-1: Nearby operations and projects

Project	Location and Distance from Project	Scale and timing	Approximate Workforce	SIA considerations
Existing operations				
Maxwell Infrastructure		Care and maintenance, progressive rehabilitation Antiene Rail Spur approved to 2025	N/A	Conditions reflected in social baseline Use of existing infrastructure considered in assessment
Savoy Hill Project (Dellworth EL 6812)	Overlaps land owned by Malabar and parts of the transport and services corridor	Exploration tenement	N/A	Interaction with Malabar owned land for prospecting
Bayswater Mine/ Mt Arthur Mine – Open Cut	Immediately west of the Project	32 Mtpa, until June 2026	985 FTE operations personnel ¹ 518 FTE contractors ¹ (Up to 2,600 FTE personnel approved) ²	Existing employment provision, impacts and opportunities contribute to social baseline conditions
Mount Pleasant Operation	15 km north of the Project	10.5 Mtpa, approved to December 2026	250 construction personnel 380 FTE operations personnel	Potential increased demand for housing and social infrastructure in Muswellbrook
Bengalla Mine – Open Cut	15 km north of the Project	15 Mtpa, until 2039	420 FTE operations personnel ³ Approximately 379 contractors ³ (Up to 900 FTE operations personnel approved)	Existing employment provision, impacts and opportunities contribute to social baseline conditions
Hunter Valley Operations (HVO)	13 km south-east of the Project	20 Mtpa (HVO South Open Cut), until 2030 22 Mtpa (HVO North Open Cut), until 2025	1,300+ combined personnel	Existing employment provision, impacts and opportunities contribute to social baseline conditions

Project	Location and Distance from Project	Scale and timing	Approximate Workforce	SIA considerations
Greater Ravensworth Area Operations (comprising Ravensworth Operations, Liddell Coal Operations and the Mount Owen Complex)	10 km east of the Project	Mount Owen Complex (with various approvals for up to 2021, 2024 and 2031) Liddell Coal Operations, until December 2028 Ravensworth Operations, until December 2039	1,100+ combined operations personnel	Existing employment provision, impacts and opportunities contribute to social baseline conditions
Muswellbrook Coal	10 km north of the Project	2 Mtpa until December 2022	150	Existing employment provision, impacts and opportunities contribute to social baseline conditions
Mangoola Mine – Open Cut (including the proposed Mangoola Coal Continued Operations Project)	5 km north-west of the Project	13.5 Mtpa until 2029 (application to extend operations to 2030) ⁴	145 construction personnel ⁴ 540 operations personnel	Construction phase considered in cumulative impact assessment Proposed extension of mine life to 2030 is not expected to materially change operational workforce profile
Liddell Power Station	5 km east of the Project	2,000 megawatts (MW) until 2022	620 personnel between Liddell and Bayswater Power Stations ⁵	Closure leading to job losses
Bayswater Power Station	6 km east of Project	2,640 MW until 2035		Existing employment provision, impacts and opportunities contribute to social baseline conditions
Potential future operations				
Mt Arthur – Underground	Immediately west of the Project	Approved for 8 Mtpa until 2030	470 construction personnel 300 personnel post-construction	Potential increased demand for housing and social infrastructure in Muswellbrook/competition for skilled labour
Dartbrook Underground Mine	17 km north of the Project	6 Mtpa, approved to December 2022 Entered care and maintenance in 2006 Modification proposed to extend operations to 2027	15 FTE personnel (during care and maintenance) ⁶ (26 FTE construction personnel and 99 FTE operational personnel) ^{*6}	Potential increased demand for skilled underground mine labour

Project	Location and Distance from Project	Scale and timing	Approximate Workforce	SIA considerations
Spur Hill Underground Coking Coal Project	Immediately east of the Project	Proposed 8 Mtpa, 25-year mine life	Under review	Subject to future assessment and approval, not accounted for in this assessment

Source: Section 2 of the Main Text and Hunter Valley Study Area Map 2016-17 (Australian Mining Monthly, 2017).

- 1 BHP (2018) *Mt Arthur Coal Annual Environmental Management Review FY18*.
- 2 Hunter Valley Energy Coal (2013) *Mt Arthur Coal Open Cut Modification Environmental Assessment*.
- 3 Bengalla Mining Company Pty Limited (2016) *Bengalla Mining Company – Who we are*.
Website: <http://www.bengalla.com.au/who-we-are/>
Accessed: 10 April 2019
- 4 Mangoola Coal Operations Pty Limited (2019) *Mangoola Coal Continued Operations Project Environmental Impact Statement*.
- 5 AGL (2019).
- 6 Australian Pacific Coal Limited (2018) *Dartbrook Mine Modification 7 Environmental Assessment*.
- * Proposed construction and operational personnel for the Dartbrook Mine Modification 7.

4.1.5 Community views on mining

Research undertaken by HRF in 2015 involved 300 surveys with Hunter Region residents regarding their environmental attitudes and energy usage identified the following community attitudes:

- 71% of residents agreed that climate change was a problem, 57% agreed that climate change would directly impact the community in the next 20 years, 44% thought 'action should be taken on climate change now'; and
- 49% of residents agreed that coal industry benefits outweighed negative impacts, with 22% disagreeing, and 23% expressing a neutral view.

This research reflects a broad range of community views regarding the future of mining in the region²⁴.

As noted in Section 3, residents and industry stakeholders generally recognise the role mining plays in the region's economic profile and social fabric, and the opportunities an underground mine presents, however community members also have concerns about the mining industry's environmental and social impacts, stemming from:

- the cyclical effects of the industry on local towns e.g. housing and skills availability;
- cumulative impacts, including open cut developments' effects on land form and scenic character, concerns about the impacts of dust on community health and impacts on environmental values;
- growing community concern about climate change and the role that fossil fuels play; and
- support for the economic diversification of the Upper Hunter region.

²⁴ Hunter Research Foundation, (2015).

4.2 Culture

4.2.1 Traditional ownership

As described in the ACHA²⁵, the ways in which Aboriginal people likely used pre-contact landscapes is typically determined through archaeological (i.e. survey and excavation) data and historical records.

Reconstructing and understanding the social and territorial organisation of the Aboriginal groups occupying the Hunter Valley at contact is extremely difficult given the enormous social upheaval that preceded any formal investigations into their languages and lifeways, and the sometimes contradictory nature of primary historical records²⁶. Boundaries may have also fluctuated within both short-term and long-term periods.

Early tribal maps, indicate the Project area is located within the land of the Wonnarua (also spelt Wanaruah) people²⁷, whose country extends from the Upper Hunter River from a few miles above Maitland out west to the Great Dividing Range²⁸. Other sources recognise the proximity of the Kamilaroi-speaking peoples, with some authors suggesting they had penetrated over the Liverpool Range and were occupying the Hunter Valley as early as 1819²⁹.

Muswellbrook Shire Council identifies the traditional ownership of Muswellbrook region as belonging to the Wanaruah and the Kamilaroi peoples³⁰. Consultation with the Wanaruah LALC indicates the Kamilaroi and Wonnarua people have a long tradition of trade, shared stories and shared country³¹.

The potential for direct impacts on Aboriginal cultural heritage values is assessed in detail in the ACHA for the Project (Appendix G of the EIS). As all land within the Project area has been previously used for both agricultural and mining activities, direct impacts on Aboriginal social use of the Project area would not occur.

4.2.2 Aboriginal cultural values and heritage

In 2016, Aboriginal people represented 3.3% of the Jerrys Plains community, 6.8% of the Denman community and 9.9% of the local Muswellbrook community (8.9% of the Muswellbrook LGA and 6.1% of the Singleton LGA). Traditional values, cultural identity and ties to country remain a strong part of contemporary life for many of these residents and communities across the Upper Hunter region.

RAP field representatives involved in the field work for the Project identified the following cultural values for the Project area and surrounds in conversation with ACHA archaeologists³²:

- Mount Arthur is the dominant landscape feature in the local area and is a culturally significant landmark for Aboriginal people. Views of Mount Arthur are available from multiple viewpoints within the Project area.

²⁵ AECOM, (2019).

²⁶ Ibid.

²⁷ Consultation with the Wanaruah LALC for the Spur Hill Underground Coking Coal Project SIA identified a distinction between the Wonnarua people and people belonging to the Wanaruah language group, although both spellings have been used to describe population groups in different contexts. The spelling variations can be attributed to oral histories and limited written documentation that identifies traditional population groups and sub-communities. The Wanaruah language group was reportedly the largest in the region pre-European settlement.

²⁸ Tindale, N. B. (1974).

²⁹ Ford, G. E. (2010).

³⁰ Muswellbrook Shire Council, (2013c).

³¹ Aboriginal People of Muswellbrook Shire.

³² AECOM, (2019).

- An Aboriginal massacre site is located south of Mount Arthur (outside the Project area) and is an important cultural historical site.
- The area south of Mount Arthur may have formed a bastion for dispossessed Aboriginal people during the contact period.
- An Aboriginal massacre site is located west of the Project area near the Golden Highway (further information was requested on this but was not provided).
- Mount Arthur burial is an important cultural site located north of the Project area.
- Aboriginal people are known to have been employed on farms in the greater Jerrys Plains/Edderton area.
- The Hunter River gravels would have formed an important resource for Aboriginal people occupying the Project area and its environs.
- The identification of long use-life tools during the current survey (i.e. axes) indicates that parts of the Project area were likely to have been intensively occupied in the past.
- Land within the Project area, including identified sites, forms part of a much larger cultural landscape for the Wonnarua people.
- Saddlers Creek was likely a focal resource point for Aboriginal people occupying the greater Jerrys Plains/Edderton area.
- Prior to European settlement, the native vegetation communities of the Project area would have contained a variety of edible and otherwise useful plant species.

Aboriginal social values are reflective of those held by the community more generally (such as family values, community cohesion and working together), although gaps and barriers to social opportunity and participation remain. Within Aboriginal communities, cohesion and social values such as trust, family responsibilities and reciprocity are high, and ensuring support for cultural values (such as heritage, stories and behavioural norms) is a priority.

Consultation during the SIA identified that:

- loss of cultural landscape in the Hunter Valley, particularly around Muswellbrook and in the vicinity of the Project has caused anguish for the local Aboriginal community;
- Indigenous people are vulnerable to impacts on housing affordability; and
- Indigenous employment and training are not considered to be a high enough priority for mining companies.

Employment and housing security are critical foundations of population health, wellbeing and participation for Aboriginal people, and these factors are addressed in SIA Sections 5.5.3, 5.5.4 and 5.7.

In addition to protection of custodial lands, the Wonnarua people have a strong focus on employment and business development as the pathways to community wellbeing and economic security. In consultation with the Wonnarua LALC, a number of potential future initiatives were discussed including partnerships and investment in local affordable housing and investment in an Aboriginal Education Centre in Muswellbrook.

The Wonnarua Aboriginal Corporation based in Singleton is also developing a number of culturally important properties and business initiatives focused on tourism, agriculture, biobanking, and rehabilitation as well as assisting young people with education and housing³³.

³³ Wonnarua Nation Aboriginal Corporation, (2018).

Social impacts and benefits associated with the Project are discussed in Section 5. Malabar's commitments to Indigenous employment would support a key value of improved access to employment and economic participation.

4.2.3 Historic heritage

In 1819, Governor Macquarie opened up the Hunter Valley to free settlement. Land was quickly surveyed and by 1823, grants along rivers and creeks had been issued³⁴.

Settlement, however, seems to have been of a slower pace. In 1829, Jerrys Plains was surveyed as a town, although it had been a campsite for travellers for some years previous. The town was not proclaimed until 1840 and official grants were not given until several years later. Despite the absence of official land ownership, development of the town continued. Muswellbrook was proclaimed in 1833, although again, there had been earlier settlement in the vicinity. The surrounding area was largely used for grazing and cropping, with an increasing focus on dairying. Coal mining began in the 1890s, but did not become prolific until the twentieth century³⁵.

The land that now comprises the Project area has primarily been used for pastoral activities since this early period of European settlement. Key cattle and sheep properties included the Plashett, Edderton, Strowan, Randwick and Bowfield Estates³⁶.

Assessment undertaken for the Project Historic Heritage Assessment³⁷, found eight non-Aboriginal heritage items and one cultural landscape within or in the vicinity of the Project area, including:

- M02 Edderton Homestead, a federation-style home located on neighbouring land owned by BHP;
- M03 Bowfield Homestead, a besser-block style home constructed in the 1920s, located outside the Project area and owned by Malabar;
- M05 Arrowfield Cottage, located at the Coolmore Stud;
- M06 Randwick Homestead, located at the Godolphin Woodlands Stud;
- M07 Woodlands Homestead, located at the Godolphin Woodlands Stud;
- M08 Stockyard, located on Malabar-owned land;
- M09 Plashett Homestead constructed in the 1860s, located outside the Project area on Malabar-owned land;
- M10 Strowan Homestead and Arrowfield Cottage, located at the Coolmore Stud; and
- Muswellbrook – Jerrys Plains Landscape Conservation Area.

There are no lands, places, buildings or structures listed on Local Environmental Plans or the State Heritage Register under the NSW *Heritage Act, 1977* within the Project area.

4.2.4 Community values

Engagement with landholders in the vicinity of the Project highlights that their values are strongly based in agricultural property use, a semi-rural or rural lifestyle, access to water which supports their agricultural enterprises, and family and community connections. For many, there is a strong connection to their property, including connections to family history.

³⁴ Extent Heritage, (2019).

³⁵ Ibid.

³⁶ Ibid.

³⁷ Ibid.

Specific values attached to private properties in the vicinity of the Project include:

- family homes;
- businesses (principally thoroughbred breeding, viticulture, and grazing);
- family heritage;
- family recreation and quiet enjoyment of property; and
- social and business relationships between adjoining properties and industries.

The nearby communities of Jerrys Plains and Denman's community values and cultural identity are based in the rural history of the local areas, the picturesque landscapes, the country town feel and a quiet but busy rural way of life. Social capital within both communities is strong, with neighbour networks and relationships established on arrangements of mutual self-help.

Community cohesion or connectedness in nearby communities is supported by the traditional rural ethic of working together to address community needs (e.g. bushfire control and community facility management), and by social networks including community, cultural, sporting, recreational, business, environmental and political organisations.

Population mobility levels provide some indication of cohesion, as retaining a stable community over time supports community cohesion. In the five years to 2016, Muswellbrook and the Muswellbrook LGA had the highest percentage of residents that had changed address (42.9% and 40% respectively), while Singleton LGA also had a high rate of population mobility (37.6% had a different address five years ago, compared to 32.9% for NSW). By contrast, Jerrys Plains had the lowest rate of turnover in the vicinity of the Project (25.6% had a different address five years ago), followed by Denman (34%).

The higher mobility in Muswellbrook is likely due to the dominance of the mining sector in the area, and potentially by the presence of families associated with inmates at St Helier's Correctional Centre near Muswellbrook which results in a more transient population than in areas dominated by agriculture.

Muswellbrook is generally described by stakeholders as a diverse community and a working town, centred on mining activity, agriculture, and related service industries. It is recognised and valued for its location, convenience and amenity, rural atmosphere and economic prospects.

Mining workforces and their families represent a substantial part of the Project region's population, and Muswellbrook has an established role as a home community for mining personnel working in the Hunter Valley region. As such values common to mining personnel – a strong work ethic, a safety culture, mateship and sporting involvement – are strong in Muswellbrook.

The Muswellbrook community is characterised by:

- a rich pioneering history, with many long-term residents and families;
- a significant Indigenous population, with traditional ties to the area in addition to contemporary values and culture;
- a strong position as the regional centre for the Muswellbrook LGA and central to the Hunter region;
- a long tradition of diverse industries, including agriculture, mining, power generation, tourism and supply industries;
- a large mining workforce; and
- a community that is inclusive of cultural and socio-economic diversity.

Singleton has evolved from a historic country town to a commercial centre that supports its local residents and the regional workforce. The community is characterised³⁸ by:

- a long history in agriculture, particularly cropping and grazing;
- a rich history in the mining industry, which continues to be the community's major employer, followed by service industries, construction, retail, accommodation and food services;
- support for a major Australian Army training facility;
- a long history in agriculture, particularly cropping and grazing;
- a significant Indigenous population, with traditional ties to the area in addition to contemporary values and culture;
- a thriving town centre and retail precinct with a mix of historic and contemporary architecture; and
- a community that prides itself on being vibrant, progressive, connected, sustainable and resilient.

Consultation with Muswellbrook and Denman stakeholders indicated that the economic downturn in the Upper Hunter region during 2013-2014 and particularly mining industry contractions had considerable effects on Muswellbrook. The effects have largely been observed in relation to a loss of mining and service industry employment, increased housing availability, lower housing prices and a migration of lower income families to the local area to take up the housing options available.

Stakeholders noted increased mining related construction activity over the last 12-18 months, with a change in rental availability and affordability one key indicator of the change in industry activity, however unemployment rates in Muswellbrook remain high. Consultation with Muswellbrook Shire Council also noted a substantial increase in the number of workforce buses on the road at shift changeover during the past twelve months and the Council's concern that this may affect traffic safety.

³⁸ Singleton Council, (2017). REMPLAN Community Profile – Singleton Council, (2018). REMPLAN Economy Profile – Singleton Council, (2018).

4.3 Community

4.3.1 Community representation

The Maxwell Infrastructure CCC comprises an independent Chair, representatives of the local community (including nearby landholders), a Muswellbrook Shire Council representative and Malabar representatives. The CCC meets regularly to provide communication channel between community members and the Project. As noted in Section 3.1.3, Malabar also provides regular information about the Project to the Spur Hill CCC.

4.3.2 Regional and community plans

Regional priorities

The *Hunter Regional Plan 2036* (the HRP)³⁹ will guide the NSW Government's land use planning priorities and decisions over the next 20 years. Regional priorities relevant to the social environment that are outlined in the HRP for the Muswellbrook LGA include:

- a focus on land use compatibility;
- diversifying the energy and agricultural sectors;
- protecting the Equine CIC and allowing for expansion of the industry;
- maintaining Muswellbrook's regional centre role;
- delivering Urban Release Areas at Denman and Muswellbrook;
- managing demand for residential development in the context of potential mining activity surrounding Muswellbrook; and
- diversifying housing opportunities to respond to changing demographics and housing affordability.

The regional priorities relevant to the social environment outlined in the HRP for the Singleton LGA include:

- a focus on land use compatibility;
- enhancing viticultural and nature-based tourism and associated infrastructure;
- managing productive landscapes that sustain important agricultural sectors;
- maintaining Singleton's role in providing administrative, retail, commercial, education and health services;
- connectivity to major transport corridors;
- measures to manage flooding impacts;
- protecting and revitalising items of heritage significance; and
- delivering Urban Release Areas and exploring redevelopment opportunities for medium-density housing.

³⁹ NSW Department of Planning and Environment, (2016a).

Community objectives and aspirations

The Muswellbrook Shire and Singleton Council's Community Strategic Plans represent the long-term vision for local communities and indicate local community priorities. Local priorities of particular relevance to the SIA are summarised in Table 4-2 and inform development of the SIA⁴⁰. The Project is likely to support diversification from reliance on thermal coal produced for energy (75% of coal produced by the Project would be capable of being used in the making of steel), and to support job growth.

Muswellbrook Shire Council's Community Strategic Plan notes that *'the Shire's economy is closely linked to the fortunes of the energy industry and, in particular, the international thermal coal industry and the domestic power industry'*. The Community Strategic Plan notes that whilst 43% of Muswellbrook LGA is national park, *'a substantial part of the Shire has been disturbed for the purpose of open cut coal mining'*, with consequent community concerns about the rehabilitation of mined land, air quality, noise associated with coal mining, final landform voids and the long-term appearance of the post-mining landscape.

Table 4-2: Community Strategic Plan priorities relevant to the SIA

Muswellbrook Shire Council Community Strategic Plan 2017-2027	Singleton Council Community Strategic Plan 2017- 2027
Goal 1: Support job growth	Objective 1: Singleton is a creative, vibrant, inclusive, safe and healthy community
Goal 2: Diversify the economy, facilitate the development of intensive agriculture and other growth industries, and make the Shire a more attractive place to invest and do business	Objective 2: Singleton is resilient, informed, connected and engaged
Goal 5: Continue to improve the affordability, liveability and amenity of the Shire's communities	Objective 3: Singleton is a well-planned, sustainable, accessible and safe community with vibrant places and spaces
Goal 7: Build social inclusion and improve the delivery of social services	Objective 4: Singleton values, protects and enhances a sustainable environment
Goal 10: Further the process of Aboriginal reconciliation in the Shire	Objective 5: Singleton has an innovative, sustainable and diverse economy
Goal 11: Higher quality final landforms with shallower voids and more emphasis on progressive rehabilitation with local workforce participation	
Goal 16: Conserve the Heritage and History of the Shire	

⁴⁰ The Community Strategic Plan includes a total of 25 goals that address economic prosperity, social equity and inclusion, environmental sustainability, cultural vitality, community infrastructure and community leadership. These goals deal with specific community priorities including expansion of childcare services and senior living options, water supply, road, path and cycle way networks and a well-managed Council.

Key trends noted in the Muswellbrook Shire Council Community Strategic Plan include:

- structural decline or uncertainty in the thermal coal industry, associated job losses, and the need to diversify Muswellbrook Shire Council's economic base;
- the continued growth of the services sector;
- a growing visitor economy;
- ageing water and wastewater infrastructure;
- an aging population and changing retirement patterns;
- social disadvantage and social exclusion, particularly in Muswellbrook South;
- climate change; and
- loss/re-establishment/rehabilitation of native vegetation and vegetation connectivity.

Describing recent conditions, Muswellbrook Shire Council's Community Strategic Plan (2017) notes 'a *strong and sustained reversal in the long term projections for traded thermal coal and substantial local job losses* from 2013, with social ramifications including rapid rises in unemployment between December 2012 and December 2015, and the reversal of a housing shortage to a 'housing glut'.

As a consequence, the Community Strategic Plan states that the community focus had '*changed markedly to jobs, economic diversification and resilience, transition to a low carbon future, education and skills, and for Muswellbrook to develop and emerge as a Regional Centre*'. The Singleton Council Community Strategic Plan also notes that Singleton has had a significant shift in the local economy since the previous Community Strategic Plan was developed in 2011 (Singleton Council, 2017).

These trends will be considered where relevant in the SIA. In relation to diversification, it is noted that the Project would produce high-quality coals, with the majority capable of being used in the steel manufacturing process.

4.3.3 Demographic characteristics

This section summarises the key demographic and social baseline characteristics for the areas of social influence. Unless otherwise noted, demographic data were derived from the ABS Census of Population and Housing 2016, using Tablebuilder software, for the statistical areas described in Section 2.4.

Population

The population of nearby communities at the 2016 Census are presented in Table 4-3. Denman had 1,789 residents, which represented 11.1% of the Muswellbrook LGA's population of 16,086 people. Muswellbrook accounted for 75.0% of the population in Muswellbrook LGA at 12,072 residents. Jerrys Plains had 386 residents in 2016, representing less than 2% of the population of Singleton LGA.

Between 2011 and 2016, the population in Denman declined marginally (0.6%), whilst the population decline in Jerrys Plains was more pronounced due to the population size (19.3% in aggregate). However, the populations in Muswellbrook, Muswellbrook LGA and Singleton LGA all increased, albeit at much lower rates than the Hunter Valley SA4. Jerrys Plains had the lowest population density (at 1.8 people per square kilometre) and Muswellbrook's was highest (at 46 people per square kilometre).

Table 4-3: Population size, density and growth, 2011-2016

	Jerrys Plains	Denman	Muswellbrook	Muswellbrook LGA	Singleton LGA	Hunter Valley	NSW
Population (no.)	386	1,789	12,072	16,086	22,990	263,4179	7,480,230
Population density (persons/km²)	1.8	15.3	46.0	4.7	4.7	12.3	9.3
% Population change (2011–2016)	-19.3%	-0.6%	2.4%	1.9%	1.3%	8.3%	8.1%

Source: Australian Bureau of Statistics. 2011 and 2016 Census of Population and Housing – Tablebuilder.

Population mobility

The length of time that people live in a given area provides an indication of the stability of a community's population. Muswellbrook and Muswellbrook LGA both have lower proportions of people who are from the same area 5 years ago than the New South Wales average, however, all other regions have a higher proportion of those still living in the same area.

Table 4-4 shows the percentages of residents who had a different address 12 months and five years prior to the 2016 Census. Jerrys Plains had a higher than average percentage of people originating from overseas, due in part to people from Ireland moving to the area to work in the Coolmore Stud.

Table 4-4: Population mobility, 2016

Type		Jerrys Plains	Denman	Muswellbrook	Muswellbrook LGA	Singleton LGA	Hunter Valley	NSW
Mobility – Place of Usual Residence 1 year	Same	87.9%	85.4%	80.2%	82.1%	83.7%	83.8%	83.2%
	Different	8.0%	13.2%	17.6%	15.8%	14.7%	14.6%	13.6%
	Overseas	3.3%	0.2%	0.5%	0.6%	0.4%	0.4%	2.0%
	Not Born 1 Year Ago	0.8%	1.2%	1.6%	1.6%	1.2%	1.2%	1.2%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Mobility – Place of Usual Residence 5 year	Same	60.2%	59.6%	46.8%	50.4%	56.1%	54.6%	54.4%
	Different	25.6%	34.0%	42.9%	40.0%	35.8%	37.6%	32.9%
	Overseas	7.2%	0.5%	2.1%	1.9%	1.5%	1.3%	6.5%
	Not Born 5 Years Ago	7.0%	5.9%	8.2%	7.7%	6.7%	6.6%	6.2%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Australian Bureau of Statistics. 2016 Census of Population and Housing - Tablebuilder (2017).

Future population

Population projections for LGAs within NSW were released in 2016. These population projections are indicative and may change over time based on assumptions about future rates of fertility, mortality and migration, or in response to changes in a region's industry base. Table 4-5 shows the projected (medium series) populations for LGAs in the Project region. These estimates have been re-based to the 2017 Estimated Residential Population estimates from the ABS.

The LGAs of Muswellbrook and Singleton are projected to have an average annual population growth rate of 0.9% and 0.8% respectively, over the period 2017 to 2031, which are lower than the Hunter Valley and NSW averages of 1.2% and 1.3% respectively, per annum.

Table 4-5: Population projections for SIA study area 2017-2031

	2017	2021	2026	2031	Total Change	Total % Change	% Change P.A.
Muswellbrook LGA	16,427	17,075	17,834	18,546	2,119	12.9%	0.9%
Singleton LGA	23,496	24,329	25,272	26,168	2,672	11.4%	0.8%
Hunter Valley	272,851	287,843	305,978	323,376	50,525	18.5%	1.2%
NSW	7,861,068	8,304,006	8,851,635	9,394,211	1,533,143	19.5%	1.3%

Source: New South Wales State and Local Government Area Population Projections: 2016 Final.

Socio-economic characteristics of the region

The socio-economic composition of the Project region has been compared with NSW averages to define the key socio-economic characteristics of local and regional communities, and any potential vulnerabilities to social impacts. Data discussed here are presented as a suite of key indicators with highlighted variances compared to the NSW average in Table 4-6.

Age and gender

With a median age of 36.3 years, Jerrys Plains had a younger population than Denman (40.0 years) and the NSW Average (39.0 years). The two LGAs also had lower than State average median ages. The older median age in Denman provides another indication of the retention of long-term residents who are able to age in one place, and is typical of rural towns, whilst the younger population of Muswellbrook reflects both a more transient population and the presence of young families attracted by factors including employment and services.

In the vicinity of the Project, the Muswellbrook urban centre had the largest proportion of young people (ages 15 years and below). Young people accounted for 24.1% of the total population in the area, which is 4.5 percentage points higher than NSW. All other regions also had a higher proportion of young people than the state average.

Older people (aged 65 years and over) represented a smaller proportion of the population across most of the Project region, compared to NSW, with the exception of Denman and the broader Hunter Valley region, which were 3.3 and 1.3 percentage points higher than NSW, respectively. In Denman, older people accounted for 19.6% of the population and in Hunter Valley, they accounted for 17.5%. Jerrys Plains had a noticeably lower proportion of older people, at 9.6%, in accordance with its young median age. Of note, aged care services including a hostel and retirement home are located in Denman.

There were no significant disparities in gender distribution in the Project region. The greatest difference was in Jerrys Plains and Muswellbrook LGA where males represented just over 51% of the population (+2.0 percentage points on the NSW average), which may reflect the number of males employed in the agriculture and mining industries (noting that Jerrys Plains SSC has a small total population).

Indigenous people

Indigenous people represented a larger proportion of the resident population in the vicinity of the Project relative to the state average. The largest representation was in Muswellbrook and Muswellbrook LGA (9.9% and 8.9% respectively), with smaller representations in Denman (6.8%), Singleton LGA (6.1%), Hunter Valley (6.1%) and Jerrys Plains (3.3%), although these were all higher proportions than the NSW average.

Income and employment

Average weekly personal income varied across the Project region. Individual income in Denman was estimated to be \$58 per week less than the NSW average, due partly to the higher number of older people who are retired, whilst in Muswellbrook and Muswellbrook LGA, personal income was on par with the NSW average. Personal income in Singleton LGA, however, was higher (+\$65 per week) than the NSW average, which may partially reflect the prevalence of employment in the mining industry.

Census data also indicate that labour force participation was on par or marginally below the NSW average in most of the Project region in 2016. However, Jerrys Plains had a noticeably higher participation rate at 77.4%, 14.0 percentage points higher than the NSW average, followed by Singleton (68.6%).

Education levels

Levels of Year 12 educational attainment were consistently lower in the Project region, and particularly low in Denman, Muswellbrook and Muswellbrook LGA (-28.6 percentage points, -23.3 percentage points and -23.8 percentage points, respectively, on the NSW average). These results are reflective of agricultural employment (where the focus is on skills rather than qualifications) and a high proportion of mining operation and maintenance jobs that do not require Year 12 completion.

Household composition

Family households in the Project region represented a smaller proportion of total households than in NSW as a whole, except for Singleton LGA. The largest variance was in Muswellbrook where family households accounted for 54.4% of households compared to New South Wales at 61.1%. Denman had a high proportion of lone person households, accounting for a quarter of all households and reflecting its older age, whilst Jerrys Plains had a low proportion at 12.1%.

Table 4-6: Key Social Statistics in the SIA study area, 2016

Indicator	Denman		Jerrys Plains		Muswellbrook		Muswellbrook LGA		Singleton LGA		Hunter Valley		NSW
	No.	+/-	No.	+/-	No.	+/-	No.	+/-	No.	+/-	No.	+/-	
Median Age (years)	40.0	1.1	36.3	-2.7	35.7	-3.3	36.4	-2.6	36.9	-2.1	39.3	0.3	39.0
<15 years of age (%)	21.0%	2.5%	21.9%	3.3%	22.9%	4.4%	22.5%	4.0%	21.1%	2.6%	20.2%	1.7%	18.5%
> 65 years of age (%)	19.6%	3.3%	9.6%	-6.7%	12.1%	-4.2%	12.9%	-3.3%	12.7%	-3.5%	17.5%	1.3%	16.3%
Male (%)	50.2%	0.9%	51.3%	2.0%	51.2%	1.9%	51.3%	2.0%	50.9%	1.6%	49.6%	0.3%	49.3%
Female (%)	49.8%	-0.9%	48.7%	-2.0%	48.8%	-1.9%	48.7%	-2.0%	49.1%	-1.6%	50.4%	-0.3%	50.7%
Indigenous (%)	6.8%	3.7%	3.3%	0.3%	9.9%	6.8%	8.9%	5.9%	6.1%	3.1%	6.1%	3.0%	3.1%
Weekly personal income (\$)	\$842	-\$58	\$890	-\$10	\$903	\$2	\$907	\$7	\$965	\$65	\$825	-\$75	\$900
Labour force participation (%)	61.3%	-2.1%	77.4%	14.0%	61.8%	-1.6%	63.2%	-0.1%	68.6%	5.3%	61.0%	-2.3%	63.3%
Unemployed (%)^	4.2%	-2.1%	2.4%	-3.9%	9.7%	3.4%	8.2%	2.0%	6.1%	-0.2%	7.2%	1.0%	6.3%
Indigenous unemployment (%)	2.5%	-12.8%	0.0%	-15.3%	24.9%	9.6%	21.6%	6.3%	11.1%	-4.2%	15.0%	-0.4%	15.3%
Year 12 or equivalent (%)	28.4%	-28.6%	42.9%	-14.1%	33.7%	-23.3%	33.2%	-23.8%	37.4%	-19.6%	36.8%	-20.2%	57.0%
Median household size (persons)	2.4	-0.3	3.4	0.7	2.6	-0.1	2.6	-0.1	2.8	0.1	2.6	-0.1	2.7
Family households (%)	54.5%	-6.7%	59.0%	-2.1%	54.4%	-6.7%	55.3%	-5.8%	62.5%	1.4%	60.0%	-1.2%	61.1%
Lone person households (%)	25.0%	4.8%	12.1%	-8.1%	22.4%	2.1%	21.2%	0.9%	18.3%	-1.9%	19.8%	-0.5%	20.2%
Renting (%)	25.6%	-6.3%	20.8%	-11.0%	43.3%	11.5%	38.6%	6.8%	28.1%	-3.8%	28.2%	-3.6%	31.8%

Indicator	Denman		Jerrys Plains		Muswellbrook		Muswellbrook LGA		Singleton LGA		Hunter Valley		NSW
	No.	+/-	No.	+/-	No.	+/-	No.	+/-	No.	+/-	No.	+/-	
Mortgage monthly repayments (\$)	\$1,685	-\$394	\$1,582	-\$497	\$1,616	-\$462	\$1,694	-\$385	\$1,909	-\$170	\$1,677	-\$402	\$2,079
Rent weekly repayments (\$)	\$241	-\$160	\$132	-\$268	\$242	-\$159	\$236	-\$165	\$275	-\$126	\$286	-\$115	\$401
Need for core assistance (%)	6.8%	1.0%	2.4%	-3.4%	5.4%	-0.3%	5.3%	-0.4%	4.9%	-0.8%	6.5%	0.7%	5.8%
Volunteering (%)	28.6%	8.9%	22.7%	2.9%	17.5%	-2.2%	20.3%	0.5%	23.0%	3.3%	19.3%	-0.4%	19.7%
Self-assessed fair / poor health (ASR per 100)*	N/A	N/A	N/A	N/A	N/A	N/A	16.0	1.7	14.6	0.4	16.2	1.9	14.3
Difficulty accessing health services (ASR per 100)*	N/A	N/A	N/A	N/A	N/A	N/A	2.0	-0.5	2.7	0.2	2.8	0.3	2.5

Notes:

*PHIDU data not available for suburbs and are based on 2014-15 estimates; changes in percent are percentage point change.

^ Unemployment data to June 2018 from the Australian Department of Employment (2018) are presented in Figure 4-1.

+/- indicates the deviation of the indicators from each relevant location in relation to the State of NSW.

4.4 Way of life

4.4.1 Lifestyle

Landholders and families in the vicinity of the Project enjoy a rural way of life which includes:

- grazing, equine breeding, viticulture and mining as central to local employment and to family and community wellbeing; and
- social and recreational activities based around outdoor activities, environmental appreciation, regular community events and celebration of rural heritage.

Landholders surrounding the Project have strong arrangements of mutual support and assistance, born of long-term co-operation on property management and community issues.

Rural values (such as deriving recreation and a livelihood from the land, cooperation and courtesy) are prominent in the Denman and Jerrys Plains communities. Mining families have also become part of the local communities, which has contributed to the size and diversity of the local population, and to higher employment and income levels.

Denman's employment and economic strengths extend across mining, agriculture, human services and tourism. The township's high standard of amenity with a mix of rural and artisan businesses in the main street supports a unique country lifestyle for its local residents, surrounding communities, and visitor tourism. Employment and economic strengths in Jerrys Plains are predominantly rural and agriculture-based, with a smaller cohort of the employed population working in mining. Lifestyle and local amenity are also of a high standard, appropriate to the community's size and rural surrounds.

Across the Project region is a broader range of culturally and socio-economically diverse communities and lifestyles associated with the mining industry, the working population and working families, the Aboriginal community and other cultural communities, the growing student population associated with the TAFE and the Upper Hunter Conservatorium of Music, unemployed community members and low income households, and community members connected to St Helier's Correctional Centre on the outskirts of town. All facets of community are reflected in the region's lifestyle.

4.4.2 Industry and employment

The NSW Minerals Council's Economic Impact Assessment for the NSW Mining Industry⁴¹ estimates there were 11,189 direct full-time mining employees, including contractors, in the Hunter region during 2014-2015, providing \$1.4 billion in wages and salaries.

Direct resident employment and associated salary expenditures in the Hunter region, included Singleton LGA (\$266 million and 2,125 FTEs), followed by the LGAs of Maitland (\$225 million and 1,747 FTEs), Lake Macquarie (\$220 million and 1,619 FTEs), Cessnock (\$192 million and 1,560 FTEs) and Muswellbrook (\$191 million and 1,534 FTEs).

The survey found that the 23 mining companies directly employed 17,566 FTEs across the State in the 2014/15 year.

The NSW Mining Industry Expenditure Impact Survey in 2016/17⁴² states that there was an increase in total workforce of 8.7% in the last year, however total spending by the companies surveyed was 3.5% lower than in 2015/16. The Hunter region had the highest direct expenditure in 2016/17 with \$4.5 billion (43% of the total direct spend in New South Wales).

⁴¹ NSW Minerals Council, (2016).

⁴² Lawrence Consulting, (2018).

Labour force

Table 4-7 presents the labour force characteristics of the Project region, Hunter Valley and NSW, and shows Jerrys Plains had a very high labour force participation rate at 77.4%.

Other characteristics of note for 2016 include:

- a total labour force of 231 people in Jerrys Plains of whom 97.6% were employed, and 866 people in Denman, of whom 95.8% were employed;
- a higher rate of labour force participation in the Singleton LGA (68.6%) than the Muswellbrook LGA (63.2%);
- high unemployment rates in Muswellbrook and Muswellbrook LGA (9.7% and 8.2% respectively);
- high Indigenous unemployment rates in Muswellbrook LGA (21.6% compared with 15.3% in NSW), where Indigenous residents represent a larger proportion of the population (8.9% compared with 3.1% in NSW); and
- a total of 649 unemployed persons in Muswellbrook LGA in 2016, including 556 people living in Muswellbrook and 41 people living in Denman or Jerrys Plains.

Table 4-7: Labour force characteristics – SIA study area, 2016

Labour force status	Denman	Jerrys Plains	Muswellbrook	Muswellbrook LGA ⁴³	Singleton LGA	Hunter Valley	NSW
People over 15 years	1,414	299	9,307	12,463	18,129	210,148	6,093,894
Labour force	866	231	5,748	7,879	12,439	128,292	3,859,044
Employed	830	226	5,192	7,231	11,683	119,001	3,617,658
Full Time	509	159	3,364	4,665	7,402	71,831	2,284,384
Part Time	258	45	1,515	2,099	3,598	40,329	1,146,353
Employed away from work	63	22	313	466	682	6,841	186,921
Unemployed	36	5	556	649	757	9,291	241,386
Not in the labour force	548	68	3,559	4,584	5,690	81,856	2,234,850
Summary statistics							
Employed	95.8%	97.6%	90.3%	91.8%	93.9%	92.8%	93.7%
Unemployed	4.2%	2.4%	9.7%	8.2%	6.1%	7.2%	6.3%
Labour force participation rate	61.3%	77.4%	61.8%	63.2%	68.6%	61.0%	63.3%
Indigenous labour force summary statistics							
Employed	97.5%	N/A	75.1%	78.4%	88.9%	85.0%	84.7%
Unemployed	2.5%	N/A	24.9%	21.6%	11.1%	15.0%	15.3%
Percent of total labour force	4.6%	0.0%	6.6%	6.0%	4.3%	4.3%	2.1%
Workforce participation rate	59.6%	61.6%	0.0%	77.6%	54.7%	62.4%	56.6%

Source: Australian Bureau of Statistics, 2016 Census of Population and Housing - Tablebuilder (2017).

⁴³ Includes Denman, Jerrys Plains and Muswellbrook.

Unemployment

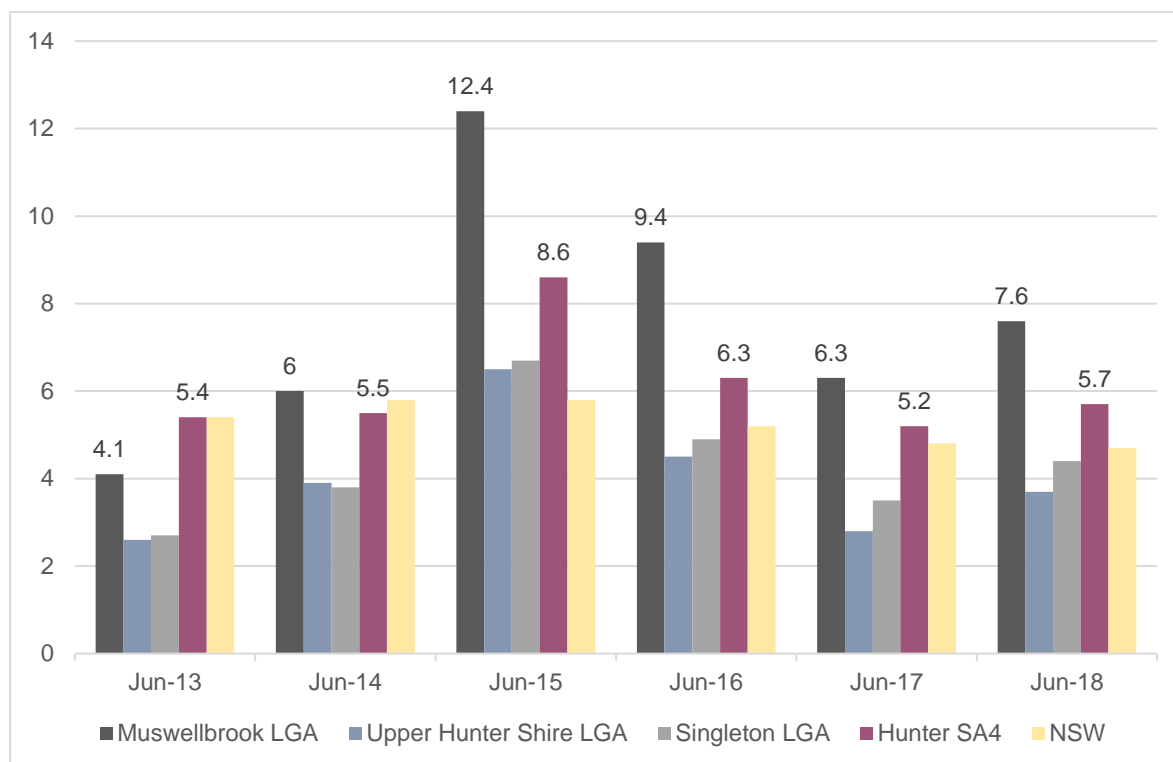
Figure 4-1 shows the trend in unemployment estimates over the six years to June 2018⁴⁴ for the Muswellbrook, Singleton and Upper Hunter Shire LGAs, the Hunter SA4 and NSW. Unemployment rates in the three LGAs and in the Hunter SA4 peaked during 2015 as the result of a downturn in the coal mining industry. Unemployment rates have been consistently higher in the Muswellbrook LGA compared to the Singleton and Upper Hunter LGAs and to NSW over the six-year period.

In the June quarter 2018, there were a total of 649 people unemployed in the Muswellbrook and Muswellbrook LGA, and another 542 unemployed people in the Singleton LGA⁴⁵.

In 2016, the Indigenous unemployment rate in Muswellbrook LGA was also above the NSW average⁴⁶, where Indigenous residents represent a larger proportion of the population (8.9% compared with 3.1%). Consultation for the SIA indicates the rate of Indigenous unemployment can in part be attributed to socio-economic barriers experienced by Indigenous residents, including education and training, access to housing and transport.

There is likely to be significant interest in Indigenous employment and training opportunities associated with the construction and operation of the Project (see Section 5.5).

Figure 4-1: Quarterly smoothed unemployment rate (%), SIA study area June 2015-June 2018



Source: Australian Department of Employment (2018).

⁴⁴ Australian Department of Jobs and Small Business, (2018a).

⁴⁵ Australian Department of Jobs and Small Business, (2018a).

⁴⁶ ABS Census of Population and Housing 2016, Tablebuilder (2017).

Occupations

Table 4-8 profiles occupations in the Project region. Relative to the NSW average, the Project region is characterised by a higher proportion of technicians, machine operators and drivers, and labourers which are all operational groups relevant to the dominant industries of the Project region and also the labour requirements.

Table 4-8: Occupations (Place of Usual Residence), 2016 (%)

	Denman	Jerrys Plains	Muswellbrook	Muswellbrook LGA	Singleton LGA	Hunter Valley SA4	NSW
Managers	8.9%	22.1%	7.3%	9.9%	11.1%	10.8%	13.8%
Professionals	8.4%	10.3%	11.7%	10.5%	12.3%	14.0%	24.0%
Technicians	19.6%	19.5%	21.1%	20.5%	17.9%	18.0%	12.9%
Community and personal service workers	9.4%	3.1%	9.8%	9.1%	11.6%	11.5%	10.6%
Clerical and administrative workers	12.9%	7.7%	10.1%	10.7%	11.0%	12.4%	14.1%
Sale workers	6.4%	3.1%	8.9%	8.2%	8.1%	9.8%	9.4%
Machinery operators and drivers	20.7%	13.3%	18.5%	18.2%	17.8%	11.6%	6.2%
Labourers	13.8%	21.0%	12.6%	12.9%	10.2%	12.0%	9.0%

Source: Australian Bureau of Statistics 2016 Census of Population and Housing. Tablebuilder (2017).

Industry of employment

Appendix A Tables A-1 and A-2 profile the change to industries of employment within the nearby communities and the SIA study area as whole.

At the 2016 Census, the mining industry dominated employment in the LGAs and Hunter Valley region, representing 23.0% of employment in the Muswellbrook LGA by place of usual residence, 24.6% in Singleton LGA and 9.4% in the Hunter Valley.

Other characteristics of the SIA study area in 2016 include:

- Muswellbrook LGA had a similar profile to Muswellbrook town with mining and retail trade as primary sectors, whilst the LGA had a higher proportion of employment in the agriculture, forestry and fishing sector, reflecting the presence of farms in the rural area;
- Jerrys Plains had a significant level of employment in agriculture, forestry and fishing at approximately 47.5% followed by mining (11.1%), whilst Denman's largest industry of employment was mining (22.4%) followed by agriculture, forestry and fishing (8.7%);
- almost one quarter of employment in Singleton LGA was in the mining sector (24.6%), followed by accommodation and food (8.0%) and health care and social assistance (8.0%); and
- in the Hunter Valley region, health care and social assistance was the largest employer (12.4%), followed by retail trade (10.6%) and mining (9.4%).

Key changes within industries of employment over the five-year period from 2011 to 2016 include:

- employment in the mining industry in Muswellbrook, Muswellbrook LGA and Singleton LGA decreased by 8.2%, 4.8% and 8.6%, respectively. Despite this, employment in mining increased by 2.4% in the Hunter Valley;
- mining's share of employment increased in Muswellbrook and Muswellbrook LGA by 0.6 percentage points and 1.2 percentage points, respectively. Singleton LGA decreased its share in mining by 0.7 percentage points; and
- total employment across the Project region declined. Mining and manufacturing were two of the prominent declining industries across most regions. Muswellbrook and Muswellbrook LGA also had reasonable drops in construction and retail trade.

Qualifications

Table 4-9 shows the percentage of people in the SIA study area holding post school qualifications.

At the 2016 Census, about 27% of Denman, Muswellbrook and Muswellbrook LGA population held a Certificate level qualification, compared with 17.8% in NSW. This is consistent with a skills base associated with mining and agriculture.

A bachelor degree was held by 4.2% of Denman's residents (likely including professional services employees, health and education, viticulture and equine specialists), compared with 6.1% in Muswellbrook LGA, 7.7% in Singleton LGA, 7.9% across the Hunter Valley region and 15.8% in New South Wales. Jerrys Plains had the highest bachelor degree level in the vicinity of the Project at 10.5%.

Table 4-9: People with post school qualifications, 2016 (%)

Location	Denman	Jerrys Plains	Muswellbrook	Muswellbrook LGA	Singleton LGA	Hunter Valley	NSW
Postgraduate Degree Level	0.2%	0.0%	1.3%	1.1%	1.5%	1.6%	5.6%
Graduate Diploma / Graduate Certificate	0.3%	0.0%	0.8%	0.8%	1.0%	1.1%	1.7%
Bachelor Degree Level	4.2%	10.5%	6.2%	6.1%	7.7%	7.9%	15.8%
Advanced Diploma and Diploma Level	7.1%	7.7%	5.8%	6.2%	7.0%	7.9%	8.8%
Certificate Level	26.8%	33.2%	26.6%	26.9%	28.0%	26.9%	17.8%
No Post School Qualification	61.4%	48.7%	59.3%	58.8%	54.8%	54.6%	50.4%
Total	100%	100%	100%	100%	100%	100%	100%

Source: Australian Bureau of Statistics 2016 Census of Population and Housing. Tablebuilder (2017).

Labour availability

Comparing the labour force by place of usual residence to the labour force by place of work identifies that Muswellbrook and Singleton LGAs and the Hunter Valley SA4 were net importers of labour in mining.

There were 3,163 more jobs than workers based in the Muswellbrook LGA and 5,384 more jobs than workers based in the Singleton LGA. This trend was represented across almost all industries in the Muswellbrook and Singleton LGAs, but is largely a function of the difference between numbers of residents and jobs in the mining industry, which accounted for 71.7% of the labour deficit in Singleton, and 47.8% in the Muswellbrook LGA (see Table 4-10).

Table 4-10: Labour availability Place of Usual Residence versus Place of Work, 2016

Industry	Muswellbrook LGA	Singleton LGA	Hunter Valley SA4	NSW
Agriculture, Forestry and Fishing	-38	-29	157	-1,549
Mining	-1,515	-3,863	-840	1,046
Manufacturing	-50	-262	-28	-634
Electricity, Gas, Water and Waste Services	-525	170	115	21
Construction	-166	-238	559	1,090
Wholesale Trade	-116	-153	308	-748
Retail Trade	-67	-76	1,102	926
Accommodation and Food Services	-37	-13	293	304
Transport, Postal and Warehousing	-40	-49	1,154	402
Information Media and Telecommunications	-13	-16	220	554
Financial and Insurance Services	4	-20	832	657
Rental, Hiring and Real Estate Services	-32	-31	176	154
Professional, Scientific and Technical Services	-43	-54	842	2,254
Administrative and Support Services	-93	-274	387	527
Public Administration and Safety	-175	-301	-843	7,714
Education and Training	-30	-43	311	1,476
Health Care and Social Assistance	-107	48	2,839	1,538
Arts and Recreation Services	-14	9	130	168
Other Services	-107	-190	394	497
Total	-3,163	-5,384	8,107	16,397

Source: Australian Bureau of Statistics (ABS). 2016 Census of Population and Housing. Tablebuilder (2017).

The Australian Industry Group Construction Outlook survey (conducted in March-April 2018) found that the construction industry is experiencing significant labour shortages and anticipates this may worsen over the next year. A total of 66.7% of respondents, up from 63.6% in the six months previous, reported either 'major' or 'moderate' difficulty in recruiting skilled labour in the six months to March 2018. Difficulties sourcing sub-contractors were comparable with 66.7% citing 'major' or 'moderate' difficulty, an increase from 50.0% in the previous six months. These results indicate that there may be strong competition for labour for the construction of major projects.

Labour Market Research indicates that at the December quarter 2017, Engineering Trades (including sheet metal trades workers, metal fabricators, welders, fitters and metal machinists) were in short supply in NSW. There was a shortage for all the engineering trade occupations for which a rating was able to be made, and in 2017 the proportion of surveyed vacancies for engineering tradespersons that were filled was the lowest over the past decade⁴⁷.

⁴⁷ Australian Department of Jobs and Small Business, (2018a).

Skill shortages

The Upper Hunter Workforce Plan (Singleton Council, 2013) identifies a number of issues affecting labour availability and workforce planning in the region. Whilst unemployment has fluctuated since 2013 (see Figure 4-1) the major factors identified as relevant to the region's labour force which are likely to remain relevant include:

- population growth;
- the age structure of industry workforces;
- the retirement pattern of skilled workers (creating a need for an increase in supply to cover both growth and replacement demand for retiring workers);
- industry skills shortages; and
- attracting persons to the region.

The Plan's summary for Muswellbrook LGA identifies additional considerations for workforce planning which include:

- ongoing development of Muswellbrook as a centre for mining education and training (through the Muswellbrook Mining Skills Centre, higher education programs and other local delivery mechanisms);
- maximised local employment opportunities, including for young people;
- expansion of training in other sectors; and
- management of mining industry impacts, in particular, contractions in the labour and housing market.

A summary of national skill shortages produced in September 2017 by the Australian Department of Jobs and Small Business⁴⁸ showed that 100% of vacancies in resource sector occupations were filled. Notwithstanding, shortages were evident for some resource sector related occupations including:

- engineering trades (evident in all of the engineering trades assessed in 2017), with half the vacancies filled; and
- construction trades, with employers filling 53% of vacancies and all occupations in shortage within the group.

The Upper Hunter Workforce Plan (2013) highlights that a growing proportion of the region's population are retiring, in particular tradespersons, skilled workers with other VET qualifications, and degree-qualified professionals. Critical needs to replace those leaving the workforce at that time include:

- a sustained uplift in apprentice intakes;
- continuous up-skilling of existing workers;
- training and upgrades of trade skills; and
- delivery of other education and training opportunities in the region (including higher education programs).

⁴⁸ Australian Department of Jobs and Small Business, (2018b).

Regional Economic Diversification and Workforce Planning

The *Upper Hunter Economic Diversification Report* (2011) (Buchan Consulting, 2011) provides an examination of the Upper Hunter region's economy and emerging business and employment opportunities for the next 20-25 years. Key recommendations addressed the need for a planned approach in relation to housing and workforce issues. Planning issues for the workforce particularly related to fostering sustainable economic development opportunities for the Region, replacement of some mining jobs as industry location and activity levels change and encouraging continued population growth to underpin local service development and jobs. The Project's support for these recommendations include diversification into the steel manufacturing supply market, increased employment opportunities and the potential to support population growth.

The *Upper Hunter Workforce Plan* (2014) (MCA Consulting, 2014) was prepared in response to recommendations of the *Upper Hunter Economic Diversification Report* (2011). The *Upper Hunter Workforce Plan* (2014) focuses on supply and demand in relation to energy and resource sector demand, education and training needs and the longer-term implications of an ageing population on the workforce. Of key relevance to the Project, the objectives of the *Upper Hunter Workforce Plan* (2014) include:

- supporting growth and diversification at a regional and sub-regional level;
- addressing critical local and regional skill shortages; and
- increasing industry involvement in education, training and other workforce solutions.

Upper Hunter Economic Diversification Action Plan: Implementation Priorities

The *Upper Hunter Economic Diversification Action Plan: Implementation Priorities*⁴⁹ provides the Upper Hunter region's response to the NSW Government's Regional Development Framework, establishing "a guide for sustainable economic transition incorporating economic diversification priorities into regional land use planning". The document acknowledges that agribusiness, resources and mining, tertiary and vocational education, and freight and logistics industries drive the Hunter economy, and notes that new long-term regional economic opportunities are required for the Upper Hunter. Core strategic themes include:

- driving land use certainty, noting that the region's economic development and jobs growth will be underpinned by planning frameworks which deliver certainty of land use;
- encouraging new industry investment through better land use planning and land access;
- developing new market opportunities to service national and international market needs;
- planning for water security to support key industries in the Upper Hunter and new targeted industries; and
- establishing appropriate governance to enable successful industry transition through partnerships between government, industry and the community.

Planned actions include planning support and community information tools to promote certainty for post-mining landscapes in the Hunter Valley, identifying opportunities and barriers to facilitate productive economic uses for mine buffer and rehabilitation land, and showcasing the Upper Hunter as a region of excellence in agribusiness and energy innovation. In support of these intentions, Malabar has commenced an approval process to establish a solar farm on land within the Maxwell Infrastructure.

⁴⁹ NSW Government and Hunter Joint Organisation of Councils, (2018).

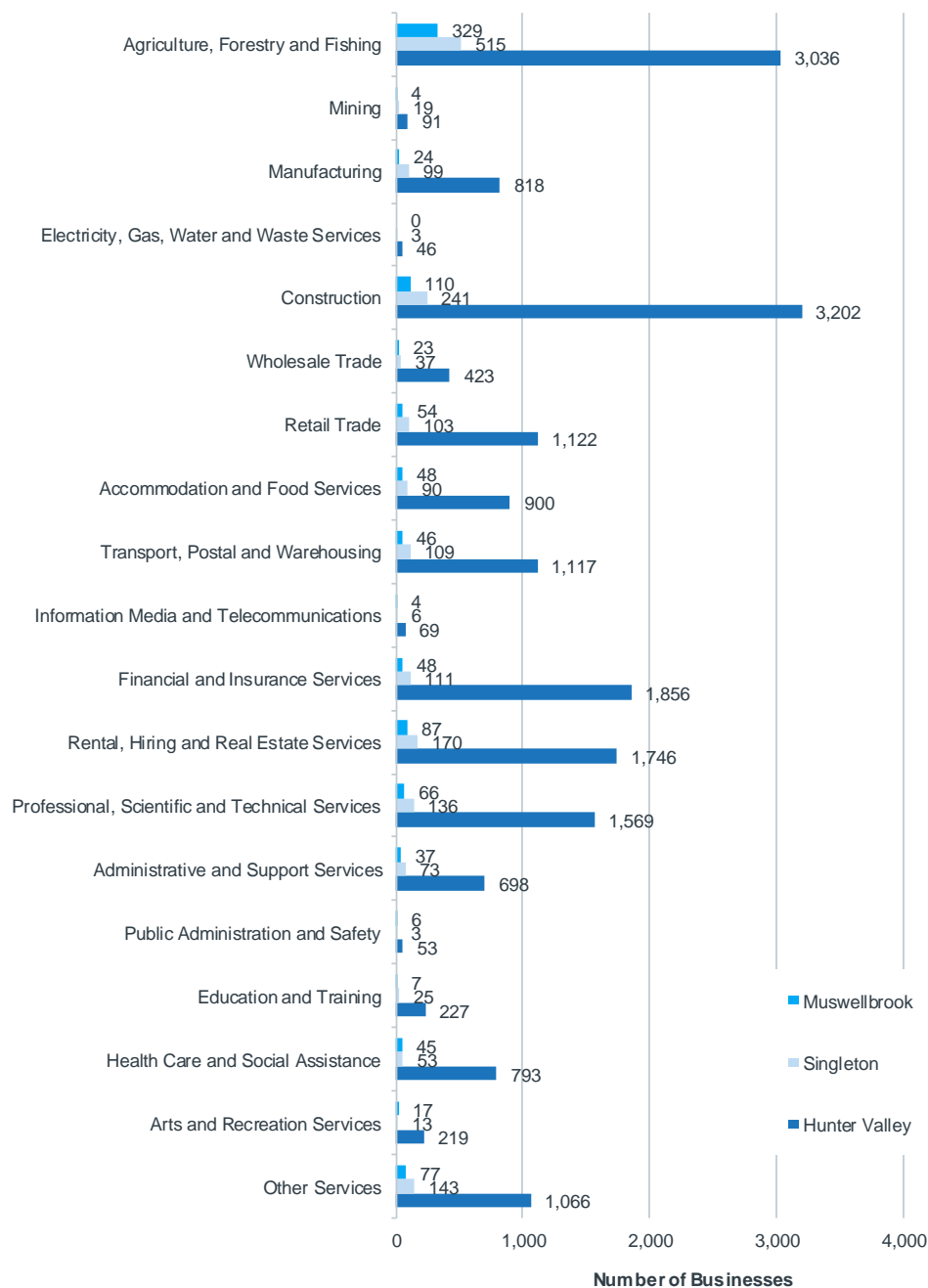
Businesses

This section provides a business profile for Muswellbrook LGA, Singleton LGA and the Hunter Valley SA4. Data has primarily been drawn from the ABS, based on counts of actively trading businesses at June 2017 from the Australian Bureau of Statistics Business Register (ABSBR), using ABS Tablebuilder software.

Figure 4-2 presents the business count profile of the two LGAs and the Hunter Valley SA4 at June 2017. This profile shows:

- agriculture businesses were the largest category by number of businesses in Muswellbrook and Singleton and second largest in Hunter Valley, demonstrating the strength of agricultural production across the region. The largest percentage of these businesses was registered in the Muswellbrook LGA, with 30.3% of the total of 1,032 agricultural businesses;
- most agricultural businesses registered in Muswellbrook LGA were 'non-employing' (owner-operated) accounting for 80.6% of agricultural businesses and a further 18.4% were businesses with 1-19 employees, with only 1% employing more than 19 individuals;
- construction businesses were the second most prolific business category in Muswellbrook (with 110 registered), followed by rental, hire and real estate businesses (87 registered); and
- Muswellbrook and Singleton LGAs had a total of 23 mining businesses registered (19 of which were registered in Singleton LGA). Mining business sizes in Muswellbrook ranged from 'non-employing' owner-operated services to businesses of 1-19 staff as well as 200+ employees. Mining businesses in Singleton ranged from non-employing businesses to 1-19 employees. Mining operations may be registered for business purposes in other jurisdictions and therefore under-represented in the data.

Figure 4-2 SIA study area business profile by LGA, and Hunter Valley SA4, June 2017



Source: Australian Bureau of Statistics Business Register 2017, using Tablebuilder (2017).

Economic outlook

The HRF publishes quarterly updates on the Hunter Region's economic indicators (HRF, 2018). The update for June Quarter 2018 included:

- growth in the Hunter labour market was on par with the NSW average from November to May 2018 (up 0.8%);
- unemployment in the Hunter Region rose to 6.5% (at May 2018), above the NSW rate of 4.6% and up from a rate of 4.7% in November 2017;
- the region's youth unemployment continues to trend upwards reaching 14.2% in May 2018, which is well above the NSW rate of 8.9% which has been trending downward since the start of 2018;
- Hunter house prices rose marginally in the March quarter, with annual growth in line with the five-year average of 5%; and
- business confidence moderated in the six months to June, after reaching historic highs in December 2017. As in 2017, finding suitable labour was listed as a main business constraint by an above average share of local firms.

Employment opportunities and the potential for impacts on housing access or affordability are key issues to be considered in the SIA.

Local business views

Consultation with the Muswellbrook Chamber of Commerce and Industry (which has a core membership of some 140 local businesses) identified establishment of a clear definition of 'local' in procurement procedures and development of construction contracts for the Project to encourage local businesses and services' involvement as key priorities. Feedback from Muswellbrook Shire Council also identified some difficulties for local businesses in accessing mining procurement opportunities, which are not tailored to support local business participation.

Stakeholders' perceived that local businesses in the township of Muswellbrook have tailored their retail and service offerings to the contractor workforce, and that this, along with a loss of jobs as the result of mining operations' closures, had resulted in declining business activity in the town centre during the mining industry downturn. However, both Muswellbrook Shire Council and the Muswellbrook Chamber of Commerce noted that businesses that have established in Muswellbrook's industrial area continue to do well servicing the mining industry.

Consultation with Muswellbrook Shire Council identified a range of initiatives either planned or underway to improve the amenity and liveability of the Shire and to stimulate the local economy. Consultation with the Chamber of Commerce and Industry noted that a stronger action was needed on local training and skills development, to balance trade-centric courses with offerings that help develop local service industries.

Other local businesses consulted during the SIA noted that Malabar had recently engaged a local contracting firm to support rehabilitation works at Maxwell Infrastructure and was in the process of establishing a long-term rental agreement for the use of a Malabar-owned homestead. Both actions by Malabar were observed as representing a positive step toward maximising the Project's benefits to local communities.

Malabar maintains an ongoing program of engagement with business chambers relevant to the Project.

4.4.3 Housing and accommodation

This section describes the availability, tenure, cost and type of housing available in the Project region, as demands for housing related to the Project may be experienced across a wide area.

Housing stock

At the 2016 Census, the two LGAs of Muswellbrook and Singleton combined had a total private housing stock of 16,595 dwellings, of which an average occupancy rate of 87.7% on the 2016 Census night.

In Denman, there were 842 private dwellings on the Census, with a very similar occupancy rate of 88.0% Jerrys Plains had a lower occupancy rate of 81.9%.

Housing tenure

Table 4-11 and Table 4-12 present housing tenure and landlord arrangements in the vicinity of the Project, compared with the NSW average. It shows:

- Denman had the highest proportion of properties owned outright (37.4%, compared to NSW at 33.2%).
- Jerrys Plains had the lowest proportion of properties owned outright (20.8%) and the highest proportion with a mortgage at 43.6%.
- Home ownership with a mortgage in Denman was consistent with NSW at 33.0% and 32.9% respectively.
- There was a higher percentage of rented houses in Muswellbrook and Muswellbrook LGA (43.3% and 38.6%, respectively), compared with NSW (31.8%).

Table 4-11: Housing stock, SIA study area, 2016

Dwellings	Denman		Jerrys Plains		Muswellbrook		Muswellbrook LGA		Singleton LGA		Hunter Valley		NSW	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Occ. private dwellings	741	88.0%	113	81.9%	4,692	85.5%	6,202	85.3%	8,355	89.6%	100,118	87.4%	2,774,854	90.7%
Unocc. private dwellings	101	12.0%	25	18.1%	795	14.5%	1,068	14.7%	970	10.4%	14,407	12.6%	284,745	9.3%
Total private dwellings	842	100%	138	100%	5,487	100%	7,270	100%	9,325	100%	114,525	100%	3,059,599	100%

Source: Australian Bureau of Statistics (ABS), 2016 Census of Population and Housing. Tablebuilder (2017).

Table 4-12: Tenure type, 2016

Tenure type	Denman		Jerrys Plains		Muswellbrook		Muswellbrook LGA		Singleton LGA		Hunter Valley		NSW	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Owned outright	278	37.4%	24	20.8%	1,129	24.0%	1,664	26.9%	2,613	31.3%	34,349	34.3%	922,365	33.2%
Owned with a mortgage	245	33.0%	50	43.6%	1,478	31.5%	1,981	32.0%	3,230	38.7%	35,440	35.4%	912,719	32.9%
Rented	190	25.6%	24	20.8%	2,033	43.3%	2,393	38.6%	2,345	28.1%	28,277	28.2%	882,995	31.8%
Other tenure type	29	4.0%	17	14.9%	56	1.2%	159	2.6%	167	2.0%	2,055	2.1%	56,776	2.0%
Total	743	100.0%	115	100.0%	4,697	100.0%	6,197	100.0%	8,355	100.0%	100,120	100.0%	2,774,855	100.0%

Source: Australian Bureau of Statistics (ABS), 2016 Census of Population and Housing. Tablebuilder (2017).

Note: Values in this table have been rounded and as such totals of the rows may differ from the table totals.

Median rents

Median rents by postcode area for the week ending 20 December 2018, as analysed by SQM Research, are provided in Table 4-13. Noting that the Denman rental housing market in particular is small and subject to greater fluctuations, the data indicate:

- a median housing rent of \$449 in Denman, \$399 in Muswellbrook, and \$433 in Singleton;
- median rents had increased over the previous 12 months and three year periods, with the largest three year change seen for rental houses in Denman (44.4%);
- a median unit rental value of \$252 per week in Denman, which was lower than the average for Muswellbrook (\$324 per week) and Singleton (\$310 per week, noting that Denman's rental unit market is very small and subject to fluctuations; and
- all median rents for units had also increased over the previous three years, with the largest three year change seen in Muswellbrook (75.9%).

Table 4-13: Median Rents House and Unit Rentals, by postcode, week ending 20 December 2018

Postcode	Houses			Units		
	Median rent	12 month change	3 year change	Median rent	12 month change	3 year change
Denman (2328)	\$449	15%	44.4%	\$252	34.2%	22.0%
Muswellbrook (2333)	\$399	42.1%	39.5%	\$324	19.8%	75.9%
Singleton (2330)	\$433	21.8%	33.6%	\$310	12.7%	27.9%

Source: SQM Research, (2018c).

Rental availability

Analysis of rental stock availability at 20 December 2018 (those vacant and for rent) through Pricerfinder data showed that there were:

- approximately 44 houses available for rent in the Muswellbrook area;
- a small stock of 3 rental houses available in the Denman area; and
- a further 35 houses in Singleton postcode area (see Table 4-14).

Table 4-14: Rental availability at 20 December 2018

Suburb	Houses		Units/Apartments		Total Rental Dwellings	
	Available (no.)	Median Rent	Available (no.)	Median Rent	Available (no.)	Median Rent
Denman	1	\$360	2	\$228	3	\$300
Jerrys Plains	N/A	N/A	N/A	N/A	N/A	N/A
Muswellbrook	33	\$350	11	\$230	44	\$255
Singleton	13	\$370	22	\$280	35	\$325

Source: RealEstate.com.au, rental search results at 20 December 2018 and suburb profile medians.

Muswellbrook postcode had the highest vacancy rate, according to SQM Research, with 2.3% followed by Denman postcode at 1.9% and Singleton postcode at 1%.

Purchase availability

Singleton had the largest available number of properties to purchase with 168 available, of which 159 were houses. Muswellbrook has the second largest amount of properties for sale at 163 listings, of which 147 were houses (refer Table 4-15). Median purchase prices were higher in Singleton than in Denman and Muswellbrook.

Table 4-15: Purchase availability (September 2018)

Suburb	Houses		Units/ Apartments		Total Sale Listings	
	Available (no.)	Median price	Available (no.)	Median price	Available (no.)	Median price
Denman	32	\$300,000	1	N/A	33	\$300,000
Jerrys Plains	2	N/A	N/A	N/A	2	N/A
Muswellbrook	147	\$300,000	16	\$220,000	163	\$260,000
Singleton	159	\$375,000	9	\$237,000	168	\$306,000

Source: RealEstate.com, sale listings at 20 December 2018 and suburb profile medians.

Temporary accommodation

Denman and Muswellbrook both offer a range of temporary accommodation options. In Denman these options generally cater to:

- contractors and employees of infrastructure assets in the region (e.g. Australian Rail Track Corporation [ARTC], Roads and Maritime Services [RMS], Telstra);
- tourists, including 'grey nomads';
- increasing visitor traffic that uses Denman as a destination stopover off the Golden Highway or New England Highway; and
- business or corporate travellers.

In Muswellbrook, the range of temporary accommodation options also support the regional tourism industry and visitor population. However, as Muswellbrook is the LGA's district centre, it is likely this accommodation also supports a stronger business, traveller and corporate clientele, as well as other contractors servicing surrounding mining and infrastructure operations, and that temporary accommodation options have been taken up by transient project workforces during industry peaks in the past.

The Muswellbrook Visitors Centre website directory lists a number of the temporary accommodation options available in Denman and Muswellbrook, including capacity estimates if available.

The temporary accommodation options listed for Denman include:

- Denman Hotel and Motel (17-36 rooms);
- Royal Hotel (capacity not listed);
- Denman Motor Inn (16 rooms); and
- Denman Van Village (with 58 fully serviced sites).

The directory also provided 12 temporary accommodation listings for Muswellbrook with a minimum capacity of 230 rooms (some listings did not include an estimate), and at least 65 caravan sites. There are no hotel accommodation options in Jerrys Plains.

Social housing

Table 4-16 provides an overview of the number of State authority houses being rented in the vicinity of the Project at the 2016 Census. More recent figures were not identified during baseline data collection; however, consultation with key stakeholders in Denman and Muswellbrook indicates there may be up to eight social housing allocations in Denman and a significant, recently expanded, social housing stock available in Muswellbrook.

Table 4-16: Social housing indicators, SIA study area, 2016

Region	Dwellings rented from the government housing authority	% of total dwellings rented from the government housing authority
Muswellbrook LGA	281	3.9%
Singleton LGA	323	3.5%
Hunter Valley SA4	3,336	2.9%
New South Wales	107,402	3.5%

The New South Wales Housing website⁵⁰ has published indicative social housing wait times as at June 2017 for local areas. The mapping of social housing wait times indicates:

In Muswellbrook the wait time is between two and five years for a one, three or 4+ bedroom property. For a two bedroom property, the wait time is five to 10 years. Singleton has a wait time of five to 10 years for one and 4+ bedroom properties, with two and three bedroom properties having wait times of two to five years.

In Denman, the wait time is up to two years for a two bedroom house; there is a wait time of 5 to 10 years for a three bedroom house; and there is a wait time of up to two years for a 4+ bedroom property.

4.5 Access to infrastructure, services and facilities

Social infrastructure refers to community facilities, services and networks which help individuals, families, groups and communities meet their social needs, maximise their potential for development, and enhance community wellbeing. This section presents an overview of these facilities, services and networks at a local, district and regional scale.

Facilities and services profiled in this section include childcare, health, education and emergency services.

4.5.1 Local facilities and services

Facilities available in district centres, Muswellbrook and Singleton, are discussed in Section 4.5.2.

Table 4-17 summarises the facilities and services available at the local and neighbourhood level in Jerrys Plains and Denman and the nearby villages of Martindale and Sandy Hollow. A limited number of local facilities and services are available in Jerrys Plains, commensurate with the small population. There is a high level and high standard of social infrastructure provision in Denman relative to its local population, its proximity to regional centres and its potential capacity as a future district centre for the Muswellbrook LGA.

⁵⁰ NSW Department of Families and Community Services, (2018).

Table 4-17: Local level facilities and services

Facilities	Jerrys Plains		Denman		Surrounding community network	
Childcare			(1)	Denman Children's Centre	NA	
Primary Schools	(1)	Jerrys Plains Public School	(2)	Denman Public School St Joseph's Catholic School	(2)	Martindale Primary School Sandy Hollow Primary School
General Practice			(1.5 FTE)	Denman Medical Practice (1 FTE) Denman Family Medical Practice (0.5 FTE)	(1)	Merriwa Medical Centre
Hospital			(1)	Denman Multipurpose Health Service	NA	
Aged Care			(1)	Merton Court Hostel/ Denman Aged Care	NA	
Community Centres			(1)	Denman Community Technology Centre	NA	
Arts and Culture	(1)	Jerrys Plains School of Arts Hall	(1)	Denman Library	NA	
Sport and Recreation	(1)	Jerrys Plains Recreation Ground	(6+)	Denman Sports Complex (indoor sport, golf course, swimming, football, barbeque facilities) Skate Park	NA	
Police Station	(1)	Jerrys Plains Police Station	(1)	Denman Police Station	NA	
Rural Fire Services (RFS)	(1)	Jerrys Plains RFB	(1) (1)	Dalswinton RFB Denman Fire and Rescue	(1)	Mangoola RFS

Source: Results of desktop research (Google), September 2018. Verified in consultation, November 2018.

Primary education

Jerrys Plains Public School is an historic rural school located on Doyle Street, one block back from the Golden Highway. The school represents a central hub for the local Jerrys Plains community and outlying farming properties, with approximately 32 students enrolled at the end of 2018, and a small teacher to student ratio. Staffing in 2018 included one teaching principal, two full time teachers and two teacher aides.

Denman also has two local primary schools, St Joseph's Catholic School located off the Golden Highway on Palace Street, and Denman Public School located one street back on Paxton Street. Community and stakeholder feedback received during consultation for Malabar in 2014 was overwhelmingly positive and proud of the quality of both schools.

Both Denman Public School and St Joseph's Catholic School were invited to provide input to the SIA process however they were unavailable during the consultation period.

St Joseph's Catholic School comprises five classrooms and a school hall that underwent a staged redevelopment and upgrade between 2015 and 2016. In 2014, the student population was approximately 80 students plus 15 kindergarten students, drawing attendance from Denman along Muswellbrook Road and from surrounding towns including Martindale. A new Principal of St Joseph's Catholic School commenced with the school in early 2019.

Denman Public School has a larger enrolment capacity with approximately 160 students recorded in 2018, down from a peak of 181 students in 2016⁵¹. The school's catchment draw is primarily within Denman, with a few families travelling from Muswellbrook.

General Practice services

Denman has two local GPs surgeries, collectively representing 1.5 FTE doctors, with one of those working from the Denman Multipurpose Health Centre and a private practice in Merriwa. Patients travel between Jerrys Plains, Merriwa, and Denman to access GPs, or otherwise travel to Muswellbrook or Singleton.

Community consultation has identified limitations in the access to health services in Denman, however there is a general acceptance that service provision is appropriate for the size and rural nature of Denman and surrounds.

Denman Multipurpose Service

The Denman Multipurpose Service (MPS) facility consists of a 13 bed residential aged care facility, four acute beds and a two bay emergency department (19 beds in total). Denman's emergency department records for the 2017-18 financial year involved approximately 250 presentations, including 14 emergency patients, 54 urgent, 107 semi-urgent, and 77 non-urgent presentations⁵².

Stakeholder feedback regarding Denman MPS notes it is a unique model integrating aged and primary health with basic tertiary health services to meet local and ageing community needs however does not reflect hospital-level service provision. The helicopter response service is well regarded by Denman community members as an asset to the local health service. Stakeholders identified Muswellbrook Hospital as the district-level hospital servicing the Project region, while some residential stakeholders noted limitations in hospital service provision at Muswellbrook as informing their decision to access hospital services at Newcastle or Maitland.

Aged care

Merton Court Hostel is a low care facility for seniors located adjacent to the Multipurpose Service and with a close working relationship with the service. The Hostel offers a range of integrated activities with the multipurpose service including weekly Bingo and weekly church services⁵³.

4.5.2 Muswellbrook and Singleton facilities and services

Muswellbrook and Singleton provide a higher level of service than the two nearby communities, due to their larger population and nature as district centres.

⁵¹ NSW Department of Education, (2018).

⁵² MyHospitals, (2018a).

⁵³ NSW Department of Health, (2013).

The range of higher order social infrastructure and services includes:

- Muswellbrook Shire Council Offices;
- Muswellbrook High School;
- Muswellbrook TAFE Campus (Hunter TAFE) and Mining Skills Centre;
- Muswellbrook Hospital and Nursing Home Unit;
- Singleton Hospital;
- Singleton High School;
- Singleton Catholic High School;
- Muswellbrook Regional Arts Centre;
- Civic Centre Singleton;
- employment and training services; and
- Wanaruah LALC.

The two LGAs also provide a range of local services such as childcare centres and primary schools. Table 4-18 provides an overview of social infrastructure in the two LGAs. Key services are described below.

A wide range of sport and recreation facilities are available across the Project region, including aquatic centres, golf clubs, racing clubs, Returned and Services League (RSL) and workers' clubs, and facilities and fields for ball sports and athletics.

Table 4-18: District level facilities and services

Facilities/ Services	Muswellbrook	Singleton
Primary Schools	Muswellbrook Public School Muswellbrook South Public School St James Primary School Muswellbrook Christian School	Singleton King Street Public School Singleton Public School Singleton Heights Public School Australian Christian College – Singleton Australian Christian College – Singleton K-12
Childcare	Muswellbrook Pre School Kindergarten Muswellbrook Child Care Centre Goodstart Early Learning Centre Tilly's Play and Development Centre Upper Hunter Family Day Care Scheme Muswellbrook Out of School Hours Care	Skalliwags Pre-school Rainbows Early Learning Centre Colleen Gales Children's Centre St. Patricks Early Education Centre Singleton Pre-School Inc. Tillys Play & Development Centre Singleton Singleton Heights Pre-School Singleton Council - Out of School Hours Care
Secondary Schools	Muswellbrook High School St. Joseph's High School, Aberdeen	Australian Christian College – Singleton Australian Christian College – Singleton K-12 Singleton High School St Catherine's Catholic College
Tertiary Institutes	Muswellbrook (Hunter) TAFE Campus and Mining Skills Centre	TAFE NSW, Singleton Campus

Facilities/ Services	Muswellbrook	Singleton
Employment and Training	CDS Training and Employment Joblink Plus Mission Australia	CDS Training & Employment Singleton Workskil Australia MAX Employment The Salvation Army Employment Plus APM Employment Services KONEKT Employment Pty Ltd AimBig Employment Hunter Valley Mine Rescue Station
General Practice	Brook Medical Centre Tristar Medical Group Hunter Medical Practice Optics Individual GP practices	Singleton Medical Centre & Skin Clinic Civic Medical Singleton Heights Medical Practice Fairholme Surgery Raworth Cottage Surgery Singleton Doctors Dangar Medical Practice Individual GP practices
Hospital	Muswellbrook Hospital	Singleton Health Service
Aged Care	Muswellbrook Hospital - Nursing Home Unit Mt Providence Village Calvary Muswellbrook Retirement Community Calvary Aged Care	Uniting Elizabeth Gates Singleton Mercy Aged Care Services Singleton Calvary Coinda Retirement Community Singleton Uniting Elizabeth Gates Singleton All Saints' Court Singleton

Facilities/ Services	Muswellbrook	Singleton
Arts and Culture	Muswellbrook Regional Arts Centre Muswellbrook Amateur Theatrical Society (MATS)	Civic Centre Singleton Singleton Neighbourhood Centre Singleton Public Library
Indigenous Services	Wanaruah LALC	Ungooroo Aboriginal Corporation Wonnarua Nation Aboriginal Corporation
Police Services	Muswellbrook Police Station	Singleton Police Station
Ambulance Services	Muswellbrook Ambulance Station	Upper Hunter Zone Ambulance Service
Rural Fire Services	Edinglassie RFS	NSW RFS, Hunter Valley Operations Fire and Rescue NSW Branxton Greta Fire Station

General Practice services

Muswellbrook has five general practices, with a total of 25 GPs. Singleton has nine general practices, with a total of 31 GPs⁵⁴. The Hunter New England Primary Health Network (PHN) profile for the region indicates that Muswellbrook's rate of provision per 100,000 population was 118.1 in 2018, and Singleton had a rate of 95.7 per 100,000 people. The most recently available rate for NSW indicates a rate of 101.8 GPs per 100,000 people and by comparison, Singleton's rate was lower and Muswellbrook's rate was higher than that average⁵⁵. Neither LGA was ranked among the least well serviced of the 23 LGAs in the PHN region.

Muswellbrook Hospital

Muswellbrook Hospital is part of the Hunter New England Local Health District (HNE LHD). The hospital's service profile includes emergency, obstetric and surgical care, chemotherapy and renal dialysis day units and a nursing home unit⁵⁶. The Hospital was redeveloped in 2014-2016. In 2018, the hospital had a capacity of approximately 60 beds, and received more than 10,000 Emergency Department presentations in the 2017-18 year⁵⁷.

Muswellbrook Hospital capacity limitations identified during consultation with the Hospital relate to child and family health services and a shortage of local obstetricians which is a current focus area for hospital recruitment. Community feedback regarding their experience of accessing hospital services noted limitations over the weekend period requiring access to higher order services at Maitland or Newcastle. Some limitations were also identified in the services available through Muswellbrook Hospital with some local stakeholders choosing to access services in Maitland or Newcastle (approximately 1.5 hours drive from the Project).

The hospital has a comprehensive community health centre servicing the Upper Hunter catchment area which includes visiting drug and alcohol services, mental health and psychological services, adolescent and child mental health services.

Muswellbrook Hospital noted key considerations for the Project included access to health services for a family workforce, management of workforce mental health, the impacts of workforce fatigue, and potential misuse of drugs and alcohol.

Childcare services

There are five early learning centres (childcare or pre-school/kindergarten) centres in the Muswellbrook LGA, and six centres in the Singleton LGA. At January 2019, six centres (three in Muswellbrook and three in Singleton) had vacancies.

Muswellbrook Shire Council noted that the introduction of a new Council-owned facility in Muswellbrook provides sufficient capacity for children 0-5 years, however demand for care for children 0-3 years is less well supplied across the LGA. This is a common issue given the high staff ratios required for younger children. Muswellbrook Shire Council also identified that recent regulatory changes had affected the operation of some smaller centres in the LGA, including the Denman Children's Centre, with Council providing assistance to address the regulatory changes. There are multiple registered family daycare providers in each LGA, however Muswellbrook Shire Council also noted some limitations in the flexibility of child care options in the Muswellbrook LGA (e.g. limited after hours or long day care options).

⁵⁴ Hunter New England and Central Coast Primary Health Network, (2018).

⁵⁵ Australian Medical Association, (2016).

⁵⁶ MyHospitals, (2018b).

⁵⁷ MyHospitals, (2018b).

Schools

Muswellbrook and Muswellbrook South Public School had larger enrolment numbers. Muswellbrook Public School identified an overall kindergarten and school population of 600 students in 2018, while Muswellbrook South had approximately 550 enrolled in the school and another 85 in the kindergarten⁵⁸.

As identified during consultation for the SIA, Muswellbrook Public School anticipated dropping by 20 enrolments in 2019 as part of refined catchment boundaries. Muswellbrook South also identified a new southside residential development as likely to also contribute to increased enrolments.

Both schools identified as supporting a transient population, with a strong cohort of students from low socio-economic backgrounds affected by associated factors such as housing insecurity, intergenerational unemployment and welfare dependency, alcohol and drug use.

Muswellbrook South identified 75% of its student population as in the bottom two quintiles of socio-economic disadvantage, while Muswellbrook Public School identified as supporting an extended spectrum of advantage and disadvantage in the student population, supporting a strong combination of high achieving students and high needs students.

Both schools identified the need for linkages between school care and child health services including paediatrics, occupational therapy and speech pathology (via existing partnership between Muswellbrook Public and the University of Newcastle) and clinical psychology. A resource building at the Muswellbrook Public School currently hosts a dental service.

Schools consulted for the SIA confirmed capacity to expand in response to growing demand, noting a strong planning process and formula in place by the Department of Education to respond to annual changes in demand.

Singleton Hospital

Similar to Muswellbrook Hospital, Singleton Hospital is a 60-bed facility and part of the HNE LHD. The hospital's service profile includes emergency, obstetric, maintenance renal dialysis and hospice care, and includes telepsychiatry. The hospital also provides a community health service and offers a full range of consultant allied health services on a part-time or visiting basis.

Consistent with Singleton Council's advice, consultation with Singleton Hospital noted a local deficit in access to mental health services, with associated hospital presentations continuing to increase. While no particular trend or causal factors were attributed to the increase in presentations, it was noted that mental health, drug and alcohol use and/or domestic and family violence were often linked and related issues. A gap in prevention strategies was also identified as a potential contributing factor to increased local presentations, and as a consideration relevant to the mining industry.

Similar to Muswellbrook Hospital, Singleton Hospital noted key considerations for the Project included, management of workforce mental health, potential misuse of drugs and alcohol, the impacts of workforce fatigue, and the potential for increased road traffic injuries associated with increased volumes of commuting workers on the road.

Muswellbrook High School

Muswellbrook High School provides a secondary education service for Years 7-12 students across Muswellbrook LGA, and particularly from Muswellbrook and Denman. In 2018, the High School had approximately 865 student enrolments with a strong Aboriginal student cohort. The school's last annual report identified an Aboriginal population of 119 students (representing 14.4% of 828 enrolments in 2017).

⁵⁸ NSW Department of Education, (2018).

The school curriculum recognises the region's industry diversity and caters for a wide variety of interests, and the school's enrolment profile identifies a growing number of students are accessing tertiary study and local-industry post-school pathways. Muswellbrook High School is also part of a Trades Training Centre consortium with local schools with newly established facilities for Hospitality, Metal and Engineering and Primary Industries and an off-site agricultural facility⁵⁹. Muswellbrook High School has been commended by local stakeholders for the level of quality teaching services provided, although some stakeholders mentioned poor conditions and that the capacity of general amenity facilities were inadequate to support student numbers.

Singleton High School

Singleton High School is a large comprehensive rural high school catering for Years 7–12. In 2018, the school had a student population of 1200. The school has a comprehensive curriculum offering a diverse range of traditional subjects and dual accredited Vocational Education and Training (VET) courses within the Singleton Trade Training Centre as well as pathways to TAFE, community college, and other external providers.

The KaWul Aboriginal Cultural Resource Centre has received national recognition for the embedded Aboriginal programs within the school. Singleton High School also has an established Clontarf academy and Aboriginal Education Consultative Group has commenced negotiations for a Girls Academy (Aboriginal)⁶⁰.

Upper Hunter Tertiary Education Centre

The Upper Hunter Tertiary Education Centre was opened in Muswellbrook in 2016, co-locating the University of Newcastle with Muswellbrook TAFE campus and Mining Skills Centre to provide a range of training and industry engaged research activity. The Centre is part of the University's 12N network of innovation hubs that aim to strengthen the links between business and research and foster a regional culture of innovation.

Consultation for the SIA identified solid and increasing employment opportunities within existing and future industries, however there was some criticism that training and skill development had not kept pace. Training facilities were described as mine and trade centric, and needing to expand their focus on training for service industries.

Consultation with Muswellbrook TAFE identified a decline in the number of VET enrolments through the TAFE, attributed in part to changes in school resource planning with many opting to offer their own VET on-site to keep classroom and teacher numbers up.

It was suggested that taster courses should be offered through local schools in partnership with JobSkills and other employment agencies.

TAFE NSW, Singleton

The Singleton Campus of TAFE NSW (Hunter and Central Coast) is located to the east of the town centre, on the New England Highway. Course offerings are consistent with TAFE NSW and include administration, business, library and real estate, building industries, environment, horticulture, primary industries, education, transport and mining, tourism, events and outdoor recreation⁶¹.

⁵⁹ Muswellbrook High School, (2018).

⁶⁰ Singleton High School, (2018).

⁶¹ NSW TAFE – Hunter and Central Coast, (2018a; 2018b).

Employment and training services

Employment and training services provided at the district level include:

- Joblink Plus Muswellbrook – a community based, not for profit, registered charity organisation that provides employment and welfare services, support and training to the community with a particular focus on anyone who is disadvantaged in any way;
- Mission Australia Employment Services Muswellbrook – provides government-funded programs including Job Services Australia (JSA) program; and
- Hunter Valley Mine Rescue Station – provides training for workforce personnel with a particular focus on operational safety and risk management.

The Muswellbrook LGA also offers employment and training services from a range of service bases across the Upper Hunter region⁶².

Police services

The Muswellbrook and Singleton LGAs are serviced by the NSW Police Hunter Valley Local Area Command, which includes 14 stations. The nearest stations to Maxwell Infrastructure (site access) are:

- Muswellbrook Police station, 11 km north;
- Jerrys Plains Police Station, 30 km south;
- Denman Police Station, 32 km west; and
- Singleton Police Station, 40 km south.

Singleton, Denman and Jerrys Plains stations are not manned full-time however Muswellbrook Police station is generally well resourced to meet community needs.

Issues of relevance to the Project as identified by a Muswellbrook Police representative is the high rate of road fatalities in Muswellbrook LGA compared to the NSW average, general workforce fatigue management, and observations of increased antisocial behaviour due to influxes of non-resident workers. These matters, which all contribute to increased demand for police resources, are discussed in more detail in Section 5.6.2.

Ambulance services

The Hunter New England Ambulance Service has a regional office in Newcastle and supports two zones in the Hunter Region, plus one New England Zone. The Project falls within Hunter Zone 2, which hosts 14 ambulance stations. The nearest stations to the Project are Muswellbrook and Singleton.

Muswellbrook has a small station staffed with paramedics. The Hunter Zone 2 office is based in Singleton, accommodating the district inspector and station manager, as well as 12 permanent paramedics.

Regional stations and centres function as transport links to metropolitan services. Consultation for the SIA identified Singleton Hospital also runs its own patient transport service to minimise the demand for ambulance resources that is not directly related to pre-hospital admission. The response time from Muswellbrook Ambulance Station to the Project is estimated at 15 minutes.

Rural Fire Services

Mining companies, as with any private property owner, are responsible for managing and maintaining the fire safety of the property. The RFS is also duty bound to inspect and respond to fires which may threaten other public or private properties.

⁶² Muswellbrook Shire Council, (2013a).

The Hunter Valley District RFS is based in Bulga NSW and is administered by five full time staff with a 1,200-strong membership base (including active and non-active members).

The closest brigades to the Project include Edinglassie in Muswellbrook (10 km north of Maxwell Infrastructure), Dalswinton (15 km west of Maxwell Underground) and Jerrys Plains (14 km east of Maxwell Underground). Other nearby brigades include Mangoola, based in Denman, in addition to the Denman Fire and Rescue Service.

Consultation with the Hunter Valley RFS described use of an effective network of resources although more volunteer members are always encouraged. It was noted that resourcing is adversely affected by shift work, with fewer resources available prior to a shift, and directly following, to manage fatigue. The challenges associated with shift work and resourcing were also identified in consultation with the Dalswinton RFB.

Issues of relevance to the Project as identified by the RFS included:

- Support for volunteers during long-running large incidents;
- Communicating risk management procedures for ventilation shafts and smoke impact from bushfires;
- Consulting on road changes to consider their dual purpose as fire containment measures;
- Managing potential demands on staff time, including:
 - extended timeframes to enable review of bushfire management and emergency plans;
 - scheduling joint training exercises outside of the high bushfire danger period (1 September to 31 March); and
 - customising the induction process to essential information only.

4.5.3 Roads and Transport

Road network

The New England Highway is the primary road connection, and goods and services transport route, between Newcastle and the New England area and passes through Singleton and Muswellbrook.

Access to the Project would be from Thomas Mitchell Drive, which connects Denman Road in the west with the New England Highway in the east. It is a sealed, two-lane-two-way road.

Thomas Mitchell Drive is also used by neighbouring landholders, business operators and employees including:

- business operators based in the Muswellbrook Industrial Estate (e.g. Hitachi Construction Machinery Australia, Sims Metal Management, RIMEX wheel, BOC Gas and Gear, Coates Hire, SGS Australia, Crib Break Takeaway), north-west of the Project area;
- BHP's Mt Arthur Mine, west of the Project area; and
- approximately 9 residential landholders that are located within 2.5 km of the Project boundary and west of the New England Highway, connected to Thomas Mitchell Drive by Balmoral Road and Hassall Lane.

The road is also used by traffic travelling between Denman and the New England Highway, including workers from the Mount Pleasant Operation, Mangoola Coal Mine and Bengalla Mine.

The southern extent of the Maxwell Underground is bound by the Golden Highway, which is the primary road connection between Singleton and Dubbo and passes through Denman. The Golden Highway is also known as Jerrys Plains Road, Putty Road and Mitchell Line of Road. The Golden Highway is an identified tourist route, connecting to local wineries and horse studs and featuring abundant scenic landscapes.

Denman Road is a two-lane sealed road connecting the Golden Highway with the New England Highway near Muswellbrook.

The Project footprint takes in Edderton Road, which is a 15 km rural connector road between the Golden Highway in the south to Denman Road in the north. Edderton Road is a sealed two-way-two-lane configuration, country road.

Consultation with personnel from business operations located on the Golden Highway note that Edderton Road is often used as a more direct route to and from Muswellbrook, Aberdeen and Scone. The use of Edderton Road was also noted in consultation with emergency service stakeholders, noting it as a shorter route option depending on the incident location.

School buses are also likely to use the surrounding road network, as discussed in Section 5.7.3.

Transport services

The Project would make use of the Antiene Rail Spur to transport coal to the Port of Newcastle via the Main Northern Railway Line, which connects Sydney to the Queensland border with both passenger and freight options. The rail section from Maitland to Armidale, which connects with the Antiene Rail Spur and Muswellbrook, is predominantly used to transport coal from the Hunter Valley, however the rail line also supports a small number of passenger trains⁶³.

Consultation with Muswellbrook Shire Council identified concerns that projected cumulative demands on the Main Northern Railway Line may not be sustainable and may crowd out the limited passenger services available on the line. It should be noted, on 14 December 2018, the ARTC provided a letter noting that the Project would form part of the Hunter Valley Corridor Capacity Strategy for 2019 and, at the time of writing, the network capacity was expected to be available to meet the requirements of the Project.

Newcastle Airport is located approximately 1.5 hours drive from the Project.

4.6 Health and wellbeing

The World Health Organisation⁶⁴ defines health as '*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*'. This section considers:

- socio-economic factors that affect wellbeing;
- research on local population health and population health indicators;
- mental health; and
- community safety, including road safety.

⁶³ NSW Rail.net, (2018).

⁶⁴ World Health Organisation, (1948).

4.6.1 Socio-economic disadvantage

The ABS's Socio-Economic Indices for Areas (SEIFA) are composite indices of factors affecting socio-economic advantage and disadvantage, based on Census of Population and Housing data. Factors within the Index of Relative Socio-economic Disadvantage (IRSD) such as unemployment, low incomes, educational attainment, overcrowded living arrangements, rate of disability among people under the age of 70 and poor proficiency in English indicate the overall potential for disadvantage in an area. Index scores presented in Table 4-19 are compared to the Australian average of 1,000. Index Scores for Education and Occupation (IEO) are based on indices that measure and rank relative advantage or disadvantage for educational attainment or accessing skilled work. These scores have then been ranked within NSW and compiled into deciles.

Index scores of Relative Social Disadvantage were below the NSW and Hunter Valley regional averages in Denman, Muswellbrook and across Muswellbrook LGA.

Table 4-19: Index of Relative Socio-Economic Disadvantage Scores, 2016

SEIFA Index	IRSD		IEO	
Region	Score	Decile	Score	Decile
Denman	938	2	876	5
Jerrys Plains	992	5	956	3
Muswellbrook	914	2	874	1
Muswellbrook LGA	930	3	883	1
Singleton LGA	994	7	921	2
Hunter Valley	969	N/A	923	N/A

Source: Australian Bureau of Statistics, (2016). Tablebuilder (2017).

The towns of Muswellbrook and Denman both ranked in the second decile in NSW in the IRSD (bottom 20% of suburb scores), indicating the potential for disadvantage. In Denman this is likely to partially reflect the older population, whilst in Muswellbrook it reflects the higher numbers of jobless people.

Index scores of education and occupation were below the Hunter Valley average in each area except in Jerrys Plains. Muswellbrook suburb and Muswellbrook LGA were ranked in the first decile in NSW (bottom 10% of scores) indicating lower rates of educational attainment and potential for disadvantage in accessing employment.

The lower scores indicate potential for less resilience to cope with change or adverse economic circumstances such as unemployment, although this is offset in Denman to an extent by the high social capital and good level of access to social infrastructure. As described in later sections, the level of health care available locally is a current concern for the Denman community.

Muswellbrook LGA has the highest proportion of dwellings from the Australian Government receiving rent assistance, with 28.1% being assisted. This is 10.7 percentage points higher than the NSW average of 17.4%. Hunter Valley also had a higher proportion than NSW at 21.1%, whilst Singleton LGA was lower than NSW at 12.5%⁶⁵. The high rates in Muswellbrook reflect the high rates of unemployment, and including for families associated with the correctional facility. Indigenous residents and Indigenous unemployment and therefore a higher need for assistance to maintain housing security.

⁶⁵ Public Health Information Development Unit, (2018).

4.6.2 Population health research

Research was undertaken for the Hunter New England Area Health Service (HNEAHS) in 2012 to identify the scope of potential influencing factors on community health and wellbeing for communities living near coal mines in the Hunter region (Merritt et al., 2013). The research found that GP data for the Denman, Muswellbrook and Singleton postcodes did not demonstrate significantly higher rates of any health disease problems managed, or medications prescribed or supplied, compared with the rest of non-metropolitan NSW.

Key findings from a report on respiratory and cardiovascular disease and cancer among residents in the HNEAHS (2010) determined:

- no difference in the self-rated health of HNEAHS residents than NSW, or between residents in any of the areas within HNEAHS;
- Muswellbrook LGA had higher asthma separation rates (the rate of leaving hospital after an episode of care) and Singleton LGA had lower asthma separation rates⁶⁶ than NSW;
- Muswellbrook and Singleton LGAs had higher rates of cardiovascular disease separations than HNEAHS or NSW as a whole; and
- the only cancer known to be associated with air pollution, lung cancer, has incidence and death rates in HNEAHS similar to those for NSW.

While the HNEAHS (2010) report did not rule out linkages between coal extraction and coal-fired power generation activities with adverse health effects on nearby communities, the evidence presented was inconclusive.

The report also identified a range of other health risk factors likely to be contributing to poor health outcomes in the area including smoking, diet, insufficient exercise and a lack of preventative health measures and self-management strategies. There is a growing evidence-based correlation between rural living and poorer health outcomes, associated with poorer health literacy and restricted access to, and affordability of, appropriate health care⁶⁷.

NSW Health Stats for the Hunter New England Local Health District (LHD) between 2001-02 to 2016-17 shows an upward trend in the total respiratory disease hospitalisations per 100,000 persons, starting at a rate of 1,493.2 per 100,000 persons in 2001-2 and reaching a rate of 1,707.5 in 2016-17. However, these rates remain below the combined average rate for all LHDs in NSW, which also show an upward trend, reaching a rate of 1,787.2 per 100,000 people in 2016-17. Within both datasets the rate of hospitalisation is consistently higher among men⁶⁸.

4.6.3 Population health indicators

The Social Health Atlas of Australia⁶⁹ (PHIDU, 2018) compiles a range of demographic, socio-economic and public health indicators for numerous statistical geographies, including LGAs, to monitor community health and wellbeing.

⁶⁶ The Australian Institute of Health and Welfare, (2014b).

⁶⁷ NSW Department of Health, (2010).

⁶⁸ HealthStats NSW, (2018).

⁶⁹ Public Health Information Development Unit, (2018).

Table 4-20 presents modelled estimates of the self-assessed health status and prevalence of select chronic conditions in the Project region. These estimates were largely synthetically produced from a 2014-15 survey period, while some results are only available from the 2011-12 survey period which affects their applicability to a 2018 baseline. These statistics are therefore only referred to for an indication of likely characteristics in the Project region and, where possible, have been interpreted in the context of the more recent research findings.

As shown in Table 4-20, a higher average of people aged 15 years and over in Muswellbrook LGA self-assessed their health as fair or poor (age standardised rate [ASR] 16) than for Singleton LGA or NSW (ASR 14.6 and 14.3 respectively). This compared with 2013 research findings of no difference in the self-rated health of residents in any of the areas within HNEAHS compared to the NSW average.

A review of select chronic disease indicators show:

- lower modelled estimates of high blood pressure in the Project region relative to the NSW average;
- a higher rate of respiratory disease in Singleton LGA, relative to Muswellbrook and the NSW average; and
- as a subset of the respiratory disease data, a higher average estimate of people with asthma in Muswellbrook and Singleton LGA, relative to the NSW average.

Recent reports through NSW Health Stats for the Hunter New England LHD found:

- high blood pressure affected 32.9% of adults in 2013, up from 22.6% of adults in 2002; and
- asthma affected 13.3% of the adult population in 2017 (compared to 10.9% for NSW) with rates fluctuating since 2002 (12.4%) and reaching a high in 2015 (14.7%).

In terms of chronic disease risk factors, Muswellbrook LGA had a higher modelled average of current smokers than the Singleton LGA and NSW, while Singleton and Muswellbrook LGA were modelled to have similar average rates of risky alcohol consumption. Consultation with the Muswellbrook Hospital for the SIA identified high presentation rates for respiratory-related conditions.

Improving the health of the working population was identified as a priority area in consultation with Singleton Council, noting the potential for mining industry shift work to affect levels of fatigue, eating behaviours, nutrition and exercise which in turn can adversely affect general wellbeing.

Table 4-20: LGA health indicators

Age Standardised Rate per 100	Muswellbrook LGA	Singleton LGA	NSW
Self-assessed health (2014-15)	16.0	14.6	14.3
Chronic conditions (2011-12)			
Diabetes mellitus	4.6	4.6	5.8
High blood cholesterol	35.2	31.7	32.4
Circulatory system disease	17.8	18.1	17.8
Respiratory disease	27.7	31.9	27.4
Asthma	12.0	11.9	9.6
High blood pressure (2014-15)	21.0	19.1	22.3
Risk factors (2014-15)			
Current smokers	24.6	19.1	16.0
Risky alcohol consumption	23.8	23.9	16.7
Overweight	38.4	36.8	42.2

Source: Public Health Information Development Unit, (2018).

4.6.4 Mental health

Agency stakeholders identified mental health service demand as a growing priority area. Consultation with Muswellbrook Hospital indicated that mental health-related hospital presentations were trending upward, often associated with drug and alcohol use.

During consultation for this SIA, some nearby private landholders said that they were experiencing stress about any potential for impacts on their property's amenity. Landholders also noted that they had experienced an extended period of uncertainty about whether development would proceed at EL 5460. Other factors contributing to poor mental health as identified by stakeholders included workforce fatigue, nutrition and exercise, and drug and alcohol use.

Muswellbrook Hospital provides a comprehensive community health centre for the whole of the Upper Hunter region and includes visiting drug and alcohol specialist services, mental health and psychological services. However, mental health service provision was identified as strained by local stakeholders, with outreach services noted by Singleton Council as coming from Maitland.

Table 4-21 shows the estimated number and rate of people aged 18 years and over with high or very high psychological distress (based on the Kessler 10 Scale) in the Project region, relative to NSW. It shows a higher rate is modelled for Muswellbrook LGA, affecting 1,646 people or an ASR of 13.7, compared to an ASR of 11 for Singleton LGA and NSW. For the period, 2015-17, NSW Health Stats reported 14.2% of adults in the Hunter New England LHD experiencing high or very high levels of psychological distress, which was lower than NSW average (15.1%). While localised data at the LGA level was not available, it is likely that the incidence of psychological distress would vary across LGAs in the Hunter New England LHD, and is likely to be higher in the Muswellbrook LGA.

Table 4-21: People aged 18 years and over with high or very high psychological distress (estimate)

LGA / State	Number	ASR per 100
Muswellbrook LGA	1,646	13.7
Singleton LGA	1,906	11.0
New South Wales	630,720	11.0

Source: Public Health Information Development Unit, (2018).

In 2016, in the Hunter New England LHD, 121 people died by suicide at a rate of 13.3 per 100,000 population, which was higher than the average for NSW of 10.3 per 100,000 people. Males accounted for around 76% of suicides across NSW in 2016. Overall suicide rates in the Hunter New England LHD dropped between 2001 and 2005 and have since fluctuated upward with a spike between 2011 and 2012 (from a rate of 8.5 to 11.9 per 100,000), and another between 2014 and 2015 (from a rate of 11.9 to 15.8 per 100,000). The annual average rate of death by suicide (ASR) between 2011 and 2015 for Muswellbrook LGA was 10.3 per 100,000 persons which is comparable to the NSW average of 9.8 per 100,000 persons. The ASR for Singleton LGA was much lower at 5.6 per 100,000 persons (PHIDU, 2017).

Modelled health statistics suggest Muswellbrook LGA is likely to have a higher prevalence of psychological distress than in Singleton LGA and NSW, with the potential for this to correlate with a higher rate of suicide, and higher rates of intentional self-harm.

4.6.5 Community safety

Crime statistics

A five-year trend analysis published by the NSW Bureau of Crime Statistics and Reporting Crime rates shows that rates of assault decreased in Muswellbrook and Singleton and by larger percentages than the NSW average over the five years. However, whilst domestic assault rates decreased in Muswellbrook LGA over the five years, the rate increased by 8.3% in Singleton LGA.

Rates of sexual offences increased in both LGAs and in NSW over the five years, but with a particularly high increase in Singleton (17.7%). Rates of thefts and malicious damage also decreased over the five years in the two LGAs and the State as a whole (Table 4-22).

Consultation with agencies and social infrastructure providers noted that during the mining industry boom (pre-2013), there had been an observed increase in antisocial behaviour at licenced premises attributed to the cumulative influx of non-resident workers to Muswellbrook in particular. Stakeholders noted a change in the hospitality market at this time, which was tailored to a predominantly male workforce, and limited the number of family-friendly local venues which reportedly affected perceptions of community safety.

Table 4-22: Crime trends, selected offences December 2013 to December 2017

State/LGA	Assault	Domestic Assault	Sexual Offences	Malicious Damage	Theft
Muswellbrook	-5.4%	-2.5%	2.4%	-6.8%	-4.8%
Singleton	-0.7%	8.3%	17.7%	-10.1%	-6.9%
New South Wales	-1.6%	-0.1%	5.3%	-5.4%	-3.9%

Source: NSW Bureau of Crime Statistics and Reporting, (2018).

Traffic safety

Consultation with the Muswellbrook Police, Muswellbrook Shire Council and community members identified concerns about existing high levels of traffic accidents in the Muswellbrook LGA with mixed road use (private vehicles, horse floats, and large machinery), road intersection risk areas and general workforce fatigue identified as a contributing factor to declining road safety.

Road crash information obtained from the RMS for the Project's Road Transport Assessment (The Transport Planning Partnership [TTPP], 2019) for the five-year period of 1 October 2012 to 30 September 2017 provides a focus on incidents along the Project's primary access routes:

- Thomas Mitchell Drive between Denman Road and the New England Highway;
- Denman Road between the Golden Highway and New England Highway;
- New England Highway between Denman Road and approximately 10 km south of Thomas Mitchell Drive; and
- Edderton Road between the Golden Highway and Denman Road.

Over the investigation period and routes reviewed, a total of 103 crashes occurred, resulting in one fatality, 17 people being seriously injured, and 37 people being moderately injured. The most common types of crashes involved single vehicles leaving the carriageway, known as run-off-road (ROR) crashes, which made up approximately 39% of the total reported crashes. Fatigue was identified as a contributing factor to the fatal crash recorded on Thomas Mitchell Drive.

4.7 Summary

Key findings from the Project's social baseline are summarised in Table 4-23.

Table 4-23: Social baseline findings

Social Baseline	Key features
Surroundings and Property Use	<p>Regional planning challenges include the cyclical impacts of mining on housing and employment, and uneven distribution of economic growth.</p> <p>The Muswellbrook Shire and Singleton Councils and communities have a focus on economic diversification and resilience, education and skills, and regional development.</p> <p>Project surroundings are characterised by rural landscapes, grazing land, cropping thoroughbred breeding and viticulture, mixed with a dominant mining and energy industry landscape in the vicinity of the Maxwell Infrastructure.</p> <p>Local heritage sites and values include company owned homesteads adjacent to the Project area and on neighbouring properties, historic rural structures, and the Muswellbrook-Jerrys Plains Land Conservation Area.</p> <p>Nearby landholders include graziers, renowned horse studs and wineries.</p> <p>There is strong reliance on local water resources for domestic and commercial purposes.</p>

Social Baseline	Key features
Culture	<p>Many local Indigenous people have traditional and contemporary connections to the Project region. Mount Arthur and Saddlers Creek are important cultural features.</p> <p>Sense of place is strongly related to environmental and rural values.</p> <p>Social capital is strong in Jerrys Plains and Denman.</p> <p>Lifestyle and amenity are supported by rural activities and country town life in Jerrys Plains and Denman.</p>
Community	<p>Resident populations include Muswellbrook (12,072 people), Singleton LGA (22,990), Denman (1,789 people) and Jerrys Plains (386 people).</p> <p>Projected annual population growth for the Muswellbrook and Singleton LGAs is lower than the Hunter Valley and NSW averages.</p> <p>There is above average representation of Indigenous people in the Project region compared with NSW.</p>
Way of Life	<p>There is greater socio-economic disadvantage in Muswellbrook LGA, including a higher prevalence of lifestyle risks and indicators.</p> <p>Housing developments proposed in Denman and Muswellbrook.</p> <p>There are currently low vacancy rates for rental properties across the Project region, with increases in median rents evident over the last 12 months.</p> <p>Higher labour force participation rates in the Project region than for NSW in 2016.</p> <p>Lower Year 12 completion rates in Muswellbrook LGA than NSW average.</p> <p>Above average levels of Certificate-level qualifications in Muswellbrook and Singleton LGA.</p> <p>Unemployment rates in the Muswellbrook township and LGA are above the NSW average, and higher again for the local Aboriginal population.</p> <p>The mining industry dominates employment in Muswellbrook and Singleton LGAs.</p>
Access to infrastructure, services and facilities	<p>Local health service capacity is generally adequate to meet community needs.</p> <p>Some local limitations exist in local primary health and family and child health services, particularly obstetrics.</p> <p>There is a potential shortage of childcare places in Denman, and Muswellbrook Shire Council consultation participants noted a shortage of places for children 0-3 years in the LGA.</p> <p>Police and emergency service resources meet current levels of demand but changes to demand requires clear and advanced planning.</p> <p>The Project represents opportunities to support local RFS resourcing and incident management.</p>
Health and wellbeing	<p>Greater socio-economic disadvantage in Muswellbrook LGA.</p> <p>Generally stable crime statistics (although above NSW average in Muswellbrook LGA).</p> <p>Potential respiratory vulnerabilities among residents of the Muswellbrook and Singleton LGAs.</p> <p>Lifestyle factors and chronic disease indicators such as adult smoking and risky alcohol consumption were higher in the Singleton and Muswellbrook LGAs relative to the NSW average.</p> <p>Mental health presentation rates and modelled health statistics suggest Muswellbrook LGA is likely to have a comparable prevalence of psychological distress to the rest of NSW, with a lower prevalence occurring in the Singleton LGA.</p>

5. IMPACT ASSESSMENT

The SIA scoping process identified potential material impacts and the investigations and analyses to be undertaken for each issue. Stakeholder engagement has provided further inputs to assessment of material impacts as shown in each section.

This section discusses the nature (and where possible the quantum) of social impacts and benefits associated with the Project. Section 5.11 provides an evaluation of the significance of social impacts and benefits to local and regional communities.

5.1 Personal and property rights

5.1.1 Amenity

Neighbouring landholders identified their key areas of concern for amenity as including:

- the potential for noise from the Maxwell Infrastructure including noise associated with the train load-out bins and dust suppression sprays if not adequately mitigated;
- dust from the CHPP and train load-out facilities;
- potential for the underground mining portal to impact on visual amenity;
- operational train noise, and notably the noise from idling trains, if not adequately mitigated;
- the potential for dust deposition on roofs, rainwater tanks and solar panels; and
- potential for subsidence to affect the landscape or private properties.

These issues are discussed below.

Noise and vibration

Assessment of predicted noise levels from the Project (EIS Appendix I) indicates that:

- One property on Thomas Mitchell Drive, and three properties on Pamger Drive to the north of the Maxwell Infrastructure would have marginal exceedances of the Project-specific noise trigger levels (i.e. up to 5 A-weighted decibels [dBA]), based on the predicted operational noise impacts of the Project. These landholders would have the right to request mitigation measures at their property, such as mechanical ventilation/comfort condition systems to enable windows to be closed, similar to the provision included in the Project Approval for the former Drayton Mine;
- The Project's maximum intrusive noise level is predicted to exceed daytime and night-time Project noise trigger levels by between 1 to 2 dBA for an additional ten receivers (on 9 separate lots) to the north of the Maxwell Infrastructure, however the exceedances would be negligible (when compared to compliance with criteria) and not discernible by the average listener;
- The predicted noise levels for the Project at northern receivers near the Maxwell Infrastructure are generally similar to or less than the noise levels during operation of the former Drayton Mine;
- Noise contributions from the Project at the Hollydene Estate Winery, Coolmore Stud and Godolphin Woodlands Stud are predicted to be less than 27 dBA in the daytime, evening and night time. In consideration of monitored noise levels, these noise contributions would be indistinguishable from background noise;
- There would be no exceedances of the relevant criteria predicted due to rail noise on the Antiene Rail Spur before and after closure of the Mt Arthur Mine; and
- The Project rail movements would result in an indiscernible increase in noise along the Main Northern Railway (less than 0.5 dBA).

Compliance with the relevant road traffic noise criteria is expected at all receivers surrounding the Project.

With respect to vibration, Malabar plans to preferentially remove material using dozers and excavators only, to eliminate or minimise the need for construction blasting. Blasting may be required for construction of elements such as the coal surge stockpile area, site access road, access to the underground workings and/or water storage dams. Any blasts required for construction activities would be limited to a Maximum Instantaneous Charge (MIC) of approximately 500 kilograms (kg), which is substantially smaller than blasting that would occur in an open cut mining operation (an MIC typically in the order of 2,000 kg to 4,000 kg).

The distance to achieve compliance with the blasting and vibration criteria was calculated to be 1.5 km. The closest privately-owned receiver to potential blasting activities is 4.7 km away, therefore overpressure and ground vibration levels associated with blasting activities from the Project are predicted to comply with the relevant criteria at all privately-owned receivers.

Air quality

An assessment of the potential impacts of the Project on air quality has been undertaken by Todoroski Air Sciences⁷⁰. The assessment involved the use of a CALPUFF air dispersion model to assess potential impacts of the construction and operation of the Project. The CALPUFF air dispersion model is approved by the NSW EPA for use in air quality impact assessments. The air dispersion modelling methodology uses recent and comprehensive weather and dust monitoring data, incorporates conservative emission estimation and considers activity at other nearby coal mining operations.

The results of the air dispersion modelling indicate that for all assessed dust metrics, the predicted levels would be below the relevant criterion at the assessed privately owned and mine-owned receptor locations. There are no likely air quality impacts associated with emissions from diesel powered equipment and gas management activities. Overall, the assessment shows that no adverse air quality impacts would arise due to the construction and operation of the Project.

The potential for dust to emanate from the CHPP and train load-out facility is a concern for nearby landholders. Malabar's strategies for managing potential dust sources and limiting airborne dust are detailed in the air quality assessment.

Spontaneous combustion

Spontaneous combustion refers to the ignition of organic matter such as coal without apparent cause, typically through heat generated internally by rapid oxidation. Smoke from spontaneous combustion can cause offensive odours. Mined, open cut areas at the former Drayton Mine (now the Maxwell Infrastructure) have experienced spontaneous combustion in the past. Malabar is managing the potential for any future spontaneous combustion in accordance with the site's Mining Operations Plan as Malabar progresses the rehabilitation of the former open cut pits.

The risk of spontaneous combustion associated with Project's underground mining activities is considered low. The Project coal resource is derived from Wittingham Coal Measures, which are very low in sulphur compared to the higher sulphur materials that were derived from the Greta Coal Measures which were targeted at the former Drayton Mine.

Scenic character

Malabar has committed to locating the mine entry area in a valley approximately 5 km north of the Golden Highway avoiding visibility from this scenic route. There are no privately-owned properties where residents would see the mine entry area infrastructure from their homes.

⁷⁰ Todoroski Air Sciences Pty Ltd, (2019).

Glimpses of the mine entry area would be available from Edderton Road. The existing Mt Arthur Mine's open cut mining activities are also visible from Edderton Road.

Night time light glow from the mine entry area, covered overland conveyor and site access road may be visible to some neighbouring residents. This was assessed as not a significant visual impact to sensitive receptors (see EIS Appendix N).

Longwall mining has potential to cause subsidence. Recent and future uses of the land for grazing are not expected to be affected by subsidence as the potential for land slumping, increased soil erosion, ponding or degradation of drainage lines and creeks would be minimised through subsidence monitoring, remediation, and erosion and sediment control. The Maxwell Underground area is currently used for grazing and includes farm dams, unsealed tracks, land contouring, cattle yards and fencing, which subsidence has potential to damage. However, impacts are expected to be minor and would occur on Malabar-owned land and readily ameliorated through pre-subsidence and post-subsidence assessment and remedial works if required, so impacts on the rural character of the mining area are not expected. Grazing can largely continue as usual with temporary removal of livestock from areas undergoing active subsidence until the area is deemed stable to maintain animal safety. Minor changes to the landform above longwall mining areas are possible, but are not expected to result in a significant detractor to the visual character of the landscape.

The Project's Subsidence Assessment (EIS Appendix A) found that all structures, infrastructure and improvements on private properties are located outside the mining area, are predicted to experience negligible subsidence and would remain in a safe and serviceable condition throughout the mining period.

Rehabilitation of former open cut mining areas would improve the visual amenity of the existing environment in the vicinity of the Maxwell Infrastructure by reducing the size of voids, restoring the land surface and drainage structures to a more natural form, and restoring vegetation.

Impacts on visual amenity as a result of the Project are discussed in detail in EIS Appendix N.

Traffic

Increased travel times, traffic congestion or diversions of traffic have the potential to impact on access to neighbours, towns or services.

An assessment of the potential impacts of the Project on traffic has been undertaken by TTPP⁷¹ which concludes:

- the Project would have minor or no impact on the midblock levels of service experienced by drivers on Thomas Mitchell Drive, and future levels of service on Edderton Road and the site access road would be good;
- the key intersections which would be used by Project traffic are expected to operate at good levels of service with short delays and spare capacity without requiring upgrading, with the exception of Denman Road and Thomas Mitchell Drive intersection which is planned to be upgraded by others regardless of the Project; and
- no specific measures or upgrades are required to mitigate the impacts of the development on the capacity, safety and efficiency of the road network as a result of the changed road traffic conditions associated with the Project.

⁷¹ The Transport Planning Partnership, (2019).

Should Malabar elect to realign the southern portion of Edderton Road and construct a new intersection of Edderton Road with the Golden Highway, these would be designed and constructed in accordance with Austroads Guide to Road Design requirements and in consultation with Muswellbrook Shire Council and RMS as relevant.

Summary

Taking account of findings from EIS technical studies, changes to local amenity are expected to be minor and include:

- increased traffic on roads used to access the Project within the capacity of the road network;
- marginal exceedances of Project-specific noise trigger levels at four properties; and
- negligible exceedances of daytime and night-time Project-specific noise trigger levels by between 1 to 2 dBA at nine properties.

Noise from mining operations is a key issue for community members, and those that are sensitive to noise may find any increase in noise as intrusive. It is noted that noise from the recommencement of activities at Maxwell Infrastructure and train movement along the Antiene Rail Spur would be less than previous impacts experienced during operation of the former Drayton Mine over a period of over 30 years (refer to EIS Appendix I). Malabar will maintain ongoing engagement with residents living within 2.5 km of the Project (the distance within which all sensitive receptors are located) to provide awareness of the Project's development schedule and any on-site activities which may result in audible noise.

Malabar will also maintain a complaints mechanism which provides for effective resolution of any noise and dust complaints, including 24-hour communication with on-site Project staff. The Project's complaints management process, which includes corrective environmental management actions where required, is detailed in Section 6.2.

5.1.2 Access to water

Consultation for the SIA identified potential impacts on water resource security and allocations, e.g. bore water drawdown, competition for water allocations or effects on surface water, as a significant community concern. Consultation with social infrastructure providers also highlighted a concern about maintaining water quality in the Hunter River, in the context of aquifers and connections between the Project and the river system.

A review of groundwater usage in the region by HydroSimulations (2019) identified that most of the groundwater usage in the area is from the Hunter River alluvium. Comparatively few registered bores exist in the Permian porous rock aquifer, likely due to its lower yield and poorer water quality. The Saddlers Creek alluvium is not commonly targeted for water supply. Two bores used for stock and domestic purposes are located within the Saddlers Creek alluvium (Bowfield House Well and Bowfield Well). These bores are on land owned by Malabar (the Bowfield property).

Malabar undertook a bore census for the Project in 2018. The results of the bore census, together with the WaterNSW online groundwater database, have been used to inform the assessment of potential impacts on groundwater users (HydroSimulations, 2019).

The Hunter River in the vicinity of the Project is located within Management Zone 1 of the Hunter Regulated River Water Source under the *Water Sharing Plan for the Hunter Regulated River Water Source, 2016*. Management Zone 1 extends from Glenbawn Dam to the confluence with Glennies Creek. Malabar holds water access licences under the Water Sharing Plan for the Project and its agricultural activities, which represent less than 2% of the total licenced entitlement in the water source. Malabar requires approximately 55 units (< 0.1% of the total water source) for the Project, the remaining allocations will be utilised to support the agricultural and viticulture activities conducted on the company's properties.

Numerical modelling of potential drawdown due to the Project has been undertaken by HydroSimulations (2019) for the Groundwater Assessment. The results of the modelling shows:

- Minimal impact as defined in the NSW Aquifer Interference Policy (i.e. less than 2 m drawdown) is predicted in the 'highly productive' Hunter River alluvium;
- Minimal impact (i.e. less than 2 m drawdown) is predicted at all privately-owned bores in highly productive aquifers; and
- The Project is anticipated to have negligible adverse impact on groundwater water quality.

The Project water management system would operate to control poorer quality runoff (e.g. mine-affected water) in on-site water storages, such as mine water dams. WRM Water and Environment (2019) has considered the potential impacts of the Project on surface water and concluded:

- Nil subsidence consequences to the Hunter River and Saddlers Creek are predicted as the Project mine layout has been designed to avoid these watercourses;
- All drainage lines within the Maxwell Underground area are ephemeral, as identified through the Geomorphology Assessment (Fluvial Systems, 2019). Subsidence impacts to ephemeral drainage lines would be remediated as required to prevent erosion (e.g. through the installation of rock control grade structures or use of lard wood structures); and
- Negligible impacts to surface water flows and quality in the Hunter River are predicted as a result of Project subsidence.

Muswellbrook Shire Council suggested the Project consider focused community engagement and education around its water resource management processes to address general community concerns.

Malabar has committed to a range of mitigation measures to address community concerns about changes to groundwater and/or surface water, including:

- six-monthly neighbour meetings (offered) for at least the first three years of the Project to communicate the works program and address potential issues or concerns for neighbours;
- a 24-hour complaints line with a commitment to prompt investigation of issues and timely resolution;
- a groundwater and surface water monitoring program; and
- 'make good' provisions if a Project-related drawdown greater than 2 m is observed at a privately-owned bore.

NSW RFS noted that the Project represents an opportunity for emergency water access for localised incident management, which would be explored in future consultation with the RFS.

Malabar would also work with the NSW Government on a broader information program about water resource management in the Hunter River System and promote the Project's strategies to being a largely self-sustaining operation.

5.1.3 Potential for impacts on equine industry

Consultation with horse stud personnel and owners identified the following primary concerns:

- irreversible damage to surface and groundwater systems due to subsidence or fracturing (of aquifers);
- adverse effects on business operations and reputation as a result of air quality issues, noise, blasting and lighting emanating from the Project;

- loss of customer confidence due to the incompatibility of mining and breeding operations in close proximity;
- damage to brand and business reputation due to the proximity of the proposed Project and mine associated activities;
- potential to harm the horse studs' contributions to the economic diversity of the region and specifically to the Hunter Equine CIC; and
- potential to reduce the availability of agricultural land.

Previous submissions on the Drayton South Coal Project made by Coolmore Australia and Darley Australia (now Godolphin) noted that any direct or indirect visual impact from the mine, which includes the perceived presence of mining, would conflict with their 'brandscape' (brand derived from the landscape) and materially affect their businesses.

Of note, Malabar volunteered strict conditions on the EL5460 to explicitly prohibit open-cut mining, and also readily supported the NSW Government amendment to the Mining State Environmental Planning Policy to explicitly prohibit open-cut mining within EL5460 as an additional layer of protection.

Malabar also volunteered relinquishment of the portion of EL5460 which extended south of the Golden Highway beneath the neighbouring Godolphin Woodlands Stud.

As noted, Malabar has also committed to locating the mine entry area in a valley approximately 5 km north of the Golden Highway, which would mitigate visual impacts from the Golden Highway and the horse studs. There would be no direct impact (e.g. underground mining) on land within the horse studs' properties.

Collectively, these pro-active measures mitigate against potential land use conflicts and respond to key stakeholder concerns.

The Project's Agricultural Impact Statement found there would be no long-term or permanent change to the agricultural productivity of land within the Project area. As such, the Project represents an opportunity to maintain and improve neighbouring land owned by Malabar to a visual and environmental standard that is congruent with the surrounding landscape.

Underground mining and the exclusion of large-scale blasting activities from the Project would substantially reduce the Project's noise impacts. Assessment of noise impacts (EIS Appendix I) indicates that Project noise at the horse studs would not be discernible over existing background noise at any time of the day.

The appearance of the nearby landscape is part of the horse studs' character and appeal to its clients. Key findings from the Project's visual assessment highlight no direct or indirect change to the visual landscape from any vantage point at or near the neighbouring horse studs, with the exception of from the highest vantage points on the horse stud properties where a small portion of the transport and services corridor would be visible. Night time light glow from the mine entry area and transport and services corridor may be visible to some neighbouring residents but the visual assessment found that this is not expected to be significant from the horse studs. Further detailed discussion of the potential direct and indirect visual impacts to the horse studs is provided in Appendix N of the EIS.

With mine entry area infrastructure not visible from the horse studs (and only a small portion of the transport and services corridor from the highest vantage points at the horse studs), and minimal impacts of subsidence on existing surface landforms, the Project is unlikely to adversely affect the horse studs' visual amenity.

When contacted for the bore census, Coolmore Australia indicated that it does not use any bores on the Coolmore Stud property for water supply. Coolmore Stud uses water from the Hunter River for irrigation. A review of the WaterNSW online groundwater database indicates that Godolphin holds the following in relation to the Woodlands Stud (HydroSimulations, 2019):

- Four groundwater work approvals for basic landholder rights⁷².
- No aquifer water access licences for irrigation.
- Approximately 4,300 units of surface water access licences (including regulated and unregulated river licences).

Accordingly, there appears to be limited use of groundwater for horse stud operations in the vicinity of the Project (HydroSimulations, 2019).

The horse studs are significant users of water from the Hunter Regulated River Water Source. WRM Water and Environment (2019) has considered the potential impacts of the Project on surface water and concluded there would be negligible impacts to surface water flows and quality in the Hunter River as a result of the Project.

In summary, technical studies for the EIS did not identify any significant impacts such as air quality or noise exceedances, impacts on visual amenity or changes to agricultural land use or water access which would affect the horse studs' operation or the value they derive from the surrounding landscape.

There is potential for some perception by the horse studs' clients that the Project would be incompatible with maintaining the horse studs' clean, green image which is central to their businesses. In the absence of significant noise impacts, dust, vibration or any issues with water quality or availability resulting from the Project, and supported by co-operative relationships between Malabar and the horse studs, this perception appears unlikely to persist.

Consequently, the Project is not anticipated to have a significant impact on the Hunter Equine CIC or the businesses which comprise it.

Strategies Malabar would employ to support co-existence with the horse studs, include:

- six-monthly neighbour meetings (offered) for at least the first three years of the Project to communicate the works program and address potential issues or concerns for neighbours;
- a 24-hour complaints line with a commitment where possible to immediate remediation of any issues;
- fence line maintenance and road-side plantings to present a visually pleasing appearance that is congruent and sympathetic with the roadsides of the horse studs, contributing positively to the area's overall scenic values; and
- monitoring and publicly reporting the Project's environmental performance results, including air quality, noise and light pollution, as part of the Project's CCC.

⁷² Water taken under a domestic and stock right may be used for normal household purposes around the house and garden and/or for drinking water for stock. It cannot be used for irrigating fodder crops for stock, washing down in a dairy or machinery shed, intensive livestock operations (such as feedlots, piggeries or battery chickens), aquaculture or for commercial purposes (including caravan parks or large-scale bed and breakfast accommodation) other than for the personal use of the proprietors (WaterNSW, 2019).

5.1.4 Potential for impacts on viticulture industry

The Project's Agricultural Impact Assessment identified that there would be no direct impact to nearby viticulture land uses. Consultation with the operators of the Hollydene Estate Winery did not identify any concerns about potential Project impacts to adversely affect amenity or business activities at the Hollydene Estate Winery. It was noted that the Project had established a positive working relationship, and represented an opportunity for more corporate functions and events at the facility, along with local contracting opportunities. Hollydene has since established a long-term rental arrangement on a local Malabar-owned homestead (in June 2019). With no visible surface infrastructure, and no assessed impact to existing surface structures from the underground mine's development, the Project is unlikely to adversely affect the Hollydene Estate Winery's amenity. These findings are supported by a range of EIS assessments.

Strategies Malabar would employ in consultation with the viticulture industry, include:

- six-monthly neighbour meetings (offered) for at least the first three years of the Project to communicate the works program and address potential issues or concerns for neighbours;
- a 24-hour complaints line with a commitment to where possible immediate remediation of issues;
- fence line maintenance and road-side plantings to present a visually pleasing appearance that is congruent and sympathetic with the roadsides of the viticulture enterprises, contributing positively to the area's overall scenic values; and
- monitoring and publicly reporting the Project's environmental performance results, including air quality, noise and light pollution, as part of the Project's CCC.

5.2 Surroundings

This section describes potential impacts on landscape values, connectivity, and future use of land in the vicinity of the Project.

5.2.1 Effects on landscape values or views

A Landscape and Visual Impact Assessment has been prepared for the Project by Van Pelt and Allen Visual Planning and Assessment⁷³. The Landscape and Visual Impact Assessment considers the potential visual, perceptual and aesthetic impacts of the Project on the surrounding landscape.

As a proposed underground mine, the Project would have an inherently low potential to generate adverse visual impacts to sensitive receptors. The Project would result in no, very low or low visual impacts at each of the following sensitive receptors:

- Muswellbrook-Jerrys Plains Landscape Conservation Area;
- Jerrys Plains Village and Denman;
- Privately-owned rural residences;
- Hollydene Estate Wines;
- New England Highway;
- Thomas Mitchell Drive;
- Burien Road;
- Lake Liddell Recreation Area;

⁷³ VPA, (2019).

- various heritage sites;
- Plashett Reservoir; and
- Mount Arthur.

There are no views to the mine entry area, Maxwell Infrastructure and transport and services corridor from the majority of viewpoints on the Godolphin Woodlands Stud and Coolmore Stud properties. Elevated locations on the Godolphin Woodlands Stud and Coolmore Stud would have views of a section of the transport and services corridor and covered, overland conveyor as they cross ridgelines north-east of the mine entry area. The potential Edderton Road realignment would also be visible from these viewpoints. Other project components at the mine entry area (infrastructure, workshops and coal stockpiles) and Maxwell Infrastructure would be screened by the intervening ridgelines (VPA, 2019).

Edderton Road is a local rural road linking Denman Road to the Golden Highway and is considered part of the regional tourism experience. Edderton Road is a key thoroughfare between the horse studs around Jerrys Plains in the south and other horse studs and equine services near Aberdeen and Scone in the north. Travellers would have views to the mine entry area and infrastructure within the transport and services corridor from a 700 m long, low-lying section of Edderton Road near Saddlers Creek. Potential visual impacts from this location are considered to be low (VPA, 2019).

Views to the Project from the Golden Highway would be screened by intervening topographic features and/or roadside vegetation. The positioning of the mine entry area in a small depression behind local ridges limits views from all locations along the Golden Highway. Visual impacts from the potential realignment of Edderton Road would occur due to construction and changes to road signage and traffic management along the Golden Highway. These localised impacts would be adjacent the existing and new intersections; and would be limited to the duration of the construction (VPA, 2019).

5.2.2 Connectivity and travel times

As described in Section 4.5.3, access to the Project would be via the existing site access road off Thomas Mitchell Drive. Thomas Mitchell Drive is a primary access route for Muswellbrook's Industrial Area, the Mt Arthur Mine and traffic associated with the Mount Pleasant Operation, Mangoola Coal Mine and Bengalla Mine.

There are also a number of privately-owned properties connected to Thomas Mitch Drive, via Balmoral Road and Wire Lane, which would use Thomas Mitchell Drive. Road users may experience temporary delays as large vehicles and equipment access the site during construction, however other interruptions to the use of Thomas Mitchell Drive are not expected. The Project's potential to affect access to Edderton Road was a key concern for local stakeholders.

The Project's Subsidence Assessment (Mine Subsidence Engineering Consultants [MSEC], 2019) concluded that the potential impacts to Edderton Road could either be managed along its existing alignment (through road maintenance) or realigned around the underground mining area.

If Edderton Road is maintained on its existing alignment, the only potential impact on connectivity would be during temporary delays for maintenance works (associated with speed limit reductions) which could increase travel time in both directions to Muswellbrook by approximately 2.5 minutes depending on traffic conditions.

In the event that Malabar realigns the southern portion of Edderton Road around the Maxwell Underground area, Edderton Road would not be closed during construction of the realignment, however there would be temporary interruptions to traffic at the northern end of the realignment works when the new alignment is joined to the existing.

As BHP proposes to realign the northern part of Edderton Road for the Mt Arthur Mine, if Malabar realigns the southern portion of Edderton Road, a cumulative increase in travel time between Jerrys Plains and Muswellbrook of less than 3 minutes could result (TTPP, 2019).

These travel time increases are not likely to detract from people's willingness to travel or cause more than a minor inconvenience for road users.

5.2.3 Future use and form of land

Muswellbrook LGA's Community Strategic Plan notes that whilst 43% of Muswellbrook LGA is national park, 'a substantial part of the Shire has been disturbed for the purpose of open cut coal mining', with consequent community concerns about the rehabilitation of mined land, air quality, noise associated with coal mining, final landform voids and the long-term appearance of the post-mining landscape.

The future use and form of mined land was raised as a key interest area during the Maxwell Infrastructure CCC in July, and again during the SIA workshop with social infrastructure providers in November 2018, and with Muswellbrook Shire Council.

Throughout its life cycle, the Project area (including previous open cut mining areas) would be subject to ongoing maintenance and rehabilitation so that it is left in a condition that is safe, stable and consistent with its pre-mining land use.

Regional plans for economic diversification and strengthening of low carbon industries has had a strong influence in stakeholder dialogue regarding future use and form of mined land. In this context, two stakeholders noted mine rehabilitation requirements were based on unique circumstances and consent conditions, while one stakeholder highlighted the need for broader coordination of future land use plans between mining operations.

Discussions with the Maxwell Infrastructure CCC identified a range of potential future uses, with interest expressed in the development of a future equine centre. Other suggestions regarding future land use involved the development of parklands featuring large-scale public art and re-use of the mine site for outdoor recreational games and activities.

Malabar would consult with the community regarding rehabilitation and mine closure throughout the life of the Project. Specific consultation is outlined in a Forward Work Plan in the Preliminary Rehabilitation and Mine Closure Strategy (Malabar, 2019).

5.2.4 Regional amenity

As a proposed underground mine, the Project has minimised its impacts on the local landscape. There would be no impacts on community facilities, recreational access or other values which support amenity.

The Project may result in a small population increase in the Muswellbrook and Singleton LGAs (see Section 5.4.1) and workforce and family expenditure would provide a positive stimulus to the local economy and the vitality of local businesses which would support their ongoing contribution to local amenity.

As such, negative impacts on regional amenity are not expected.

There is an opportunity for the Project to contribute positively to regional amenity, through support of local organisations and liveability initiatives available through the Project's Sponsorship and Donations program.

5.3 Culture

This section discusses potential impacts on Aboriginal cultural values, historic heritage and community values and cultural identity.

5.3.1 Aboriginal cultural heritage

Traditional cultural connections exist with both the landscape and objects within the landscape. Consultation for the SIA identified the importance of the region's landscape to the Aboriginal community, noting its intrinsic links to community wellbeing and cultural heritage.

The ACHA identified a total of 275 Aboriginal archaeological sites within the Project area, comprising 274 open artefact sites (i.e. artefact scatters and isolated artefacts) and one stone quarry. Consideration of the location of sites located directly within surface infrastructure areas indicates that up to 39 open artefact sites would be wholly or partially impacted by the Project. The majority of the other Aboriginal sites are located above the proposed underground mining areas. It is noted that these sites may potentially be affected by cracking of the surface soils due to the effects of mining-induced subsidence⁷⁴.

Three culturally significant landscape features were identified by RAPs as relevant to the Project area, including Mount Arthur, the Hunter River and Saddlers Creek. All three features are located outside the Project area and would not be directly impacted by the Project. However, views of the mine entry and portions of the transport and services corridor would be visible from both Mount Arthur and Saddlers Creek. Given the small size of the mine entry area and the transport and services corridor, these visual impacts would be minor.

A management strategy to address the impacts of the Project on the known Aboriginal archaeological resource within the Project area is provided in the ACHA and would be detailed in an Aboriginal Cultural Heritage Management Plan (ACHMP). The ACHMP would include:

- an archaeological salvage program;
- subsidence monitoring;
- conservation of non-impacted sites;
- Aboriginal cultural heritage awareness training;
- the procedure for managing previously unrecorded Aboriginal archaeological evidence;
- management of potential human remains;
- completion of Aboriginal Heritage Information Management System (AHIMS) site cards; and
- management of an Aboriginal site database.

Malabar has acknowledged Aboriginal community concerns regarding impacts on the cultural landscape, and would work with local Aboriginal stakeholders on opportunities to preserve or enhance cultural heritage values throughout the life of the Project.

Malabar also would implement strategies to improve Indigenous employment in the area (Section 5.5.3).

5.3.2 Historic heritage

The Project's Historic Heritage Assessment found eight non-Aboriginal heritage items and a cultural landscape within or in the vicinity of the Project area (Section 4.2.3). A summary of potential impacts on these heritage items and landscape values is provided in Table 5-1, indicating very low impacts on cultural heritage values pertaining to the Edderton Homestead and the Muswellbrook - Jerrys Plains Landscape Conservation Area were anticipated. Consultation identified a concern that the Project would impact on the Plashett Homestead, however review of the Project's layout confirms that there would be no impact on this homestead.

⁷⁴ AECOM, (2019).

Table 5-1: Potential Impacts on historic heritage items

ID	Place	Potential Impact	Recommendation
M02	Edderton Homestead	Very low.	No specific action would be required.
M03	Bowfield Homestead	Nil.	No specific action would be required.
M05	Arrowfield Cottage	Nil.	No specific action would be required.
M05	Randwick Homestead	Nil.	No specific action would be required.
M05	Woodlands Homestead	Nil.	No specific action would be required.
M05	Stockyard	Nil.	No specific action would be required.
M05	Plashett Homestead	Nil.	No specific action would be required.
M05	Strowan Homestead	Nil.	No specific action would be required.
-	Muswellbrook - Jerrys Plains Landscape Conservation Area	Very low.	No specific action would be required.

Source: Extent Heritage, (2019).

5.3.3 Community values and cultural identity

As described in Section 4.2.4, community values and cultural identity in the nearby communities of Jerrys Plains and Denman are based in a quiet but busy rural way of life, family values, and attachment to environmental qualities and landscapes which contribute to sense of place. In Muswellbrook and Singleton, community values are informed by the rural history and a rural/semi-rural way of life, and also by their roles as home communities for mining workforces and families.

The Project would have no direct effects on rural uses, agricultural land use outside the Project area, rural way of life, connections to markets or towns, or the amenity of towns.

Both LGAs have weathered the challenges of coal price fluctuations during the past five years, with increases and then decreases in housing values, changes to the business profile, and population turnover. Muswellbrook Shire Council is strongly focussed on economic diversification, mitigation of cumulative environmental impacts, including restoration of land forms, and implementation of liveability initiatives to improve amenity and vitality in the LGA's towns.

In this context, the Project represents an opportunity to strengthen local values through increased employment, diversification into the production of coal for the steel making industry, population stimulus, and strengthening the identity of Muswellbrook and Singleton as home communities for mining workers.

Local industry stakeholders and business operators, including Hollydene Estate Winery, Coolmore Stud and Godolphin Woodlands Stud, have developed their identity based on local environmental and landscape qualities. As noted in Section 5.1.3 and 5.1.4, the Project is unlikely to have an adverse impact on these industries or the community values to which they contribute.

Strategies Malabar would employ to protect and enhance community values and cultural identity include:

- offering six-monthly neighbour meetings for at least the first three years of the Project to communicate the works program and address potential issues or concerns for neighbours;
- a 24-hour complaints line with a commitment to where possible immediate remediation of issues;
- monitoring and publicly reporting the Project's environmental performance results, including air quality, noise and light pollution;
- Malabar's proposal to form a VPA with Muswellbrook Shire Council; and
- Continuing and periodically reviewing Malabar's existing local sponsorship and donation program.

5.4 Community

This subsection discusses the potential for population change, effects on community cohesion and effects on community objectives or aspirations.

5.4.1 Population change

Research conducted in 2012-13 found that the Hunter region would continue to experience robust population growth over the coming two decades related to the development of coal resources, the movement of people between Sydney and the Hunter, technological advancements which allow people to work remotely, and, expansion of energy resources and agricultural production. This growth is seen as a major economic opportunity for the region. It was noted that the increased population will require careful management of local planning and infrastructure, including road and rail linkages with Sydney and the Upper Hunter, and the adequacy of housing options⁷⁵.

As described in Section 4.3.3, the LGAs of Muswellbrook and Singleton are projected to have an average annual population growth rate of 0.9% and 0.8% respectively over the period 2017 to 2031, which is lower than the Hunter Valley and NSW per annum averages of 1.2% and 1.3% respectively.

Assumptions

The construction workforce would provide employment for a peak of approximately 250 personnel (around mid-2021) and an average of 90 FTE jobs during the three year construction period. Operational employment would average approximately 350 personnel during the first ten years (2021-2030), 270 personnel during the second ten year period (2031-2040) and 190 personnel for the remaining six years of operation to 2046.

Assumptions made as the basis for estimating population increases and accommodation demands resulting from the Project include:

- Approximately 70% of construction personnel could be drawn from within a driving distance of one hour (returning to their homes after shifts) based on:
 - the availability of construction personnel in the two LGAs as indicated by the most recent Census;
 - the likelihood that local construction industry businesses would provide contract labour; and

⁷⁵ Deloitte Access Economics, (2013).

- Malabar's requirement of its construction contractors to promote employment opportunities to companies and employment agencies in the Muswellbrook and Singleton LGAs;
- Up to 30% of construction personnel could require accommodation whilst rostered on;
- Up to 80% of operational personnel could be drawn from within a driving distance of one hour, based on:
 - existing local strengths in the mining industry;
 - higher than average unemployment in Muswellbrook; and
 - Malabar's commitment to recruit new entrants to the mining industry including women and Indigenous people;
- Recognising that skilled specialist personnel would be drawn from a wide geographic range, approximately 20% of personnel would be drawn from outside the Project region;
- Non-local personnel are assumed to either relocate to the Project region or stay locally whilst on roster; and
- Malabar would not offer Fly-in Fly-out options as part of its employment packages.

Assumptions about the relative proportions of personnel who could be drawn from the smaller communities as opposed to Singleton and Muswellbrook have also been made in consideration of the relative size of their populations and labour forces.

Based on these assumptions, Table 5-2 shows the estimated proportions of personnel that could be drawn from local and other communities, during construction and operation, for the average and peak labour scenarios.

For construction, this could see:

- an estimated average of 26 personnel drawn from the Muswellbrook LGA and 26 people drawn from the Singleton LGAs (including Denman/Sandy Hollow and Jerrys Plains respectively) and up to 72 personnel drawn from the Muswellbrook LGA and 73 personnel drawn from the Singleton LGA at peak; and
- approximately 75 personnel (at peak) drawn from outside the Project region, potentially staying overnight in the Project region whilst rostered on.

For operations, employment opportunities are expected to attract:

- on average, 280 people from communities within a one hour drive and 70 people from outside that radius who would move to the Muswellbrook LGA or the Singleton LGA, or may stay locally while rostered on; and
- at peak, approximately 346 people from within a one hour drive and 86 personnel from outside these areas.

Table 5-2: Labour force origin

Residential Location	LGA	Construction		Operation			
		Labour force proportion	Average 2021- 2023	Peak (mid 2021)	Labour force proportion	Average Years 1- 10	Peak (Year 6)
Less than 1 hr drive							
Denman/ Sandy Hollow	Muswellbrook	4%	4	10	4%	14	17
Muswellbrook	Muswellbrook	25%	22	62	35%	123	151
Jerrys Plains	Singleton	2%	2	5	2%	7	9
Singleton	Singleton	27%	24	68	27%	94	117
Merriwa, Scone, Aberdeen	Upper Hunter	7%	6	17	7%	24	30
Branxton/Greta	Cessnock	5%	5	13	5%	18	22
Subtotal		70%	63	175	80%	280	346
More than 1 hr drive (assumed to relocate or stay locally when on shift)							
Maitland, Cessnock, Other Hunter, Valley, Newcastle, Greater Sydney	Various	30%	27	75	20%	70	86
Total Personnel		100%	90	250	100%	350	432

Population change in the Muswellbrook and Singleton LGAs has been estimated based on the assumptions and outcomes outlined in Table 5-2. Any population changes in other LGAs (such as the Upper Hunter or Cessnock LGAs) are likely to be very small and would make no material differences to their population profile.

Construction

On the basis of assumptions outlined in previous subsections, Project construction may see a temporary population influx of up to 75 people to the Project region during the peak of the construction phase. In the context of the frequent influxes of contracting workforces for mining, railway, road construction projects and other purposes in the Muswellbrook and Singleton LGAs, this is unlikely to be a noticeable change to the population or require additional social or physical infrastructure.

Operation

Given Muswellbrook's proximity to the Project site, residential lot availability in Muswellbrook and Denman, and Muswellbrook Shire Council's implementation of improved liveability initiatives, Muswellbrook LGA would be well positioned as the residential base for new local employees. However, Singleton has more extensive housing choices. On this basis, the distribution of new personnel settling locally has been assumed to be shared evenly between the Muswellbrook and Singleton LGAs as the basis for estimating population change.

The average household size in Muswellbrook in 2016 was 2.5 people, and in Singleton LGA, 2.7 people. Assuming the household characteristics of new local workers would be similar to those of the existing community, an average household size of 2.6 people per 'new local' worker has been assumed.

Table 5-3 summarises population change estimates, using 2026 as the base year, as this is when the operational personnel would peak and represents the period in which the maximum population increase would be realised. The analysis indicates that with 20% of workforce originating from outside the two LGAs and moving to either the Muswellbrook or Singleton LGAs as a result of the Project, this would increase the total population of each LGA by approximately 112 people. This would be equivalent to a population increase of 0.63% in the Muswellbrook LGA and 0.44% in the Singleton LGA.

Table 5-3: Population increase estimates

Location	2016 Population	2016 Household size	2026 Population (Projected)*	2026 (Y6) New Local Personnel	Population increase at 2.6 pp/household	% population increase on 2026 Projection
Muswellbrook LGA	16,086	2.5	17,834	43	112	0.63%
Singleton LGA	22,990	2.7	25,272	43	112	0.44%

In a more constrained labour market, particularly in the context of potential increases in mining jobs, the level of local employment may be lower than 80%. Should the percentage of non-local personnel be higher, larger population increases would result, e.g.:

- with 30% new local personnel, on the same assumptions, each LGA may see a population increase of approximately 168 people, which would be equivalent to an increase of 0.94% in the Muswellbrook LGA and 0.66% in the Singleton LGA; and
- with 40% new local personnel, each LGA may see a population increase of approximately 224 people, which would be equivalent to an increase of 1.26% in Muswellbrook LGA and 0.88% in the Singleton LGA.

Population increases are projected for both LGAs during the next twenty years, to which the Project would make a modest contribution. This is not expected to change the population profile, except that an increase in the percentage of employed persons may result.

5.4.2 Community cohesion

Community cohesion is an important community value, as being included in your community is vital to material and psychosocial factors that underpin wellbeing⁷⁶.

At the local level, the relatively small number of non-local construction workers anticipated and the likelihood that non-local construction personnel would stay in Muswellbrook (see Section 5.5.4) makes it unlikely to result in an observed change to community character or effects on cohesion. Workforce interactions with the community of Jerrys Plains are likely to be limited by the availability of local accommodation. A temporary influx of workers may be observed during social events scheduled by the Project, which may be held at local venues, such as Hollydene Estate Winery. This is unlikely to affect local community networks or relationships.

To mitigate temporary impacts on community character, values or cohesion on these occasions, and for Project personnel that may be based at Jerrys Plains, Malabar would enforce a Workforce Conduct Policy which establishes clear workforce behaviour standards.

⁷⁶ Stansfeld & Candy, (2006).

Consultation indicated that stakeholders are generally very positive about the Project's potential contribution to the vitality of the Muswellbrook community in particular. A number of participants expressed negative views and observations of how drive-in/drive-out and fly-in/fly-out workforces have affected the vitality and sustainability of local towns.

Operational personnel migrating to the Project region from other regions are likely to include a high proportion of couples and families. New local personnel and their families are likely to have similar values to other community members, and to integrate into local social networks, so adverse impacts on community character or cohesion are not anticipated. During operations, the Project would make positive contributions to community cohesion at the LGA level by:

- providing a place of work and long-term employment for local residents, supporting them to stay locally;
- increasing the pool of working age and young residents with capacity to support community activities;
- potentially increasing the number of family households and interactions between families; and
- investing in local community development through Malabar's donations and sponsorship program, including facilitation of social connections between Project workers and their families.

A survey conducted for Malabar in 2017 indicated that 71% of Muswellbrook LGA residents and 68% of Singleton LGA residents supported the proposed Project. There are however divergent community views relating to the value and future of coal mining in the region (see Section 4.1.6). In this context, there is potential for conflict within local communities regarding the desirability of new mines in the local area, which may affect links between individuals and networks. Stakeholders also noted that disagreement within communities regarding the Drayton South Coal Project (proposed by Anglo American plc) had damaged community cohesion, and they wished to avoid any future conflicts.

Differing views are a part of community dynamics, and local communities have extensive experience in adapting to changes in mining industry activities. As such any conflicts which result from differing opinions are likely to be managed cordially. Malabar has a role to play in reducing the potential for conflict by:

- maintaining a consistent and transparent engagement process with various stakeholders so that concerns about the Project and related impacts can be addressed;
- providing consistent, accessible information about the Project's impacts and benefits is available to all sectors of the community; and
- working with community partners to deliver initiatives which support community cohesion and wellbeing.

5.4.3 Community objectives and aspirations

As noted by Muswellbrook Shire Council and in SIA consultation, there is a renewed focus on economic diversification and resilience among community members and growing interest in the future use of the region's mined land. Consultation with Singleton Council also reiterated the need for the region's major employment industries to support improvements in employee and community health and wellbeing.

The Project would support these objectives and aspirations by:

- contributing to local industry diversity associated with underground mining, in a predominantly open cut mining industry environment;
- contributing to economic diversity through the mining of coking coal for steel making, in an area where thermal coal (for power generation) is mined predominantly;

- contributing to economic and technical diversity through the use of underground mining methods (noting there are no underground mines currently operating in the Muswellbrook LGA and these technically complex operations demand a wide-range of technical skills and associated skilled workforce);
- contributing to workforce diversity and resilience by employing a local recruitment strategy with potential for half of the operational workforce to be new to the underground mining sector, of whom 20% would be female and 10% would be Indigenous people;
- avoiding and mitigating impacts to neighbour amenity and landscapes which support other local industries;
- a strong workforce settlement campaign developed in consultation with Muswellbrook Shire and Singleton Councils, to facilitate effective integration;
- a strong workforce health and safety program focused on fatigue management, promotion of healthy lifestyles and mental health;
- an operating environment that showcases progressive rehabilitation of the previously mined areas at the Maxwell Infrastructure, and the integration of renewable energy production (i.e. the Maxwell Solar Project);
- Malabar actively improving its agricultural properties and viticultural operations so that these will be long-term sustainable and productive businesses that can co-exist with underground mining operations; and
- a commitment to early engagement and visioning processes with the local community to inform the Project's mine closure plan.

5.5 Way of life

This subsection discusses:

- the potential for impacts on the rural way of life;
- employment and training opportunities;
- potential impacts on housing access; and
- regional business opportunities.

5.5.1 Lifestyle

This section considers SIA findings primarily relating to population and housing, residential and regional amenity, community access and connectivity, community values and cohesion and employment and economic characteristics, to assess the Project's potential to affect the lifestyles of nearby community members, either positively or negatively.

During operations, a modest population increase is likely in both Muswellbrook and Singleton LGAs, with demand for housing likely to be shared between Muswellbrook, Denman, Singleton and other nearby communities and rural localities where adequate housing stocks are likely to be available without displacing tenants (see Section 5.5.4).

During construction, the temporary influx of non-local personnel is unlikely to represent a notable change to population characteristics in the Project region. Accordingly, there is limited potential for the Project to affect Muswellbrook, Denman or Singleton communities or the rural way of life in Jerrys Plains or Denman. Associated accommodation demand is likely to be sustainable in the context of the Project region's baseline housing conditions (see Section 5.5.4). As such, the Project is unlikely to create a shortage for other tenants in the Project region, which would otherwise have an adverse impact on their lifestyles.

The potential impacts of the Project on amenity are discussed in Section 5.1.1. In summary, the Project is not expected to have a significant impact on the amenity of the area with respect to noise, air quality, vibration, scenic character of the area, traffic or odour from spontaneous combustion. Accordingly, the Project is unlikely to contribute significantly to a lifestyle change for local landholders. As noted in Section 5.1.1, minimal exceedances of noise limits would result from the Project. Residents who are sensitive to noise may experience any noise from the Project as intrusive on their lifestyle, e.g. the need to keep windows closed.

In the context of consistently higher unemployment rates in the Muswellbrook LGA, and higher rates again for young people and the local Aboriginal community, the Project's employment opportunities are likely to represent a significant and positive contribution to local livelihoods and lifestyles. Consultation for the SIA noted the potential for an unequitable distribution of local employment opportunities with many unemployed people continuing to miss out on opportunities. As discussed further in Section 5.5.5, Malabar's recruitment strategies expect to draw greater than 50% of its operations workforce from individuals outside of the underground mining sector, to be supported by a strong on-site training program.

The Economic Assessment undertaken for the Project⁷⁷ examined the economic impacts of costs and benefits to NSW and the Upper Hunter Statistical Area 3 (SA3). The average net wage for a full-time worker in the mining industry in the Upper Hunter SA3 was estimated to be around \$76,593 after tax and superannuation. Compared to the average net wage for Upper Hunter workers in all industries, direct employment is expected to result in a net increase in income in the Upper Hunter SA3 of \$2.7 million a year during the construction phase and \$7.6 million a year during ongoing operations. Increased incomes are likely to support personnel's housing security and wellbeing.

The Project also represents an opportunity to work with Muswellbrook Shire Council and Singleton Council on a settlement program that promotes the lifestyle, services, assets and resources available to new locals in both LGAs. This work may also identify opportunities for Project support of planned liveability or family-friendly initiatives to further encourage local settlement.

Passenger rail services between Muswellbrook and Newcastle are integral to Muswellbrook residents' employment and training access. Muswellbrook Shire Council raised a concern regarding the potential for the Project, in context with coal transportation for other local coal mines, to limit the future expansion of passenger rail service capacity. In November 2018, ARTC confirmed that forecast volumes for the Project form part of the 2019 Strategy and, at this point in time, network capacity is expected to be available to meet the forecast volumes.

⁷⁷ Deloitte Access Economics, (2019).

5.5.2 Local employment

Local employment capacity

Construction workforces are typically mobile due to the time-limited nature of construction contracts, so an exact estimate of how many construction personnel would be drawn from nearby communities is not possible. However, with existing construction industry capacity in the Hunter Valley region, availability of both short-term and long-term employment contracts, and Malabar's commitment to optimise opportunities for local construction companies, the Project's construction phase is expected to draw a substantial component of its workforce from nearby communities.

Given existing regional strengths in the mining industry, and Malabar's commitment to recruiting personnel who are new to underground mining, the Project is also likely to draw a significant proportion of its operational personnel from across the Hunter Valley SA4, including communities within a one-hour daily driving distance (e.g. Muswellbrook, Aberdeen, Scone and Murrurundi to the north, Jerrys Plains to the south-east, Denman to the west, and Singleton, Greta and Branxton to the south).

Based on historical trends, unemployment rates in Muswellbrook are likely to remain higher than the NSW average in the next few years (Section 4.4.2). In this context, Project jobs are likely to be attractive to both experienced and inexperienced workers. Personnel who lost employment as the result of Drayton Mine's closure and the closure of Lower Hunter underground mines are among those who may be attracted to the Project, which will also potentially draw skilled labour from other operating mines.

The Project's operation will require a varied team of highly skilled employees, consultants, suppliers, and contractors.

Malabar intends to prioritise recruitment of personnel from the Muswellbrook, Singleton and Upper Hunter LGAs, by:

- formalising a policy that gives local residents employment preference where they have the required skills and experience, and demonstrate a cultural fit with the organisation;
- establishing partnerships and sharing information on mining careers with Muswellbrook and Singleton High Schools to initiate training, apprenticeship, cadetship and/or intern programs which would provide pathways for local students to Project employment;
- establishing arrangements with employment and recruitment services, including those for Indigenous people and people with disability, to provide advance notice of upcoming employment opportunities;
- advertising and promoting the availability of Project employment and application arrangements in the local media, such as The Singleton Argus, Muswellbrook Chronicle, Denman News and The Scone Advocate;
- maintaining regular engagement with local employment agencies to advise of opportunities for training and employment.;
- creating employment packs that allow local residents to register their interest in employment opportunities; and
- developing partnerships with other local organisations to promote employment in mining support and the non-mining sector.

Developing workforce capacity

To enhance the prospects for local people to benefit from Project employment opportunities, Malabar aims to recruit at least 50% of its operational workforce from outside of the underground mining sector, including women and people who are unemployed. On average, the first ten years of Project operations would provide employment for 175 people from outside the underground mining sector.

The Project has also set a goal in that of the personnel that will be new to the underground mining sector, 20% would be female (an average of 35 personnel during the first ten years) and 10% Indigenous (equivalent to an average of 18 personnel).

Malabar's workforce training and development strategies may include:

- an extensive on-boarding training program, which includes basic hazard management principles, emergency response principles and equipment operating skills that are appropriate for the mining industry;
- use of the shallower, bord and pillar operation in the Whynot Seam as a workforce training and development site;
- engagement of experienced personnel to supervise and instruct operators that are new to underground mining during the initial operations ramp-up phase;
- partnerships with the Muswellbrook High School, and the Muswellbrook TAFE Campus (Hunter TAFE) and Mining Skills Centre to develop Project-specific training programs and identify local young people with an interest in Project employment;
- partnerships with equipment suppliers that offer access to their state-of-the art training facilities; and
- partnership with an appropriate Aboriginal employment service provider to develop culturally-specific training and recruitment strategies.

The Project represents significant contracting and long-term employment opportunities for both existing mining personnel in the Project region and adjacent LGAs, and those who would be new to the mining industry.

Verification of the availability and the match of local and other personnel's skills to employment opportunities is not possible until labour market testing prior to commencement of and then operations. However, on the assumption that a proportion of Project operational employees that are new to mining would be drawn from the Muswellbrook and Singleton LGAs, a decrease in local unemployment rates is possible. This cannot currently be quantified but would be tracked as part of the Project's social monitoring framework (see Section 6.8).

Flow-on effects and indirect employment

In addition to direct employment opportunities, the Project will result in indirect (flow-on) employment as the result of increased wages and participation of regional businesses in the supply chain.

The Economic Assessment undertaken for the Project⁷⁸ notes that the Project will require a range of non-labour inputs such as fuel, tyres and professional services, which will be sourced from businesses within the Upper Hunter SA3 and the Hunter region more broadly. The Project's non-labour operating expenditure in the Upper Hunter SA3 is estimated at \$2 million a year on average during the establishment phase (construction and early years of operations) and \$43 million a year on average during ongoing operations. The Upper Hunter SA3's share of expenditure is conservatively estimated at around 28% in both phases.

⁷⁸ Deloitte Access Economics, (2019).

Indirect employment will provide a benefit to new employees (and businesses owners) across a wide range of industries, including within the Project region. An approximation of indirect employment (including consideration of any crowding out that might occur in other economic sectors) is provided in the Economic Assessment (Appendix M of the EIS).

5.5.3 Indigenous employment

Many Indigenous people experience greater difficulty securing long-term, sustained employment due to a number of generational, educational, cultural, social and/or emotional barriers. Malabar has specific objectives to support and encourage the development, growth and enhancement of relationships with Indigenous people, including:

- make a positive contribution to the health and wellbeing of local Aboriginal people;
- improve Indigenous participation in sustainable employment and long-term careers;
- facilitate access to culturally appropriate education, training and employee support; and
- procure from local Indigenous business.

Malabar would target employment of 10% of the Project's operational workforce that are new to the underground mining sector being of Aboriginal and/or Torres Strait Islander descent (approximately 18 personnel) within five years of commencement of operations. This is a significant employment and skilling opportunity given the high percentage of Indigenous residents, and high unemployment, in the Project region.

To maximise access to employment for local Indigenous residents, Malabar would:

- promote employment and business opportunities through Indigenous community leaders, existing Indigenous employment agencies and organisations;
- promote available services to assist Indigenous candidates in preparing their applications and supporting documentation; and
- support development of culturally appropriate education and training options identified by local Indigenous community leaders in consultation with education and training providers.

Malabar would also encourage its contractors and suppliers to employ Indigenous people, enabling their access to well-paying, skilled jobs. Access to employment is an important determinant of wellbeing⁷⁹. Increased participation in the workforce can also contribute positively to an individual's sense of worth and achievement, and to their sense of enjoyment of increased social engagement. These factors also contribute positively to mental and physical wellbeing.

Section 6.5 outlines strategies to improve Indigenous participation in sustainable employment and long-term careers, including an employee assistance program with provisions for culturally appropriate mentoring, family support, and capability development in budgeting and long-term goal setting.

⁷⁹ Australian Institute of Health and Welfare, (2014a).

5.5.4 Housing

Construction

With the majority of non-local personnel expected to be drawn from the Newcastle, Maitland and Cessnock LGAs and/or Greater Sydney, some construction personnel will access temporary accommodation such as short stay units and hotel rooms (and return home when off roster). This would be a benefit for accommodation businesses, primarily in the Muswellbrook LGA within which the Project is located.

Accommodation in the Muswellbrook and Singleton LGAs is currently used by a range of contract workforces for local mines, railway maintenance and road construction activities, along with other business and tourism travellers, and is sometimes in short supply. Malabar's construction contractors would contact accommodation operators in advance of construction commencing, to schedule their accommodation bookings and enable accommodation providers to plan for maximum capacity.

With some personnel (including construction managers and engineers) likely to have contracts of up to three years, construction contractors may also rent dwellings as shared accommodation. Rental of 10 dwellings would accommodate 30 non-local personnel at three per dwelling, or a combination of families and single-status personnel. Compared to the average of approximately 60 rental dwellings that were available in Muswellbrook during the last quarter of 2018, and an additional six rental dwellings available in Denman, this would represent approximately 15% of the Muswellbrook LGA's stock. If the current level of rental availability is maintained, Project demands are unlikely to cause shortages for other tenants, particularly as an increase in rental dwelling stock is possible during the intervening period.

Operations

New local personnel and their families are anticipated to either rent or purchase housing in communities near the Project.

In 2016, 38.6% of the Muswellbrook LGA's occupied dwellings and 28.1% of Singleton LGA's occupied dwellings were rented. Whilst mining personnel with long-term employment prospects are likely to purchase housing, the potential for 35% of new local personnel to rent rather than purchase dwellings in the Muswellbrook or Singleton LGAs has been considered.

By the end of 2021, the Project is likely to have approximately 160 operational personnel, by the end of 2022, 300 operational personnel, and in 2023 the operational workforce is expected to peak at approximately 430 people.

Table 5-4 summarises the Project's potential housing requirements for operational personnel, providing estimates for the anticipated 20% new local personnel during the first three years of operations, along with alternative scenarios.

On the assumption that 20% of operational personnel may originate from other LGAs and settle locally, and that each worker would require one dwelling (the maximum likely requirement):

- 32 dwellings may be required by the end of 2021, including 11 rental dwellings and 21 dwellings to be purchased by personnel;
- 60 dwellings may be required by the end of 2022, including 21 rental dwellings and 39 dwellings to be purchased by personnel; and
- 86 dwellings may be required by the end of 2023, including 30 rental dwellings and 56 dwellings to be purchased by personnel.

Table 5-4: Estimated housing requirements- operations

Period	Total Operational Personnel	New local personnel		Rental housing at 35%	Purchased housing at 65%	New local personnel		Rental housing at 35%	Purchased housing at 65%
		At 10%	At 20%	Est. housing demand at 20% new local		At 30%	At 40%	Est. housing demand at 40% new local	
End 2021	160	16	32	11	21	48	64	22	42
End 2022	300	30	60	21	39	90	120	42	78
End 2023	430	43	86	30	56	129	172	60	112

This demand is likely to be shared between Muswellbrook, Denman, Singleton and other nearby communities where adequate stocks of housing are available at the time. Denman, Muswellbrook and Singleton all have capacity for increased residential development, and the Project-related stimulus may encourage development of currently approved lots, and potentially applications for further lot registrations.

A requirement for housing rentals for construction personnel could overlap with the operational requirement during 2021 - 2023 requiring an estimated 10 rental dwellings as noted above, primarily in Muswellbrook. Compared to the availability of rental dwellings in December 2018, and assuming demand was shared equally between the Muswellbrook and Singleton LGAs, this could see demand in 2023 for approximately:

- 25 rental dwellings in Muswellbrook and/or Denman, equivalent to approximately 38% of the rental dwellings currently available between these two centres in December 2018; and
- 15 rental dwellings in Singleton, equivalent to approximately 54% of the dwellings available in December 2018.

Total demand for purchase of housing may be in the order of 56 dwellings by 2023.

There may also be settlement of new local personnel in centres such as Scone, Aberdeen, Branxton or Greta, however numbers are likely to be smaller than in the nearby communities.

Project-related housing demands are likely to build over the three-year period with small surges as new crews are brought on. As such the Project's accommodation demands are not expected to cause significant shortages in rental housing in the two LGAs, and it is possible that this steady demand would stimulate the development or release of more housing to the rental market.

In the event that only 60% of Project operations personnel were drawn from local communities, requiring up to 40% of personnel to settle locally from other areas, the estimated maximum rental dwelling requirement at 2023 is 60 dwellings and up to 112 dwellings may be required for purchase by Project personnel by the end of 2023. This could cause short term shortages and potentially rental price increases, but again would be spread over a three-year period, and would be a significant housing market stimulus.

5.5.5 Local and regional business opportunities

Project supply opportunities

As part of the Project, Malabar would develop a supply chain register that categorises interested businesses from the local area (nearby local communities within the Muswellbrook and Singleton LGAs), and region (LGAs representing the Hunter Valley SA4) and across NSW.

During construction, Malabar would advertise contracting opportunities in a transparent and equitable way, and give due consideration to local suppliers where suitable local capacity exists. Construction contracts would be equitably awarded according to competency, however Malabar would monitor contract awards and seek to maximise its use of local businesses.

Indirectly, the construction workforce is also likely to provide a temporary stimulus to the vitality of local retail, hospitality and other commercial enterprises. With ongoing growth and adaptation of local businesses in response to the mining industry, benefits for businesses in the Muswellbrook and Singleton LGAs are likely.

During operations, it is anticipated that direct supply opportunities would be available to businesses based in the Muswellbrook and Singleton LGAs, Hunter Valley and Newcastle, including:

- construction services and supplies;
- transport support services;
- professional, scientific and technical services;
- agricultural services and supplies;
- repair and maintenance services; and
- food and accommodation services.

Malabar's use of local resources during the Project's operations would be monitored through its supply chain register. Given the high percentages of Indigenous residents in the local area, a local content commitment may also translate to increased business and employment opportunities for Indigenous people.

Malabar's assets within the Project area include workshops, hardstand areas and warehouses. Some of these may be surplus and could be leased to other businesses. This would provide access to well-located facilities to support the growth of those businesses.

Impacts and benefits for other industries

Indirect business benefits associated with the Project's operations are expected to be generated for a range of industry sectors as noted in the previous sub-section, in response to increased supply opportunities and commercial interactions with the Project workforce.

The Economic Assessment undertaken for the Project⁸⁰ did not identify potential for adverse impacts on other industries, noting:

- land above the underground mine area is used for open paddock grazing, which Malabar have indicated would continue;
- significant material effects on tourism and business travel are not anticipated; and
- as employment effects from the Project are expected to be small relative to the current available labour force in the Upper Hunter SA3, there will not be any material change to supply or demand in local markets.

The Project would operate in an existing industry and economic landscape including a number of existing and proposed coal mining, power generation and infrastructure projects. This employment provides multiple opportunities in the region, assisting in the attraction and retention of a skilled workforce. This is expected to drive ongoing access to attractive workforce wages and salaries that are characteristic of the mining and construction sectors. This represents a positive contribution, not only to local employment levels, but to community wellbeing and access to financial resources.

⁸⁰ Deloitte Access Economics, (2019).

Competition for skilled labour from the region's other industry sectors may occur, as many skills are transferable between industries, but would be offset by the Project's provision of employment opportunities for people previously unskilled in mining. Local businesses may also benefit from the Project's employment and training opportunities, which encourage more young families (and therefore potential employees) to live locally and contribute to the sustainability of regional businesses.

5.6 Access to infrastructure, services and facilities

This section discusses the potential for the Project to impact on social infrastructure including health and emergency services, education and childcare services and Council services.

5.6.1 Childcare and education

Construction

Based on the population change scenarios for construction, it is unlikely there would be an increase in demand for child care services from the Project's construction workforce, unless local employees entering the workforce arrangements require them. This demand would be small at most.

Operations

Consultation for the SIA noted a recent shortage of childcare places for 0 – 3 years in the Muswellbrook LGA, however the establishment of a Council-owned facility in Muswellbrook is helping to address this shortage. Denman's childcare centre is a not-for profit organisation which also receives support from Council.

The increase in new local residents associated with the Project's operational workforce is expected to contribute to the demand for childcare, school enrolment places and training services, and other community services.

On the assumption that 20% of operational personnel settle locally, the number of households that may settle across Muswellbrook, Denman, Singleton, Jerrys Plains and other local rural communities would be up to:

- 32 households by the end of 2021 (approximately 83 new locals);
- 60 households by the end of 2022 (approximately 96 new locals); and
- 86 households by the end of 2023 (approximately 138 new locals).

Based on 2016 census results, families with children represent approximately 62% of Muswellbrook and Singleton LGA households (61.8% and 62.6% respectively). If this proportion is similar for new local families, of the estimated 32 newly settled households at the end of 2021, approximately 20 households may have children and/or young people (up to 19 years old). By the end of 2023, this could increase to approximately 53 newly settled households that may have children and/or young people.

Assuming two children per family, this could see a total of 40 children and young people join local communities at the end of 2021, growing to a total of 106 children and young people by 2023.

If children aged 0-4 years made up one third of this mix, this would represent 13 children aged 0-4 years by the end of 2021, increasing to 35 children by 2023, some of whom would require childcare.

A June 2014 survey by the ABS found that nearly one quarter of all children aged 0-12 years usually attended formal childcare including 14% attending long day care, 7.8% attending out of school hours care and 2.5% attending family day care⁸¹. On the basis that 16.5% of new local children under five years may require long day care, this would see demand for up to six childcare places across the two LGAs by 2023.

Distributed across the two LGAs, and over time, this level of demand would be absorbed by a number of facilities, however demand distribution may be weighted to Muswellbrook given its proximity to the Project. In the context of current availability, this is not expected to result in a significant strain on childcare resources across the two LGAs.

With respect to out of school hours' care, if one third of new local children and young people were aged between 5 and 14 years, and if 7.8% of them required care (as per the ABS survey results), up to two extra places would be required across the LGA by 2023, which is likely to be within current capacity.

In the event that 40% of personnel from other areas were to settle locally from other areas, the estimated new local households would be in the order of 64 by the end of 2021, 40 of which could have children, which could bring approximately 79 new children and young people into the LGA communities.

This would see a demand for up to 12 long day care childcare places and four out of school hours care places, which again, shared across the Muswellbrook and Singleton LGAs, and building over a period of approximately three years, is not expected to result in a shortage of childcare places.

The Project would monitor workforce childcare demands as part of its workforce on boarding and settlement program and would liaise with the two Councils and potentially affected childcare centres to advise of the workforce ramp-up. In the event that childcare shortages are being experienced when operational personnel are commencing in 2021, the Project would consult with Muswellbrook Shire Council to identify initiatives which would supplement childcare supply and avoid shortages which would affect both Project personnel and other community members. This may include support for increased provision of family day care services which provide flexible home-based childcare options.

Primary and high school enrolments are likely to be shared between the several schools in the Muswellbrook and Singleton LGAs. Under the scenario of 20% new locals, by 2021, and assuming that up to two thirds of newly settled children and young people would be of school age, Project related demand could require a combined additional total of 27 primary and secondary school enrolments and by the end of 2023, approximately 106 new children and young people, the Project could generate demand for approximately 70 school enrolments across the two LGAs. This is unlikely to generate a disproportionate demand on any one school due to the number of existing school facilities in the two LGAs, and both state schools consulted as part of the SIA indicated that they have capacity for enrolment increases. In the event that 40% of the Project workforce are new locals, this could result in potential strain on individual facilities, up to 140 enrolments could be generated across the two LGAs. NSW Education will require prior notice of the potential increase in enrolments to provide adequate capacity. Malabar should provide information on its Project schedule and anticipated personnel numbers moving to the Project region to NSW Education and public school principals in the two LGAs by early November prior to Years 1, 2 and 3 of operations.

⁸¹ Australian Bureau of Statistics, (2014).

5.6.2 Health and emergency services

As described in Section 4.5.1, estimated GP service provision rates in the local area are lower than for NSW or Australia. While this is a common characteristic of rural communities, it has implications in terms of access to GP services and community health outcomes.

Construction

On the basis of assumptions outlined in previous subsections, Project construction is likely to see a temporary population influx of up to 75 people to the Project region during the peak of the construction phase. Most of these are assumed to stay in Muswellbrook.

Whilst they would access their primary health care at home, non-residential workers may make regular demands on local GPs in Muswellbrook and at the Muswellbrook Hospital, most commonly for minor illnesses, injuries and prescription renewals. At an average of approximately 90 FTE construction personnel associated with the Project over three years, this is unlikely to cause a significant increase in demand for services. However, the Project would employ a workforce communication strategy as part of on-boarding to encourage non-residential workers to reduce non-urgent and unnecessary demands on the local health system.

The increase in traffic and temporary population change associated with the Project may increase demands on Police for traffic policing, road incident response and administrative issues. Police consulted as part of the SIA said that demands for their services have also been linked to off-shift workforce behaviour management at licensed premises, which would be considered in the development of the Project's Workforce Behaviour Policy.

There is also potential for construction safety incidents or Project-related traffic accidents to place demands on the region's ambulance services, including transport requirements from the Project site to hospital. The early development of protocols and agreements between Malabar and local health and emergency services would assist in the event of an incident.

Consultation with the Hunter Valley RFS identified a number of opportunities to improve working arrangements between the Malabar and the RFS. Considering existing RFS staffing constraints, peak fire danger periods, road upgrades and fire breaks, Malabar would encourage and support its employees to be trained RFS members, and provide opportunities and access for joint use of equipment and water resources.

Malabar would develop ongoing consultative arrangements with local emergency services, including the Hunter Zone 2 Ambulance Service, NSW Hunter Valley RFS and Muswellbrook Police to develop relationships to support emergency responses. Proposed strategies to mitigate Project-related impacts on health and emergency services are outlined in Section 6.4.

Operations

Based on the Project's workforce distribution scenario of 20% new locals (see Section 5.4.1), a population increase of approximately 112 people could result for each of the Muswellbrook and Singleton LGAs, or up to 224 people in each LGA if 40% of employees moved to the region. Demand would build over time (three years), and GP clinics as businesses generally respond to increased demands by seeking to recruit additional staff. However, with lower than NSW average GP:population ratios in Singleton, some strain on services may be expected until sufficient GP capacity is attained. Medical screening would be facilitated through Coal Services, rather than GP services in Muswellbrook and Singleton, reducing potential impact on the demand.

There is also potential for a small incremental increase in demand for child and family health services as a result of population increases induced by the Project during 2021-2023.

Malabar would provide regular advance notice (annually during years 1-3 of operations) of operational workforce estimates, distribution and timing to the Hunter New England and Central Coast PHN (who plan for health service provision) and to NSW Health in respect to the Muswellbrook and Singleton Hospitals, and community health services. This would enable the planning authorities to consider likely population increases in planning for service growth and development.

Population increases as described are not expected to result in a significant increased demand for Police and other emergency services during operations. The Project would develop an Emergency Management Plan and Bushfire Management Plan in consultation with the relevant Councils and health and emergency service stakeholders. As part of this consultation process, specific protocols required for working with emergency services and mitigating Project-related impacts on services would be identified and formalised.

5.6.3 Council and community services

Construction

Non-local construction personnel may access community facilities in Muswellbrook, such as sporting grounds and hotels. Venues are likely to welcome the extra patronage. As noted previously, personnel would be required to adhere to a Workforce Conduct Policy which would also address behavioural standards at local venues.

Construction personnel demand on community services and facilities is expected to be negligible, given that construction shift times are up to 12 hours, most personnel would access services in their home communities. Malabar would provide access to employee assistance (counselling) services for its employees and would encourage its contractors to provide employee assistance services. By making targeted and confidential assistance available for all workers, potential demands on related local services would be eased.

Off-site services including road connections, water and waste infrastructure would be addressed in accordance with the Project's proposed VPA with Muswellbrook Shire Council. Non-local construction workers are not expected to increase demand for other Council services or infrastructure.

Operations

The Muswellbrook and Singleton LGAs have a broad range of community, cultural, recreational and family support services (Section 4.5.2), provided by a combination of Council, government and community agencies. Increasing and changing community demands, along with changes to Local, State and Federal Government funding policies, change the availability of services from time to time.

New families who move to the LGAs are likely to induce a small incremental demand for services provided by Councils and community organisations. Services which may experience increased demand as a result of the Project include libraries, pools, recreational venues and sports grounds, community centres, and family and individual support services.

With the modest population influxes anticipated from 20% of the workforce settling as new locals, the Project should not cause significant stress on community services and facilities.

Stakeholders did not identify any other deficits in Council or community services which would be exacerbated by the demands of Project personnel or their families who move to the LGAs.

Malabar plans to negotiate and establish a VPA with the Muswellbrook Shire Council, that would include provision of funding to assist with the development of local infrastructure in the LGA. Funding provided under a VPA and through donations is expected to substantially offset Project-induced demand for Council services and facilities, and to contribute to community development.

5.7 Health and wellbeing

This section discusses the potential for impacts on physical health, mental health, traffic safety, and the potential for impacts on vulnerable groups.

5.7.1 Physical health

Environmental changes such as increased noise exposure, changes to air quality or changes to water quality may affect physical health. Baseline findings regarding the physical health and wellbeing of the Project's nearby communities found potential respiratory health vulnerabilities among residents of the Muswellbrook and Singleton LGAs.

The results of a human health risk assessment undertaken for the Project⁸² include:

- based on the available data and information in relation to emissions of dust and nitrogen dioxide from the Project, the assessment concluded there are no health risk issues of concern relevant to the Project (including construction and operational phases); and
- based on the predicted noise levels and potential mitigation measures, the potential for adverse health impacts on community members associated with noise generated during construction and operations is considered to be negligible.

WRM Water and Environment (2019) has considered the potential impacts of the Project on surface water and concluded there would be negligible impacts to surface water quality in the Hunter River and Saddlers Creek as a result of the Project. HydroSimulations (2019) determined that the project would have negligible adverse impact on groundwater water quality.

On this basis, the potential for Project impacts on physical health appears to be negligible.

Improving the health of the working population in the mining industry was identified as a priority area in consultation with Singleton Council, noting the potential for shift work and fatigue to affect eating behaviours, nutrition and exercise in turn affecting general wellbeing and mental health. The Project is committed to maintaining and improving the health and wellbeing of its workforce, which represents an integral part of the Project's overall success. Proposed strategies to support a healthy workforce are outlined in Section 6.5.

5.7.2 Mental health

Research indicates that the impacts of major projects for people who oppose them can include increased stress levels, a sense of things happening beyond one's control and distress induced by environmental change⁸³.

As identified during the engagement undertaken for the SIA, some nearby landholders described experiencing stress and anxiety in relation to the perceived potential for impacts on their property's amenity. Nearby landholders also noted that they had experienced an extended period of uncertainty about whether development of a project on this site would proceed.

Anxiety is the most common mental health condition in Australia, and can have a temporary or prolonged effect on a person's quality of life and day-to-day functioning⁸⁴. Whilst most people can cope well with a level of stress and anxiety, there is potential for stress related to the Project to affect individual and family wellbeing.

⁸² EnriskS, (2019).

⁸³ University of Melbourne, Melbourne School of Government, (2018).

⁸⁴ Beyond Blue, (2018).

Strategies that are recommended to be employed by Malabar to address community concerns are detailed in Section 6.2 and include transparent, evidence-based and ongoing dialogue with concerned property owners and other community members, based on the results of the EIS.

Malabar's commitments to impact mitigation, and ongoing engagement and information provision relating to specific areas of community concerns, are expected to reduce the potential for stress and anxiety, however concerns may persist for some community members regardless of these strategies.

Research undertaken between 2008 and 2011 on perceptions of climate risk by rural and coastal residents in the Hunter Valley found that rural residents were concerned about climate conditions affecting agricultural productivity, including drought, heat, the impacts of water scarcity, and conservation of water and ecological diversity. Coastal residents and those living near lakes were more concerned about the effects of climate change on marine life loss, sea level rises and property values⁸⁵. Concerns about climate risks were found to have remained high over the three year period, but no significant differences between rural and coastal dwellers' beliefs about climate warming over that period were identified.

Climate change can cause concern and/or anxiety for some people. A greenhouse gas assessment of the Project has been completed as part of the Project's Air Quality and Greenhouse Gas Assessment⁸⁶. The estimated annual average greenhouse emission is 0.41 million tonnes carbon dioxide equivalent material (Scope 1 and 2), which is calculated to be approximately 0.08% of the Australian greenhouse emissions and approximately 0.31% of the NSW greenhouse emissions assessed for the 2016 period.

5.7.3 Traffic safety

The Project's Road Transport Assessment⁸⁷ determined that the Project is not expected to exacerbate any specific road safety concerns at any particular location, concluding that *"no specific measures or upgrades are required to mitigate the impacts of the development on the capacity, safety and efficiency of the road network as a result of the changed road traffic conditions associated with the Project."*

School buses operate on roads in the vicinity of the Project. School buses generally travel between 7.00 am and 9.00 am in the morning and between 2.30 pm and 5.00 pm in the afternoon. Peak traffic flows associated with the Project would be outside these hours, so interactions of Project traffic with school buses are likely to be limited, however there is potential for deliveries including oversized vehicles to use local roads during school commuting hours.

Malabar will contact the following bus services to advise them of the routes to be used by Project traffic:

- M&P Holz in Denman;
- Denman Buses and Bookkeeping;
- Cowans Bus Service (Denman); and
- Hunter Valley Buses (serving the greater region and transporting students to schools outside the local area).

If school bus operators identify any concerns about Project traffic routes in relation to school bus operation, strategies which would mitigate potential safety issues would be developed.

Malabar's Workforce Conduct Policy will apply to all personnel including contractors and delivery drivers, and reinforces requirements in terms of fatigue management, driver behaviour and community safety.

⁸⁵ Higginbotham, N., Connor, L., and Baker, F., (2014).

⁸⁶ Todoroski Air Sciences, (2019).

⁸⁷ The Transport Planning Partnership, (2019).

5.7.4 Potential for impacts on vulnerable groups

As noted in Section 5.7.1, some nearby landholders have expressed anxiety about the potential for the Project to impact on their residential amenity and quality of life. In addition to noise, air quality and visual impact mitigation strategies, Malabar has committed to a comprehensive program of engagement with its neighbours and nearby landholders to provide access to timely information about potential impacts and management strategies relevant to their properties, and to a responsive complaints mechanism. Over time, this should reduce anxieties and establish confidence in the relationship between Malabar and neighbours.

The Project would not affect highly significant Aboriginal sites or displace rural families. Disturbance of endangered ecological communities would be minimised through the use of underground mining methods and the placement of surface infrastructure. Residual impacts to biodiversity would be offset. Malabar would require its contractors to plan for short-term accommodation use (such as hotels and serviced units), and the construction workforce's demands for use of local housing are likely to be minimal (see Section 5.5.4).

Malabar would provide advance notice of its operational workforce ramp-up to Muswellbrook Shire Council and Singleton Council, and would also publicise the operational workforce ramp-up from the commencement of Project construction. This would enable Councils, housing developers and investors with residential land to make more timely and confident decisions about planned residential developments, and decrease the likelihood that supply would lag behind demand.

For the first three years of the Project, Malabar would implement a quarterly monitoring program of rental and purchase housing capacity in the Muswellbrook and Singleton LGAs. This information would be used to inform workforce on boarding processes, which would encourage workers to seek accommodation where capacity is strongest.

For the first three years of the Project, Malabar would also offer a six-monthly program of engagement with Muswellbrook Shire Council, Upper Hunter Community Services and Aboriginal community leaders to identify changes in access to housing for vulnerable groups.

5.7.5 Benefits for wellbeing

As noted in Section 5.5 and earlier in Section 5.7, the Project represents a significant positive contribution to community wellbeing through an increase to local employment levels and access to greater financial resources, and through potential for increased population and community cohesion. Access to stable employment supports physical and mental health by enabling housing security, self-development and social connections. In this context, the Project would support the wellbeing of its workforce and provide a level of comfort and security to their families.

Education and training play a critical role in improving workforce participation and overall wellbeing. Muswellbrook Shire Council's Strategic Planning Statement emphasises the region's education and training strengths, and consultation with Indigenous community representatives has also identified scope to improve access to culturally appropriate education and training options within Muswellbrook. Section 5.5.2 details Malabar's strong commitment to training local people for its operations. During the first ten years of operation, the Project expects to provide employment for at least 175 people from outside the underground mining sector who would be supported by an on-site training program. The Project would also take on at least two apprentices as part of its operations (by year 2), on a rolling basis, which could see approximately 12 people achieve trade qualifications over the Project's life. These opportunities to develop skills, qualifications and a career pathway would be highly valued by local people, particularly young people.

In addition to the Project's proposed VPA with Muswellbrook Shire Council and payments toward community infrastructure, Malabar would also increase its current Donations and Sponsorships program to support local community organisations address needs relevant to family life, health, education and community resilience (see also Section 5.7.5), throughout the Project's life.

5.8 Cumulative impacts

Cumulative impacts are those that result from the successive, incremental and or combined effects of an action, project or activity when added to other existing, planned and or reasonably anticipated future effects⁸⁸.

Recent research on cumulative impacts in Mixed Industry Regions used the Upper Hunter Valley⁸⁹ as a case study⁹⁰. Cumulative impacts in relation to the mining industry were noted in the context of the 'boom-bust' cycle as including:

- high demands for housing during boom periods leading to impacts on housing supply and affordability, and decreased housing demand during mining downturns;
- cumulative impacts on social infrastructure facilities, with the loss of mining employees from the region impacting the service levels provided in schools, hospitals and other services;
- noise as a major impact for landholders and those living in settlements very close to the mines;
- the visual and cultural aesthetic of coal mines and associated infrastructure and landscapes was seen by some people as exceeding a threshold of acceptability; and
- high impacts on the availability of employees for local businesses arising from mining companies attracting the most skilled labour in the region through higher wage structures.

The Project would be developed in a regional environment already heavily dominated by mining operations, Table 4-1 provides an overview of existing and proposed mines and power generation facilities within a 15 km radius of the Project. These operations form part of the existing industry operating environment and as such, are reflected in the Project's social baseline characteristics for population, housing and employment.

Operations that are planned for closure in the first five years of the Project's operation include Muswellbrook Coal Mine and the Liddell Power Station. BHP's Mt Arthur Mine, and MACH Energy's Mount Pleasant Operation will require further approvals if they are to continue in operation.

Mining developments that could commence construction or operations within a similar timeframe to the Project are currently limited to the Dartbrook Underground, the Mt Arthur Underground and the proposed Mangoola Coal Continued Operations Project (which would not materially alter the existing full-time operations workforce).

The Maxwell Solar Project, proposed by Malabar to be located on areas of previous open cut mining disturbance at the Maxwell Infrastructure, is also considered. The Maxwell Solar Project would have an installed capacity of 25 MW and would provide 50 jobs during construction and a small number of operational jobs. It would be located adjacent to a major electricity generating hub in NSW (Liddell and Bayswater Power Stations) and in proximity to high voltage power lines. Relevant cumulative impacts associated with the operation of the Project and the Maxwell Solar Project have been considered, including interactions with rehabilitation objectives.

⁸⁸ International Finance Corporation World Bank Group, (2013).

⁸⁹ The Upper Hunter Valley includes the LGAs of Muswellbrook Shire Council, Singleton Council and Upper Hunter.

⁹⁰ Centre for Social Responsibility in Mining, (2015).

Section 2 of the EIS notes the cumulative context for the Project also includes the closure and economic transition period associated with the Liddell and Bayswater Power Stations (with closure planned by 2022 and 2035 respectively). Consultation with Muswellbrook Shire Council identifies that substantial work is underway to scope beneficial reuse options for the two sites and secure new business operators.

The Project's potential contribution to cumulative social impacts is discussed below, including:

- population changes, social infrastructure requirements and housing demand;
- employment opportunities and labour availability;
- potential for cumulative changes in traffic or road conditions affecting amenity or safety; and
- potential cumulative impacts on environmental qualities which support community wellbeing.

5.8.1 Population, housing and access to services

This section considers the potential effects on population, housing and access to services that could result should the development of other local projects coincide with the construction or first three years of operation of Project.

Maxwell Solar Project

Malabar plans to construct the Maxwell Solar Project within the Project area. Should the construction of the Maxwell Solar Project be delayed to 2021 so coinciding with the construction of the Project, then assuming a solar farm construction workforce of 50 personnel, of whom 50% may be non-local, this would result in an average cumulative population increase of 100 non-local personnel in the local area during 2021. This is not likely to have any significant social impacts.

The Maxwell Solar Project is likely to generate employment for a small number of operations and maintenance personnel from the Project region, with a negligible incremental addition to the Project's impacts on population, housing and services.

Mount Pleasant Operation

Construction of the Mount Pleasant Operation would be completed before the Project's construction commences. Mount Pleasant Operation would require 380 FTE personnel, which will contribute to cumulative population increases and therefore increased demand for housing and social infrastructure. Malabar will maintain regular communication with Muswellbrook Shire Council and Singleton Council, including discussion of potential cumulative impacts on housing supplies and social infrastructure as the result of cumulative demands.

Dartbrook Underground

Dartbrook Management Pty Limited has lodged an application to modify the mine's consent conditions, which if approved, would extend the life of the mine by an additional five years to December 2027. Given the relatively the short development period, Dartbrook Underground could commence activities from 2020 with a small construction workforce of 26 personnel and an operational workforce of approximately 99 personnel. The cumulative impact considerations would be minimal because Dartbrook would contribute a smaller construction workforce, and it is expected the operational workforce would already be in place prior to Project commencement. Any temporary influx of construction workers would not make a significant change to population, housing or social infrastructure characteristics in the Muswellbrook LGA.

Mt Arthur Underground

Unless extended, the approval of operations at the Mt Arthur Mine will be exhausted by 2026. As production ramps down there is potential for Mt Arthur Mine personnel to seek employment at the Project, which would assist to maintain stable employment levels in the Muswellbrook LGA.

The Mt Arthur Underground development has an active approval to 2030, however neither the likelihood nor timing of its development is known.

Mt Arthur Underground's construction workforce is expected to peak at approximately 470 personnel and to have up to 300 operational personnel.

However, as the current operations at the Mt Arthur Mine are understood to be fully utilising the available coal processing and rail loading capacity and given the large capital requirement to support the commencement of underground operations, it is considered unlikely that the underground operations would commence before the closure of the open cut operations. Therefore, the Mt Arthur Underground is unlikely to be developed concurrently and hence not impact on local employment.

Malabar should provide information on upcoming workforce trends to Councils, health service planners, emergency service providers and NSW Education to mitigate the Project's potential contributions to cumulative impacts.

Mangoola Coal Continued Operations Project

An Environmental Impact Statement for the proposed Mangoola Coal Continued Operations Project commenced exhibition in July 2019. The Mangoola Coal Continued Operations Project would involve an extension of the life of mine by one year (to 2030) within the approved production limits of 13.5 Mtpa and the approved full-time operations workforce. This project proposes a 16 month construction phase with a peak workforce of approximately 145 people. While the timing of the construction phase is pending the project's approval, it could coincide with the Project's construction phase, which would contribute to a temporary influx of construction personnel in the Muswellbrook LGA and may have implications for access to temporary workforce accommodation options.

Liddell / Bayswater Power Stations

As noted in Section 2 of the EIS, closure of the Liddell Power Station is planned by 2022 and closure of Bayswater Power Station is planned by 2035.

In February 2017, Muswellbrook Shire Council's Mayor raised concerns that the closure of Liddell Power Station in 2022, and Bayswater Power Station in 2035, will have *"a significant impact on the local economy with the loss of 600 direct jobs and associated indirect jobs, as well as flow-on impacts throughout the broader economy⁹¹"*. Changes to the Liddell Power Station's workforce profile are likely to have already commenced, however a ramp down of employment numbers could become more pronounced from 2020. This could result in an incremental outmigration of the local population as AGL employees are redeployed or seek alternative employment, however a large proportion are likely to prefer to retain their established community and family ties, and so may seek employment at the Project.

In 2022, the Project's construction workforce is likely to comprise 160 personnel, while the operational workforce would have ramped up to 300 personnel. On this basis, the Project may partially offset the population loss associated with the closure of the Liddell and Bayswater Power Stations.

⁹¹ McCarthy, J. Newcastle Herald, (2017).

5.8.2 Employment and labour access

Maxwell Solar Project

The maximum combined construction workforce of the Project and Maxwell Solar Project could ultimately reach a peak of 300 personnel (based on a construction workforce of 50 personnel for Maxwell Solar Project, coinciding with the Project's peak construction workforce mid-2021). This would represent a significant contribution to local and regional employment opportunities.

Cumulative demand for construction labour from the Maxwell Solar Project and the Project may contribute to competition for labour in the Project region, however given the different skill sets required to construct both projects, there is likely to be less overlap in labour requirements.

The concurrent development of both projects may also represent an opportunity to maximise the length of construction contracts for personnel hired by Malabar, in turn making the construction employment opportunities more attractive for candidates in the Project region. Given the small operational workforce required for the Maxwell Solar Project, there is unlikely to be a significant cumulative effect on employment figures or access to labour.

Dartbrook Underground Mine

The cumulative impact considerations for the Dartbrook Underground Mine would be minimal as its construction and operational workforce requirements are relatively small.

Mt Arthur Underground

If the Mt Arthur Underground was to commence following the closure of the Mt Arthur Open Cut this would assist in mitigating substantial loss in employment. As described in Section 5.8.1, the Project would also assist to maintain stable employment levels in the Muswellbrook LGA.

Mangoola Coal Continued Operations Project

The maximum combined construction workforce of the Project and Mangoola Coal Continued Operations Project could ultimately reach a peak of 395 personnel (based on a construction workforce of 145 personnel for Mangoola Coal Continued Operations Project coinciding with the Project's peak construction workforce in mid-2021). This would represent a significant but temporary contribution to local and regional employment.

Liddell/Bayswater Power Stations

While workforce ramp-down at Liddell and Bayswater Power Stations may have already commenced, it can be assumed that it would be a more pronounced decline 1-2 years prior to closure. On this basis, it is assumed the Liddell and Bayswater Power Stations would experience an incremental loss of approximately 600 jobs between 2020 and 2035. With Malabar targeting people who would be new to the underground mining industry, a percentage may be personnel transitioning out of employment at Liddell and Bayswater Power Stations, offsetting the loss of jobs and potential population loss.

5.8.3 Access and traffic

The Project's Road Transport Assessment considers the current and future traffic movements, including background growth and changes associated with:

- Mt Arthur Mine;
- Mount Pleasant Operation;
- Bengalla Mine;
- Mangoola Mine and Continued Operations; and
- Dartbrook Mine.

These movements are largely reflected in the 2018 baseline surveys for traffic on the Project's primary road network. Some increase to traffic is identified for the Dartbrook operations to 2027 however the Road Transport Assessment found that increased activity is unlikely to adversely affect access or connectivity for other road users.

Mt Arthur Mine has approval to realign and upgrade the northern portion of Edderton Road to allow for future mining operations.

The cumulative implications of the realignment of the northern part of Edderton Road required for the Mt Arthur Mine, together with that of the Project realignment of the southern part of Edderton Road, have been reviewed as part of the Project's Road Transport Assessment. The highest impact of the realignments would be for people travelling between Jerrys Plains and Muswellbrook via Edderton Road, as further discussed in the Road Transport Assessment⁹².

Stakeholders also raised the possibility that cumulative increases in rail transport required for coal mining would limit expansion of passenger rail services. During November 2018, Malabar consulted with the ARTC which is responsible for managing and granting access to the Hunter Valley Coal Network, and Hunter Valley Coal Chain Coordinator Limited (HVCCC). Access is regulated via the Australian Competition and Consumer Commission's Hunter Valley Coal Network Access Undertaking (HVAU). The HVAU provides the framework for negotiating access and how capacity investment in the rail network will be carried out, including related consultation processes with the HVCCC who provides an independent view of Coal Chain Capacity.

With respect to cumulative rail traffic, ARTC is responsible for developing an annual Hunter Valley Corridor Capacity Strategy which identifies capacity pathways to meet forecasts of contracted volume sought by existing and prospective access holders. In November 2018, ARTC confirmed that forecast volumes for the Project form part of the 2019 Strategy and, at this point in time, network capacity is expected to be available to meet the forecast volumes.

Malabar would continue to work with ARTC and HVCCC on access arrangements, capacity availability and scheduling as the Project progresses.

5.8.4 Environmental qualities and landform

Assessments by other technical specialist have found that the Project would have minimal additional contributions to impacts on landform, visual amenity, dust, traffic, noise and water resources.

Consultation for the SIA has identified a keen interest from some local community members about possible post-mine landforms and future land use, specific to this Project and also in the cumulative context. Malabar would continue to engage with interested community members and the Muswellbrook Shire Council about their aspirations for post-mine land use, which would become a stronger focus of engagement activities in the five years prior to the Project's completion.

Malabar has also commenced consultation with BHP regarding potential interactions between the Maxwell Infrastructure and Mt Arthur Mine final landforms. The approved Mining Operations Plans for Mt Arthur Mine and the former Drayton Mine both show potential integration between the final landforms.

⁹² The Transport Planning Partnership, (2019).

5.9 Impacts of non-approval

The social impacts of the Project not being approved include:

- the Muswellbrook and Singleton LGAs would forego the employment benefits which would result from the Project during construction and operation;
- businesses in the Project region would forego the potential benefits of Project supply opportunities;
- the Hunter Valley and the State would forego the potential benefits of tax and royalty revenues; and
- nearby landholders would not experience potential impacts such as anxiety about potential Project impacts, changes in travel time along Edderton Road or potential additional demand on infrastructure, services and facilities.

5.10 Impacts of Project decommissioning and rehabilitation

The Project has an operating life of 26 years and represents one of a number of operations in the region.

The substantial resource inventory within the leases owned by Malabar within the Project area and surrounds (c. 1,400 million tonnes Australasian Joint Ore Reserves Committee [JORC] Resource estimate) provides Malabar with the opportunity to recover additional coal beyond the life of the Project. It is Malabar's intention to be a long-term employer in the region with underground operations delivering predominantly metallurgical coal to the global metals market.

Clearly, the extraction of additional coal beyond the life of this Project would be subject to a similar rigorous approval and consultation processes as this Project.

Therefore, it is Malabar's strategy to maintain its 'social licence' by being a reputable underground miner, enhancing its agricultural assets, providing long-term employment to multiple generations, and supporting the broader community.

Closure at the end of mining would result in job losses for operational personnel. The closure of large mining operations in rural communities can result in material changes to:

- local populations, should people leave the area to seek new employment and economic opportunities;
- housing availability and affordability, as some people move from the area and others move in with different employment backgrounds and potentially different housing needs; and
- social infrastructure and local business trade associated with the change in local populations and associated demand for consumable goods and services.

As at the 2016 Census, there were a total of 4,176 residents within the Muswellbrook and Singleton LGAs employed in the mining industry. They contribute to the total of 10,400 residents employed in the mining industry within the Hunter Valley SA4. Whilst employment in the mining industry would inevitably change prior to closure of Malabar's operations, a loss of up to 350 operational personnel would likely be experienced as a significant loss to regional employment opportunities.

The Project's flow-on employment benefits would also be affected by the Project's closure. The extent of these impacts would depend on whether these indirect jobs were solely dependent on the Project's operation in the lead up to closure.

Considering the majority of the operational workforce is expected to live locally, these residents would have established ongoing connections to their residential area and community. Some would also have partners and/or families who would have established community connections and possibly alternative incomes. It can therefore be assumed that a large proportion of the long-term residential workforce would seek other local employment within a daily driving range, to remain living within their community.

Some former employees and contractors would leave the local area in pursuit of alternative employment, but it is not possible to make a confident estimate at this time. While future employment and economic strengths of the Project region are unable to be predicted, the gradual ramp-down of employment would provide a more positive transition for workers, who could plan for alternative employment.

Project closure would be followed by the completion of rehabilitation for the Project area, which would provide some ongoing employment until the Project area is relinquished by Malabar. Proposed strategies to mitigate impacts related to mine closure and decommissioning are outlined in Section 6.7.

5.11 Significance of social impacts and benefits

This section evaluates the significance of social impacts and benefits identified in preceding subsections, based on the SIA Guideline risk matrix, as shown in Table 5-5.

The risk matrix has been used to identify impacts with higher significance that require Project-specific social management strategies. A social risk matrix which incorporates definitions of social consequences (see Table 5-6) has been used to assess the significance of social impacts. The result of the application of the social risk matrix is the level of significance of the social impact or benefit, ranked as 'low', 'moderate' or 'high'. Ratings shaded green are assessed as of low significance or as positive impacts. Ratings shaded yellow are assessed as of moderate significance, and ratings shaded orange are assessed as of high significance.

The likelihood of social impacts and opportunities occurring has been assessed with reference to stakeholder inputs, local experiences with mining projects, and EIS findings.

'Consequence', as defined in Table 5-6, has been assessed based on how the social impact may be experienced by the relevant stakeholder(s) by considering:

- the duration of impacts and benefits, being either short term (during construction) or long-term (during operation);
- sensitivity, including stakeholders' specific vulnerabilities and resilience to impacts;
- the severity of potential effects on the area of influence's social characteristics and conditions, as supported by:
 - access to employment, housing and social infrastructure;
 - appreciation and enjoyment of surroundings;
 - physical and mental health; and
 - community values, including cultural heritage, community cohesion and rural character.

Symbols used include (+), denoting positive impact, and (-), denoting negative impact.

Project phases are noted as:

- Construction (C), which includes pre-construction, and represents a period of up to three years (overlapping with mining operations);
- Operation (O), which represents a period of up to 26 years;
- C&O, denoting impacts which commence in construction and continue for the Project's life; and
- Decommissioning and Rehabilitation (D&R), which would commence around 2046.

Table 5-5: Social risk matrix

			Consequence Level				
			1 Minimal	2 Minor	3 Moderate	4 Major	5 Catastrophic
Likelihood	A	Almost certain	A1	A2	A3	A4	A5
	B	Likely	B1	B2	B3	B4	B5
	C	Possible	C1	C2	C3	C4	C5
	D	Unlikely	D1	D2	D3	D4	D5
	E	Rare	E1	E2	E3	E4	E5
Significance of Social Impact Ratings							
		Low		Moderate		High	

Source: Department of State Development, Infrastructure and Planning (Qld.) Social Impact Assessment Guideline July 2013.

Table 5-6: Consequence definitions

Rating	Impact (-)	Benefit (+)
Minimal	Local, small-scale, easily reversible change on social characteristics, or the values of the community of interest or communities can easily adapt or cope with change.	Local small-scale opportunities emanating from the Project that the community can readily pursue and capitalise on.
Minor	Short-term recoverable changes to social characteristics and values of the communities of interest, or the community has substantial capacity to adapt and cope with change.	Short-term opportunities emanating from the Project.
Moderate	Medium-term recoverable changes to social characteristics and values of the communities of interest, or the community has some capacity to adapt and cope with change.	Medium-term opportunities emanating from the Project.
Major	Long-term recoverable changes to social characteristics and values of the communities of interest, or the community has limited capacity to adapt and cope with change.	Long-term opportunities emanating from the Project.
Catastrophic	Irreversible changes to social characteristics and values of the communities of interest, or the community has no capacity to adapt and cope with change.	N/A

Source: Adapted from Department of State Development, Infrastructure and Planning (Qld.) Social impact assessment guideline July 2013.

The outcomes of the evaluation of significance have been used to develop the Project-specific social management strategies described in Section 6. In general, a 'high' social impact indicated that Project-specific social management is required to be implemented, which if successfully implemented by Malabar, would reduce the significance of the social impact to 'moderate'.

Table 5-7 summarises:

- potential social impacts and benefits;
- stakeholders potentially affected;
- an evaluation of the significance of the potential social impact and benefit, in consideration of Malabar's existing strategies and those identified in other EIS studies;
- identification of additional Project-specific social management strategies that may be required, referencing mitigation strategies outlined in Section 6;
- an evaluation of residual significance, in consideration of Project-specific social management strategies; and
- the rationale for the evaluation of significance.

As per the SIA Guideline, the significance of the social impact or benefit has been viewed from the perspective of those expected to be affected, based on stakeholder input provided during consultation and in consideration of the outcomes of impact assessment for this SIA and other EIS studies.

Table 5-7: Evaluation of social impacts and benefits

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.1.1	Amenity	Limited impacts to amenity predicted by technical specialists.	C	Neighbouring properties within 2.5 km of the Project	Management of Project environmental impacts in accordance with regulatory standards and conditions of development consent.	A2 (-)	SA2 – Construction communication and engagement program SA4 – Dedicated contact points SA5 – Complaints procedure SA6 – Cooperation on cumulative impacts	A1 (-)	Engagement is likely to reduce impacts on amenity through enabling corrective actions if required.
5.1.2	Access to water	Potential for negative community perceptions about the Project impacts on water resources.	C&O	Neighbouring properties and rural localities between Muswellbrook, Denman and Jerrys Plains NSW RFS Hunter Valley Operations & Local Brigades	Management of environmental impacts, as above.	A3 (-)	NA1 – Neighbour engagement on EIS findings NA2 – Neighbour engagement program NA3 – Property-specific agreements	A2 (-)	Community and stakeholder engagement are likely to reduce negative perceptions about water use or impacts over time.
5.1.3 5.1.4	Potential for impacts on equine or viticulture critical industry clusters	Social and environmental impacts which would affect the operation of the horse studs or winery were not identified. Concerns about perceptions in relation to mining's effects on horse stud's reputations may continue.	C&O	Hollydene Estate Winery Coolmore Stud Godolphin Woodlands Stud Hunter Valley Equine and Viticulture Critical Industry Cluster members and dependent businesses	Management of environmental impacts as above. Mine entry located to avoid impacts on scenic character. Land management and fencing in keeping with local character.	A2 (-)	NA1 – Neighbour engagement on EIS findings NA2 – Neighbour engagement program NA4 – Improvements to landscape and amenity values SA3 – Regular / operations communication and engagement program	A1 (-)	Perceptions regarding adverse Project impacts are likely to be reduced through ongoing engagement and cooperation with the horse studs' management and staff.

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.2.2	Traffic and connectivity	Temporary speed reductions or lane closures on Edderton Road.	C	Local residents, other road users and emergency services	Road works managed in accordance with the conditions of development consent and Councils.	A2 (-)	SA2 – Construction communication and engagement program SA4 – Dedicated contact points SA5 – Complaints procedure SA6 – Cooperation on cumulative impacts	B1 (-)	Impacts would be temporary and road users would be able to plan around road maintenance and construction activities with sufficient notice.
5.2.2	Traffic and connectivity	Temporary speed reductions or lane closures on Edderton Road or cumulative impacts on travel distances with the proposed re-alignment for the Mt Arthur Mine.	O	Local residents, other road users and emergency services	Road closures managed in accordance with the conditions of development consent.	A3 (-)	SA4 – Dedicated contact points SA5 – Complaints procedure CA3 – Community and traffic safety	A1 (-)	Community information about the re-alignment would reduce the inconvenience of increased travel times.
5.2.3	Future use and form of mined land	Relinquishment of infrastructure or re-use of voids may represent beneficial reuse opportunities for other stakeholders.	O	Muswellbrook and Singleton LGA communities.	Subsidence remediation Mine Closure Plan	C2 (+)	SA8 – Community visioning process for future use of mined land	B2 (+)	Opportunities to be realised during consultation and visioning process
5.2.4	Regional amenity	Positive contributions to amenity accrued from small population increases and associated economic stimulus.	O	Muswellbrook and Singleton LGA communities and local businesses	Malabar sponsorships and donations. Contributions to community infrastructure, services and cohesion projects via VPA with Muswellbrook Shire Council.	A1 (+)	SA4 – Dedicated contact points SA5 – Complaints procedure SA7 – Support community cohesion and development	A2 (+)	Malabar funding of community projects are likely to contribute positively to regional amenity.

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.3.1	Aboriginal cultural heritage	Cultural heritage items in the Project area would be disturbed.	C&O	Registered Aboriginal Parties including Wanaruah Peoples and Kamilaroi Peoples	Impacts would be mitigated in accordance with relevant legislation and EIS commitments.	A3 (-)	CA4 – Respect Indigenous cultural values SA3 – Regular / operations communication and engagement program	A2 (-)	Ongoing engagement may identify additional actions to protect Indigenous cultural values.
5.3.2	Historic heritage	Project is predicted to have negligible impacts on historic heritage.	C&O	Muswellbrook Shire Local and Family History Society Inc. Singleton Historical Society & Museum	No mitigation required.	A1 (0)	NA4 – Improvements to landscape and amenity values	A1 (0)	
5.3.3	Community values and cultural identity	Negative impacts on community values are not expected. The Project would sustain the identity of local mining communities.	O	Muswellbrook and Singleton residents	Encouragement for Project personnel to settle locally. Workforce Conduct Policy	A1 (+)	CA2 – Support local community infrastructure	A2 (+)	Contributions to community development would support local values.
5.4.1	Population size	Small increase in non-local personnel staying locally when on roster may affect access to services.	C	Primarily, Muswellbrook LGA and communities, with demand in Singleton minimal	Requirements for construction contractors to recruit locally where possible	A1 (-)	CA2 – Support local community infrastructure	A1 (-)	Any impacts on e.g. health and emergency services would be minimal and temporary.

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.4.1	Population size	Permanent population increases in the Muswellbrook and Singleton LGAs are likely to be less than 1%.	O	Muswellbrook and Singleton LGA communities	Malabar commitment to local employment and fatigue management	B2 (+)	HWA5 – Settlement and integration HWA6 – Workforce health and wellbeing	A3 (+)	Population increases and settlement programs would be welcomed by Councils and communities.
5.4.2	Community cohesion	Differing opinions about the Project may affect cohesion.	C&O	Jerrys Plains, Denman, Muswellbrook LGA	Workforce Conduct Policy Malabar sponsorships and donations	C3 (-)	CA2 – Support local community infrastructure CA5 – Support local community development, liveability and cohesion HWA5 – Settlement and integration	C2 (-)	Contributions to community development would support community cohesion
5.3.3 5.4.2	Community - community values, identity and cohesion	Opportunity to strengthen local values through increased employment, population stimulus, and strengthening the identity of Muswellbrook and Singleton as home communities for mining workers.	O	Muswellbrook and Singleton LGA communities and community organisations	Malabar sponsorships and donations	B2 (+)	SA4 – Dedicated contact points SA5 – Complaints procedure SA7 – Support community cohesion and development	A2 (+)	Both in-migrating families and Malabar funding of community projects are likely to support community values and cohesion.

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.4.3	Community objectives and aspirations	The Project would support local community objectives and aspirations as articulated by Muswellbrook Shire and Singleton Councils.	O	Muswellbrook and Singleton LGA communities	Commitment to local employment and workforce diversity. An operating environment that showcases rehabilitation of the previous mining areas at the Maxwell Infrastructure. Integration of renewable energy production. Sponsorships and donations.	B2 (+)	SA8 – Community visioning process for future use of mined land HWA3 – Developing workforce capacity HWA5 – Settlement and integration HWA6 – Workforce health and wellbeing	A3 (+)	Strategies support the objectives and aspirations identified in consultation with Muswellbrook Shire Council and Singleton Council
5.5.1	Lifestyle	Construction noise and dust impacts are predicted to be minimal.	C	Neighbouring properties within 2.5 km of the Project area and Antiene Rail Spur	Management of Project environmental impacts in accordance with regulatory standards and conditions of development consent.	A2 (-)	SA2 – Construction communication and engagement program SA4 – Dedicated contact points SA5 – Complaints procedure NA2 – Neighbour engagement program NA4 – Improvements to landscape and amenity values SA3 – Regular / operations communication and engagement program	A1 (-)	Impacts predicted to be minimal and confined to the period when construction activities would be near properties.

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.5.1	Lifestyle	Maxwell Infrastructure operation may result in noise impacts which whilst compliant with approval conditions, are experienced as intrusive on family or social activities.	O	Landholders within 2.5 km of the Maxwell Infrastructure	Operate the Project within environmental standards to avoid or minimise impacts on environmental qualities and the amenity of properties.	C2 (-)	SA3 – Regular / operations communication and engagement program NA2 – Neighbour engagement program NA3 – Property-specific agreements	C1 (-)	Malabar's engagement strategies and mitigation strategies should identify and address any unexpected impacts on residents' way of life.
5.5.1	Lifestyle	Project employment opportunities are likely to make a positive contribution to personnel's livelihoods and lifestyles.	O	Project personnel	Commitment to local employment and workforce diversity.	A2 (+)	HWA5 – Settlement and integration HWA6 – Workforce health and wellbeing	A3 (+)	
5.5.2	Local employment	Creation of an average of 90 FTE jobs and a peak of 250 jobs would provide a benefit for construction industry personnel and companies in the Project region.	C	Muswellbrook and Singleton LGA labour force Hunter SA4 labour force Current and potential construction material/ equipment suppliers	Local and regional suppliers would be involved in the construction supply chain.	B3 (+)	HWA1 - Local Hire During Construction BA1 – Local Contract Strategy BA2 – Local Supplier Database	A3 (+)	Local opportunities would be maximised. Strategies would support an increase in the value of the Project's supply opportunities to local and regional businesses.

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.5.2	Local employment	The creation of up to 350 jobs and additional flow-on jobs would benefit Muswellbrook, Singleton and Hunter Valley residents, including women and men who are new to the underground mining sector.	O	Muswellbrook, Singleton and Upper Hunter LGA labour force	Commitment to local employment and workforce diversity	A3 (+)	HWA2 – Operations recruitment HWA3 – Developing workforce capacity	A4 (+)	Employment would support wellbeing of personnel and families. Project training partnerships would create employment pathways for young people and others previously unskilled in mining.
5.5.3	Indigenous employment	Indigenous employment opportunities would improve the wellbeing of Indigenous families.	O	Aboriginal and Torres Strait Islander jobseekers and families.	Commitment to local employment and workforce diversity	A2 (+)	HWA2 – Operations recruitment HWA3 – Developing workforce capacity	A3 (+)	Potential for decrease in Indigenous unemployment rates in the two LGAs.

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.5.4	Housing	Requirements for local housing and accommodation are expected to be minimal, but may increase as a result of cumulative impacts.	C	Rental tenants Muswellbrook Shire Council	Commitment to local employment and workforce diversity	C3 (-)	HWA4 – Non-local accommodation management HWA7 – Monitor cumulative impacts of labour force	C2 (-)	Co-operation to address cumulative impacts would reduce any housing impacts. Temporary accommodation demands are likely to be experienced as a benefit for accommodation businesses in the Muswellbrook LGA.
5.5.4	Housing	Housing requirements for operational personnel would ramp-up over a three year period and are likely to stimulate release of additional housing to the rental market. Short-term shortages and potential rental price increases may occur.	O	Tenants and aspiring tenants in Muswellbrook and Singleton LGAs. Real estate providers and investors.	None identified.	B3 (-)	HWA5 – Settlement and integration HWA7 – Monitor cumulative impacts of labour force	B2 (-)	Rental housing availability is expected to adjust to demand over time, supported by Project communications to local communities.

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.5.5	Way of life – business opportunities	Direct supply opportunities would be available to businesses based in the Muswellbrook LGA and adjoining LGAs, supporting the vitality and growth of local and regional businesses.	C&O	Local and regional businesses, chambers of commerce and progress associations within the Project region.	Prioritise use of local suppliers where practical	A2 (+)	BA1 – Local Contract Strategy BA2 – Local Supplier Database	A3 (+)	Local supply strategies are likely to increase the representation of local and regional businesses in the Project's supply chain.
5.6.1	Childcare and education services	Incremental increased demand for school enrolments and childcare places	O	Malabar personnel Childcare service operators and clients NSW Education	None identified	B2 (-)	CA1 – Support social infrastructure and service planning HWA5 – Settlement and integration	B1 (-)	Population increases would be moderate and gradual. Advice on workforce ramp-up would support services to plan for population growth.

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.6.2	Health and emergency services	Small, temporary increases in demand during construction, permanent incremental increased demand during operation	C&O	Muswellbrook and Singleton LGA communities. Muswellbrook and Singleton Hospitals, Muswellbrook Hunter New England Health Service Hunter Zone 2 Ambulance Service Muswellbrook Police Service Westpac Rescue Helicopter Service	None identified	B2 (-)	CA1 – Support social infrastructure and service planning CA2 – Support local community infrastructure CA3 – Community and traffic safety HWA6 – Workforce health and wellbeing	C1 (-)	Population increases would be small and incremental. Advice on workforce ramp-up would support services to plan for growth.
5.7.1	Physical health	No impacts on community health expected. Opportunity to support workforce health and wellbeing.	O	Project workforce and families	Local employment and training Workforce Conduct Policy	C2 (+)	HWA6 – Workforce health and wellbeing CA1 – Support social infrastructure and service planning	C3 (+)	Strategies are expected to enhance the health and wellbeing of the workforce and associated households.

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.7.2	Mental health	Potential exacerbation of stress and/ or anxiety for neighbouring residents due to opposition to the Project or fears about potential Project impacts.	C&O	Nearby residents and landholders	Operate the Project within regulatory requirements to avoid or minimise impacts to the amenity of properties or environmental values which support local wellbeing.	C3 (-)	NA1 – Neighbour engagement on EIS findings NA2 – Neighbour engagement program NA3 – Property-specific agreements SA3 – Regular / operations communication and engagement program	D2 (-)	Strategies are expected to reduce the potential for stress and anxiety, however concerns may persist for some community members. Regular engagement would help monitor relationships and potential risks to wellbeing.
5.7.3	Traffic safety	The Project is not expected to exacerbate any specific road safety concern and no specific management measures are recommended by TTPP (2019).	C&O	Local motorists School students and families NSW Education School bus operators NSW	Site induction to include information regarding fatigue management and driving responsibilities.	C3 (-)	CA3 – Community and traffic safety HWA6 – Workforce health and wellbeing	D2 (-)	Focus on fatigue management and workforce responsibilities on the road would reduce the risk of road safety issues.

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.7.4	Potential for impacts on vulnerable groups	Potential for uncertainty about Project timeframe, opposition to Project or perceptions about impacts to cause stress or anxiety for neighbouring landholders.	C&O	Neighbours in the vicinity of the Project	Operate the Project within environmental standards to avoid or minimise impacts to the amenity of properties in accordance with the conditions of development consent.	C3 (-)	SA3 – Regular / operations communication and engagement program SA4 – Dedicated contact points SA5 – Complaints procedure	D2 (-)	Strategies are expected to reduce the potential for stress and anxiety, however concerns may persist for some community members regardless of these strategies.
5.7.4	Potential for impacts on vulnerable groups	Housing requirements (including cumulative requirements) may result in rental housing shortages until supply and demand are balanced.	O	Low income households, including Aboriginal families, Muswellbrook and Singleton Council	Consultation with Councils regarding rental housing availability.	C3 (-)	HWA5 – Settlement and integration HWA7 – Monitor cumulative impacts of labour force	C2 (-)	Awareness of housing availability would support responses to avoid impacts on vulnerable households.
5.7.5	Health and wellbeing – benefits to wellbeing	The availability of long-term, employment and supply opportunities are expected to have direct positive effects on wellbeing for employees and their families, as well as for local business owners.	O	Individuals and families in the Muswellbrook and Singleton LGAs Local businesses Local communities	Commitment to local supply, local employment, and workforce diversity	A3 (+)	BA1 – Local Contract Strategy HWA2 – Operations recruitment HWA3 – Developing workforce capacity	A4 (+)	Long-term local employment and local supply opportunities would benefit some hundreds of local families.

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.8.1 5.8.2	Cumulative impacts - labour and skill shortages.	Coincidence of projects' construction and commencement of operation may result in skilled labour shortages, which would in turn impact the Project's local / non-local workforce profile and associated demand for housing and services	C&O	Muswellbrook Shire and Singleton Councils. Training and employment agencies.	Ongoing consultation.	C4 (-)	SA6 – Cooperation on cumulative impacts CA8 – Monitor cumulative impacts on community infrastructure	C3 (-)	Cumulative Project benefits are likely to offset cumulative impacts. Collaborative management and information sharing strategies would improve service planning.
5.8.3	Cumulative impacts - access and connectivity	Contributions to increased road traffic and potential travel time delays as a result of Edderton Road realignments.	O	Local residents, other road users and emergency services	Consultation with BHP regarding interactions between the Project, Mt Arthur Mine and Edderton Road.	A2 (-)	SA6 – Cooperation on cumulative impacts	B1 (-)	Impacts would be temporary in nature and able to be planned around with sufficient notice.
5.8.4	Cumulative impacts - environmental qualities	Assessments by other technical specialist have found that the Project would have minimal additional contributions to impacts on landform, visual amenity, dust, traffic, noise and water resources.	O	Muswellbrook Shire and Singleton Councils. Upper Hunter River Rehabilitation Initiative. ACARP.	Ongoing consultation.	C2 (-)	SA6 – Cooperation on cumulative impacts	C1 (-)	Cumulative Project benefits would offset cumulative impacts. Collaborative management and information sharing strategies would improve service planning.

Section	Impact area	Social Impact/Benefit	Phase	Stakeholders	Malabar commitments	Signif.	Project-specific management strategies	Residual Signif.	Rationale for residual rating
5.10	Impacts of Project closure	Loss of jobs and supply opportunities. Potential but unquantifiable impacts to population change.	D&R	Project employees and their families. Project suppliers and their supply chains.	Mine Closure Plan	A3 (-)	HWA8 – Workforce engagement in mine closure planning	C1 (-)	Workforce ramp down is expected to be gradual over several years.
5.10	Impacts of Project closure	Completion of the Project's rehabilitation would reduce impacts on landform and visual amenity, and see the cessation of any noise impacts on nearby properties or residences.	D&R	Landholders and families within 2.5 km of the Project	Mine Closure Plan	A3 (+)	N/A	A3 (+)	Improvements to visual amenity due to rehabilitation, and cessation of any noise effects.

6. MANAGEMENT STRATEGIES

This section presents Malabar's commitments of relevance to social impacts (Section 6.1) and five management strategies which aim to:

- mitigate and manage the Project's social impacts on neighbours, local communities and stakeholders;
- maximise local employment, and encourage non-local employees to move to local communities; and
- make opportunities associated with the Project deliver long-term benefits for nearby local communities.

These strategies include:

- **Stakeholder Engagement and Relationships (Section 6.2):** Provision for all potentially affected stakeholders of adequate, timely information about the Project, expected impacts and associated management and monitoring strategies, access to Project opportunities and benefits and personnel available for long-term stakeholder relationships.
- **Neighbour Amenity (Section 6.3):** Developing good neighbour relations based on regular, transparent and responsive engagement, minimising amenity impacts at neighbouring properties, contributing positively to local character and landscape values, and providing timely and accurate feedback on the potential impacts of the Project.
- **Community Infrastructure and Wellbeing (Section 6.4):** Managing Project-related demand on services and facilities, assisting social infrastructure and service planning with accurate data and agreements with key service providers, and supporting local initiatives that contribute to workforce and community wellbeing.
- **Housing and Workforce Management (Section 6.5):** Maximising local employment (Muswellbrook and Singleton LGAs) including Indigenous people, women, young people and locals from outside the underground mining sector, monitoring numbers of personnel moving to the Muswellbrook and Singleton LGAs and advising Councils of anticipated workforce numbers, encouraging non-local operational hires and their families to settle locally, and supporting workforce health and wellbeing.
- **Local Business (Section 6.6):** Enabling local businesses and suppliers to participate in Project procurement opportunities supporting initiatives and service industries that promote liveability, workforce settlement and associated economic growth.

Section 6.7 describes the Project's strategies in relation to Mine Closure and Decommissioning, as they relate to future plans for mined-land, workforce management, and community and stakeholder engagement. These strategies are captured in the action plans at Section 6.2, Section 6.3 and Section 6.5.

Each strategy provides:

- a summary of the relevant impacts and opportunities, management objectives, relevant corporate and Government Policies. Additional detail is provided in the relevant subsections of Section 5; and
- an action plan which describes the planned actions, relevant stakeholders, timing and performance measures for each action.

To facilitate cross-referencing and monitoring, a numbering system has been used to structure and track objectives and actions. For example, BO1 refers to Local Business Objective 1 and BA1 refers to Local Business Action 1.

A framework for monitoring change in social conditions is provided in Section 6.8.

The management strategies and progress against their performance measures would be reviewed on an annual basis.

A comprehensive review of social impact management strategies would be undertaken in Year 3 of operations, in consultation with the Project's CCC, Muswellbrook Shire Council and Singleton Council, and strategies would be revised as necessary for Years 4 – 10.

Revision of management strategies would also be undertaken three to five years before the Project's planned closure and amended to reflect current social conditions.

6.1 Malabar commitments

Malabar maintains the following commitments that would underpin the Project's social impact management strategies:

- Management of Project works and potential environmental impacts in accordance with the Project's development consent, industry standards and water licensing arrangements;
- Management of Indigenous and non-Indigenous cultural heritage in accordance with relevant legislation and EIS commitments;
- A strong local employment commitment;
- A strong workforce diversity policy with a target for individuals new to the underground mining sector to be 20% female and 10% Indigenous;
- Planned recruitment of approximately 50% of the operational workforce from individuals outside of the underground mining sector, including young people, and people who are unemployed;
- A Workforce Conduct Policy establishing:
 - clear standards of behaviour for employees and contractors while on and off-shift;
 - clear standards in relation to drug and alcohol use; and
 - fatigue management requirements;
- Community investment support for:
 - local community infrastructure, including health, education and childcare;
 - local community values and cohesion, including support for local events and community-led projects; and
 - community liveability, promoting environmental qualities, family life and community resilience.
- Positive contributions to local agriculture and agricultural suppliers and services, as Malabar is actively improving its agricultural properties and viticultural operations so that these will be long-term sustainable and productive businesses; and
- Continue to provide support to local farmers and croppers by providing agistment opportunities on improved pastures owned by Malabar, and where possible leasing excess water rights to neighbours.

6.2 Stakeholder engagement and relationships

This section addresses the Project's potential impacts and opportunities associated with community and stakeholder relationships. Table 6-1 provides a framework to guide the Project's engagement and relationship management strategies, including objectives and complementary corporate and government policies. Table 6-2 sets out the key actions the Project would undertake to achieve each objective, including timeframes for implementation and key stakeholders that would be involved. Each action includes a target to measure the success of its delivery.

Table 6-1: Stakeholder engagement and relationship management framework

Potential Impacts and Opportunities	<p>Potential impacts:</p> <ul style="list-style-type: none"> Minimal change to local amenity and traffic. Concern about perceived change to landscape or environmental values. Potential for negative community perceptions about the Project's impact on water resources and/or horse studs. 	<p>Potential opportunities:</p> <ul style="list-style-type: none"> Partnership opportunities between Malabar and stakeholders. Contribution to community cohesion in the Project region.
Objectives (O) (S – Stakeholder Engagement and Community Participation)	<p>SO1 – Provide transparent, consistent and inclusive stakeholder engagement and access to current and sufficient information about the Project, its activities, workforce and schedule to support impact management and monitoring.</p> <p>SO2 – Provide stakeholders direct access to Project representatives who can answer their questions about the Project and its potential impacts and would convey their concerns to Malabar.</p> <p>SO3 – Stakeholder issues and grievances are identified, evaluated, addressed, recorded and reported such that the Project can demonstrate how Malabar is responding to stakeholder feedback.</p> <p>SO4 – Build relationships that support communication, information sharing and feedback to assist decision making with regard to construction and operational impacts.</p> <p>SO5 – Facilitate opportunities for interaction between Malabar employees and local residents to contribute positively to community cohesion and development.</p>	
Relevant Company Documents/ Policies	<p>Project EIS for Public Exhibition</p> <p>Community and Stakeholder Engagement Plan</p> <p>Complaints Management Procedure</p>	<p>Sponsorship and Donations Policy</p> <p>Workforce Conduct Policy</p>
Key Government Policies	<p>NSW Community Consultative Committee Guidelines for State Significant Projects.</p>	

Table 6-2: Stakeholder engagement and relationship management actions

Objectives	Actions	Stakeholders	Timing	Performance Measures
SO1	<p>SA1 – Consultation on EIS findings</p> <p>Provide local landholders within 2.5 km of the Project and Indigenous representative groups with notification of the EIS exhibition period and offer to provide a briefing to discuss the findings.</p> <p>On request, facilitate access to the EIS Technical Reports.</p> <p>Offer to meet with the neighbouring equine and viticulture operators, to discuss EIS findings, concerns about the Project and future engagement.</p> <p>Offer to meet with the Muswellbrook and Singleton Chambers of Commerce to discuss how the Project can contribute to community cohesion and businesses vitality in local communities.</p> <p>Initiate contact with other relevant stakeholders to alert them to the EIS exhibition and offer to meet to discuss any concerns.</p>	<p>Landholders within 2.5 km of Project</p> <p>Indigenous community</p> <p>Business and industry stakeholders</p> <p>Other relevant stakeholders</p>	Q2 2019	Number of meetings held
	<p>SA2 – Construction communication and engagement program</p> <p>Maintain transparent, evidence-based and ongoing dialogue with concerned landholders and other community members.</p> <p>Review representation throughout the CCCs to provide for ongoing inclusion of the Indigenous community and representative members of neighbouring landholders.</p> <p>Use appropriate media platforms to disseminate current Project information and demonstrate how community feedback has been considered in Project execution.</p>	<p>Landholders within 2.5 km of Project</p> <p>Interested community members</p>	From Project approval to Year 3	<p>Number of complaints about Project activities</p> <p>Distribution of construction notices to neighbours</p>
	<p>SA3 – Regular / operations communication and engagement program</p> <p>Report on the implementation of social impact management strategies to the Project CCC.</p> <p>Regular updates to the local community through Malabar's website and local media.</p> <p>Conduct Project site visits of progressive rehabilitation of former mining areas at the Maxwell Infrastructure for State government agencies, Muswellbrook Shire Council and CCCs, if requested.</p> <p>Maintain six monthly liaison (or as agreed) with nearby landholders as per strategies outlined at NA2.</p> <p>Timely and regular provision of impact monitoring results (including air quality, noise and water), with sufficient supporting information to enable community members' interpretation of how monitoring data relates to the Project's compliance requirements, through the CCC and Malabar's website.</p>	Project CCC	Life of Project	<p>Regular community updates</p> <p>Liaison as agreed with landholders</p>

Objectives	Actions	Stakeholders	Timing	Performance Measures
	Prior to construction activity on any local roads, provide information about the Project's construction and road works program to all residents on the affected roads, along with contact details for the Project and details of Malabar's complaints mechanism.			
SO2	SA4 – Dedicated contact points Establish and publicise a dedicated Project complaint and enquiry line which is available to all stakeholders.	Community members	Life of Project	Project collateral promotes contact points
SO3	SA5 – Complaints procedure Maintain a complaints management process to facilitate resolution of community complaints relating to Project activities or personnel. Maintain and publish the Project's complaints register online, including information about the nature of the complaint and responsive actions. Report to the Project CCC and the NSW DP&E regarding community complaints.	Landholders and community members Project CCC NSW DP&E	Life of Project	Complaints register is reported online
SO4	SA6 – Cooperation on cumulative impacts Participate in development of cumulative impact monitoring framework with associated operators and key stakeholders between 2021 and 2023. Participate in other Government/Industry initiatives relevant to cumulative impact management in the Project region. Provide a 6-12 month forward activity schedule for the Project including (as best is known at the time) workforce ramp-up and accommodation arrangements to relevant stakeholders.	NSW DP&E Muswellbrook Shire Council, Singleton Council NSW Minerals Council Relevant project proponents / operators	Years 1 to 3 or as convened	Evidence of engagement with government agencies regarding scope of SA7
SO5	SA7 – Support community cohesion and development Work with local community and business stakeholders to promote settlement and cohesion through support of local settlement strategies, liveability initiatives, family-oriented events, and child and family health programs. Establish a Workforce Conduct Policy that sets clear workforce behaviour expectations. Periodically review Malabar's sponsorships and donations program including focus on projects and initiatives that support local community values, character and cohesion within the Muswellbrook and Singleton LGAs.	Local community and health service providers	Life of Project	Evidence of engagement with key stakeholders regarding scope of SA8 and support for local initiatives

Objectives	Actions	Stakeholders	Timing	Performance Measures
	Support local initiatives that facilitate non-resident workforce and community interactions at local venues, events and community projects.			
	SA8 – Community visioning process for future use of mined land Undertake a community engagement and visioning process five years prior to Project closure (i.e. 2041) which would inform the development of the Mine Closure Plan (see Section 6.7).	Neighbouring landholders and nearby communities	5 years before closure	Evidence of engagement with key stakeholders regarding scope of SA9

6.3 Neighbour amenity

This strategy addresses the impacts and opportunities identified by the SIA in relation to neighbouring landholders' rights to enjoyment of their homes and properties. Table 6-3 provides the framework that would guide the Project's strategies. Table 6-4 sets out the key actions the Project would undertake to achieve these objectives.

Table 6-3: Neighbour amenity management framework

Potential Impacts and Opportunities	<p>Potential impacts:</p> <p>Assessments by technical specialists have found that the Project would have minimal impacts on landform, visual amenity, dust, traffic, noise and water resources.</p> <p>Neighbour anxiety regarding property values, water resources and future planning.</p> <p>Neighbour concern about changes to 'brandscape' and landscape values.</p>	<p>Potential opportunities:</p> <p>Strengthen company credibility and trust in relationships with landholders.</p> <p>Opportunity to support co-existence of the Project within the CIC landscape.</p> <p>Involve landholders in environmental and social impact monitoring.</p>
Objectives (O) (N – Neighbour Amenity and Quality of Life)	<p>NO1 – Develop good neighbour relations based on regular, transparent and responsive engagement.</p> <p>NO2 – Minimise amenity impacts at neighbouring properties through monitoring, engagement and adaptive management.</p> <p>NO3 – Allay anxiety regarding Project impacts through provision of information and maintenance of positive stakeholder relations.</p> <p>NO4 – Contribute positively to local character and landscape values.</p>	
Relevant Company Documents/ Policies	<p>EIS Main Text</p> <p>Complaints Management Procedure</p>	<p>Sponsorship and Donations Policy</p> <p>Workforce Conduct Policy</p>

Key Government Policies	NSW Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments (Integrated Mining Policy, 2018).	NSW Community Consultative Committee Guidelines for State Significant Projects.
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Table 6-4: Neighbour amenity management actions

Objectives	Actions	Stakeholders	Timing	Performance Measures
NO1	<p>NA1 – Neighbour engagement on EIS findings</p> <p>Engagement strategies as per SA1.</p> <p>During the EIS exhibition period, offer to meet with the owners of occupied properties within 2.5 km of the Project to:</p> <ul style="list-style-type: none"> provide a detailed explanation of the Project, including construction and operational activities and timeframes, including information about the Project's design solutions and mitigations that address noise, air quality management, water resource management and changes to the landscape; seek landholders' feedback and inputs on mitigation strategies; identify landholders' outstanding concerns; and develop monitoring and engagement actions to address those concerns. 	Landholders within 2.5 km of the Project	Q2 –Q3 2019	Number of briefings held
NO1, NO2, NO3	<p>NA2 – Neighbour engagement program</p> <p>Annual neighbours' Community Information Session commencing prior to construction and continuing during at least the first three years of the Project's operation to provide a Project update and address potential issues or concerns.</p> <p>Offer to meet regularly with representatives of the Coolmore Stud, Godolphin Woodlands Stud and Hollydene Estate.</p> <p>Information sharing strategies as per SA5, SA6, SA8.</p>	Landholders and business operators within 5 km of the Project	Life of Project	No. of meetings held
NO2, NO3	<p>NA3 – Property-specific agreements</p> <p>Development of a strategy for ongoing communication with neighbouring landholders (e.g. within 2.5 km of the Project) to discuss property specific issues and mitigation plans where required.</p> <p>For properties where noise assessment indicates noise exceedances, develop property-specific agreement plans to address owners' concerns.</p> <p>Implement a groundwater bore monitoring program, including 'make good' provisions for any material Project-related water bore drawdown.</p>	As determined by Project's groundwater assessment	By commencement of operations	Any impacts are made good as reported under development consent conditions.

Objectives	Actions	Stakeholders	Timing	Performance Measures
NO4	<p>NA4 – Improvements to landscape and amenity values</p> <p>Develop and implement mitigation measures (e.g. tree screening) that minimise impacts on landscape and amenity values from private properties and road approaches.</p> <p>Maintain fence lines, entrances and road side plantings within Malabar-owned properties to present a visually pleasing appearance that is congruent and sympathetic with the appearance of surrounding rural properties.</p>	Neighbouring properties, nearby communities and local road users	Life of Project	Evidence of engagement with key stakeholders to scope project and outcomes

6.4 Community infrastructure and wellbeing

This strategy addresses the impacts and opportunities identified by the SIA to manage additional demand for services associated with the Project, and to focus on making a positive contribution to community wellbeing, particularly in Muswellbrook, Jerrys Plains and Denman.

Table 6-5 provides the framework that would guide the Project's community infrastructure and wellbeing strategies including objectives and complementary corporate and government policies.

Table 6-6 sets out the key actions the Project would undertake to achieve each objective and deliver this management strategy, which articulates timeframes for implementation and key stakeholders that would be involved. Each action includes a target to measure the success of its delivery.

Table 6-5: Community infrastructure and wellbeing management framework

Potential Impacts and Opportunities	<p>Potential impacts:</p> <p>Increased demand for services including GPs, hospitals, police and emergency services.</p> <p>During operations, increased demand for childcare, education and training, health, family support services and recreation facilities.</p> <p>Potential exacerbation of stress/ anxiety for neighbouring landholders.</p> <p>Potential cumulative impacts on social infrastructure</p>	<p>Potential opportunities:</p> <p>Positive effects of employment and economic stimulus for local employees, families and businesses.</p> <p>Contribute positively to workforce and community wellbeing.</p>
Objectives (O) (C – Community Infrastructure and well-being)	<p>CO1 – Assist agency planning (DP&E, Education, Health, and Police) through regular provision of workforce data and consultation.</p> <p>CO2 – Manage workforce and associated population demand for local services and facilities.</p> <p>CO3 – Support local initiatives that contribute positively to workforce and community wellbeing.</p> <p>CO4 – Participate in monitoring community infrastructure impacts in the Project region arising from cumulative developments in the area.</p>	
Relevant Company Documents/ Policies	EIS Main Text	Proposed VPA with Muswellbrook Shire Council Sponsorship and Donations Policy
Key Government Policies	<p>2017 Hunter Regional Plan.</p> <p>2012 Strategic Regional Land Use Plan.</p> <p>2017 Muswellbrook Shire Community Strategic Plan</p> <p>2018 Muswellbrook Draft Strategic Planning Statement</p>	<p>Singleton Council Community Strategic Plan 2017-2017.</p> <p>Muswellbrook Shire Delivery Program 2017–2021</p>

Table 6-6: Community infrastructure and wellbeing management actions

Objectives	Actions	Stakeholders	Timing	Performance Measures
CO1	<p>CA1 – Support social infrastructure and service planning</p> <p>Engage with government agency stakeholders to communicate workforce data to support service planning.</p> <p>Provide advice to Council and social infrastructure stakeholders on workforce ramp-up and indicative numbers of new local personnel, annually during construction and the first three years of operation.</p> <p>Consult Muswellbrook Police, Hunter Zone 2 Ambulance and RFS Hunter Valley Operations regarding the Project's Emergency Response Management Plan and workforce management approach.</p> <p>Ongoing consultative arrangements with local emergency services, including Muswellbrook Police, Hunter Zone 2 Ambulance Service and NSW Hunter Valley RFS, to establish relationships and support emergency responses.</p>	<p>Muswellbrook Shire Council, Singleton Council, Muswellbrook Police, Hunter Zone 2 Ambulance, Hunter Valley RFS</p> <p>Hunter New England and Central Coast PHN</p> <p>NSW Health</p>	From initial construction to Year 3	<p>Project data provided as required</p> <p>Emergency Services consulted on relevant Project Management Plans</p> <p>Evidence of ongoing consultation with emergency services</p>
CO2	<p>CA2 – Support local community infrastructure</p> <p>Allocate funds for local infrastructure providers (Council and community services, including educational and childcare services) via Malabar's proposed VPA with Muswellbrook Shire Council to contribute to community development, liveability and cohesion.</p> <p>Continue Malabar's sponsorships and donations program, which focuses on projects that support community cohesion, promotion of local values, environmental projects, family-oriented initiatives and health-related initiatives.</p>	<p>Muswellbrook Shire Council and Singleton Council</p> <p>Community organisations</p>	Life of Project	Evidence of allocation of funds for local community infrastructure and services
CO3	<p>CA3 – Community and traffic safety</p> <p>Engage with Muswellbrook Police to develop emergency response plans and relationships between Malabar and the Police to enable proactive responses to any project-related community safety issue (e.g. traffic behaviour, behaviour in towns, or protest actions).</p>	<p>Muswellbrook Shire Council, Singleton Council, Muswellbrook Police, local bus operators</p>	Life of Project	Evidence of consultation with Muswellbrook Police as per scope of CA3
	<p>CA4 – Respect Indigenous cultural values</p> <p>Develop an ACHMP in accordance with recommendations made by AECOM (2019).</p>	<p>Aboriginal community</p>	Life of Project	Evidence of consultation

Objectives	Actions	Stakeholders	Timing	Performance Measures
	<p>Seek to maintain Indigenous representation on the CCC throughout the life of the Project.</p> <p>Contribute to community initiatives outlined by the Muswellbrook Shire Council's Reconciliation Action Plan.</p>	leaders and community members		regarding scope of CA4
	<p>CA5 – Support local community development, liveability and cohesion</p> <p>Strategies as per HWA2.</p> <p>Establish partnerships with Muswellbrook and Singleton Councils to develop a strong workforce settlement campaign including support for local liveability initiatives, family-oriented events and child and family health programs (see also SA7).</p> <p>Periodically review Malabar's sponsorships and donations program to maintain a focus on projects and initiatives that support local community values, education, health, character and cohesion in Jerrys Plains, Muswellbrook, Denman and Singleton (see also SA7).</p> <p>Support local initiatives that facilitate non-resident workforce and community interactions at local venues, events and community projects.</p>	Muswellbrook Shire Council, Singleton Council, Muswellbrook Hospital, Upper Hunter Community Services	From Project approval, for Life of Mine	Evidence of engagement with key stakeholders on and support for local initiatives
CO4	<p>CA6 – Monitor cumulative impacts on community infrastructure</p> <p>As per SA6, participate in development of cumulative impact monitoring framework with associated operators and key stakeholders between Years 1 and 3.</p> <p>Participate in other Government/Industry initiatives relevant to cumulative impact management in the Project region.</p> <p>Provide a 6-12 month forward activity schedule for the Project including (as best is known at the time) workforce and accommodation arrangements to relevant stakeholders.</p>	Muswellbrook Shire Council, Singleton Council, DP&E, other mining and resource operators	From Project approval to Year 4	Evidence of engagement and collaboration with relevant parties for monitoring and responding to cumulative impacts on community services and infrastructure

6.5 Housing and workforce management

This strategy addresses the impacts and opportunities identified in relation to workforce accommodation during construction and operations, workforce behaviour management and community cohesion, and opportunities for local employment, workforce diversity and skill development. Table 6-7 provides the framework that would guide the Project's housing and workforce management strategies including overarching objectives and complementary corporate and government policies. Table 6-8 sets out the key actions the Project would undertake to achieve each objective and deliver this management strategy, which articulates timeframes for implementation and key stakeholders that would be involved. Each action includes a target to measure the success of its delivery.

Table 6-7: Housing and workforce management framework

Potential Impacts and Opportunities	<p>Potential impacts:</p> <p>Increased demand (including cumulative) for rental housing affecting local availability and affordability.</p> <p>Potential for cumulative competition for skilled labour at a local and regional level.</p> <p>Non-local workforce and community cohesion.</p>	<p>Potential opportunities:</p> <p>Increased demand for housing stimulates development in Muswellbrook and Singleton LGAs.</p> <p>Creation of direct and indirect employment opportunities for local and regional labour pool.</p> <p>Creation of local employment opportunities (Muswellbrook and Singleton LGAs) for Indigenous people, women, youth and locals previously unskilled in mining.</p>
Objectives (O) (HW – Housing and Workforce Management)	<p>HWO1 – Maximise local employment (Muswellbrook and Singleton LGAs) and for Indigenous people, women, young people and people previously unskilled in mining.</p> <p>HWO2 – Minimise additional pressure on the rental housing market.</p> <p>HWO3 – Encourage non-local operational hires and their families to settle permanently in the Muswellbrook and Singleton LGAs.</p> <p>HWO4 – Strengthen workforce health and wellbeing.</p> <p>HWO5 – Assist Councils in identifying and responding to cumulative housing and workforce impacts.</p>	
Relevant Company Policies	<p>Malabar Workforce Conduct Policy</p> <p>Malabar Workforce Diversity Policy</p> <p>Malabar Employee Induction Program</p>	<p>Malabar's proposed VPA with Muswellbrook Shire Council</p> <p>Relevant Construction Contracts</p>
Key Government Policies	<p>2017 Hunter Regional Plan and Annual Housing and Land Monitor</p> <p>2012 SRLUP</p> <p>2017 Muswellbrook Shire Community Strategic Plan</p> <p>2018 Muswellbrook Draft Strategic Planning Statement</p>	<p>Singleton Council Community Strategic Plan 2017-2017</p> <p>Muswellbrook Shire Delivery Program 2017–2021</p> <p>Muswellbrook and Singleton Local Environment Plans</p>

Table 6-8: Housing and workforce management actions

Objectives	Actions	Stakeholders	Timing	Performance Measures
HWO1	<p>HWA1 – Local hire during construction</p> <p>Encourage construction contractors and suppliers to hire locally where possible through contractual terms.</p> <p>Require construction contractors to engage with businesses in the Project region.</p>	Local construction companies and construction sector employees	From initial construction to Year 3	Evidence of construction company recruitment efforts to obtain local

Objectives	Actions	Stakeholders	Timing	Performance Measures
	<p>Promote availability of Project employment and application arrangements in The Singleton Argus, Muswellbrook Chronicle, Hunter Valley News, Denman News, and/or The Scone Advocate.</p> <p>Maintain regular engagement with local employment agencies to advise of opportunities for training and employment.</p>			supply and participation
	<p>HWA2 – Operations recruitment</p> <p>Develop and implement a Workforce Diversity Policy.</p> <p>Establish arrangements with employment and recruitment services, including those for Indigenous people and people with disability, to provide advance notice of upcoming employment opportunities.</p> <p>Partner with an appropriate Aboriginal employment service provider to develop culturally-specific training and recruitment strategies.</p> <p>Promote availability of Project employment and application arrangements in The Singleton Argus, Muswellbrook Chronicle, Hunter Valley News, Denman News and/or The Scone Advocate.</p> <p>Focus recruitment on hiring residents of the Muswellbrook and Singleton LGAs, including local Indigenous people, young people, and local women.</p> <p>Promote available services to assist candidates in preparing their applications and supporting documentation.</p>	<p>Muswellbrook Shire Council, Singleton Council, Muswellbrook TAFE and University of Newcastle, Muswellbrook and Singleton High Schools</p> <p>Diverse employment and recruitment services</p> <p>Local Indigenous organisations and community leaders</p> <p>Muswellbrook and Hunter Chambers of Commerce</p>	Life of Project (from initial construction)	<p>Evidence of engagement with employment and recruitment services</p> <p>Evidence of website and media promotions</p>
HWO1	<p>HWA3 – Developing workforce capacity</p> <p>Establish partnerships with Muswellbrook and Singleton High Schools to initiate training, apprenticeship, cadetship and/or intern programs that would provide pathways for local students to Project employment.</p> <p>Establish partnerships with University of Newcastle, Muswellbrook TAFE Campus (Hunter TAFE) and Mining Skills Centre to develop Project-specific training programs and identify local young people with an interest in Project employment.</p> <p>Partner with an appropriate Aboriginal employment service provider to develop culturally-specific training and recruitment strategies.</p>	<p>Muswellbrook Shire Council, Singleton Council, Muswellbrook TAFE and University of Newcastle, Muswellbrook and Singleton High Schools</p> <p>Diverse employment and recruitment services</p>	Life of Project (from initial construction)	Provision of training opportunities supported by Malabar

Objectives	Actions	Stakeholders	Timing	Performance Measures
		Local Indigenous organisations and community leaders Muswellbrook and Hunter Chambers of Commerce		
HWO2	<p>HWA4 – Non-local accommodation management</p> <p>Require construction contractors to contact accommodation operators in advance of construction commencing, to schedule accommodation bookings and enable accommodation providers to plan for maximum capacity.</p> <p>Advise Council and real estate agents of workforce ramp-up and provide information on housing availability to in-migrating personnel.</p> <p>If Project construction coincides with that of other projects, identify existing housing and accommodation capacity relative to Project workforce needs and prepare a workforce accommodation strategy which addresses the construction and operation phases.</p> <p>Participate in Council, industry or Government projects to monitor cumulative impacts on labour availability and/or housing.</p>	<p>Muswellbrook Shire Council</p> <p>Singleton Council</p> <p>Workforce accommodation providers</p>	From initial construction to Year 3	Evidence of housing monitoring and stakeholder engagement
HWO3	<p>HWA5 – Settlement and integration</p> <p>Promote Muswellbrook, Denman and Singleton as residential bases for new local personnel.</p> <p>Work with local community and business stakeholders to prepare a town welcome pack that encourages settlement and involvement in local towns.</p> <p>During the first three years of operation:</p> <ul style="list-style-type: none"> Quarterly monitoring program of rental and purchase housing capacity in Muswellbrook and Singleton, and re-direction of personnel to live in other centres if housing shortages are identified. Monitor workforce childcare demands as part of the workforce on boarding and settlement program and communicate these to Muswellbrook and Singleton Councils. <p>Establish a Workforce Conduct Policy that sets clear workforce behaviour expectations.</p>	<p>Muswellbrook Shire Council, Singleton Council, Muswellbrook and Singleton Chambers of Commerce</p>	Years 1 to 3	Housing, workforce and childcare demands data available to Muswellbrook and Singleton Councils on request

Objectives	Actions	Stakeholders	Timing	Performance Measures
HWO4	<p>HWA6 – Workforce health and wellbeing</p> <p>Workforce health and safety program which includes a focus on fatigue management, promotion of healthy lifestyles and mental health.</p> <p>Promote healthy lifestyle tips directly linked to activities and services available in the Muswellbrook and Singleton LGAs, published in the Project's internal electronic newsletters.</p> <p>Encourage access to a confidential employee counselling service, available to operational and construction personnel.</p> <p>Create a culture that supports wellbeing, including programs to improve knowledge and understanding of mental health and peer support.</p>	<p>Muswellbrook Shire Council</p> <p>Singleton Council</p> <p>Muswellbrook PCYC</p> <p>Muswellbrook and Singleton Hospitals</p> <p>Catering, Sport and Recreation providers</p>	Life of Project	Workforce participation in workforce health and safety initiatives
HWO5	<p>HWA7 – Monitor cumulative impacts on labour force</p> <p>As per SA7, participate in development of cumulative impact monitoring framework with associated operators and key stakeholders between Years 1 and 3.</p>	<p>DP&E, Muswellbrook Shire Council, Singleton Council, Other mining operators and proponents</p>	From initial construction to Year 5	Evidence of cooperation with other relevant stakeholders
	<p>HWA8 – Workforce engagement in mine closure planning</p> <p>Prior advice to workforce on ramp-down and/or transition strategies in concert with community engagement activities and further development of Mine Closure Plan.</p>	Project workforce	Prior to mine closure	Workforce informed of projected ramp-down and timeframes

6.6 Local business

This strategy addresses the impacts and opportunities identified in relation to local business opportunities. Table 6-9 provides the framework that would guide the Project's local business strategies including objectives and complementary corporate and government policies. Table 6-10 sets out the key actions the Project would undertake to achieve each objective, which articulates timeframes for implementation and key stakeholders that would be involved. Each action includes a target to measure the success of its delivery.

Table 6-9: Local business opportunities framework

Potential Impacts and Opportunities	<p>Potential impacts:</p> <p>Potential for cumulative labour draw from other local business and industry sectors.</p>	<p>Potential opportunities:</p> <p>Creation of supply chain opportunities for local businesses.</p> <p>Increased economic growth through local expenditure.</p>
Objectives (O) (HW – Housing and Workforce Management)	<p>BO1 – Enable local businesses and suppliers to participate in Project procurement opportunities.</p> <p>BO2 – Minimise the impacts of potential labour draws from local businesses sectors by recruiting and training new entrants to underground mining.</p> <p>BO3 – Support initiatives and service industries that promote liveability, workforce settlement and associated economic growth.</p>	
Relevant Company Policies	<p>Malabar Local Contract Strategy.</p> <p>Malabar Local Supplier Database.</p>	<p>Local Supplier Database.</p>
Key Government Policies	<p>2017 Hunter Regional Plan</p> <p>2017 Muswellbrook Shire Community Strategic Plan</p> <p>2018 Muswellbrook Draft Strategic Planning Statement</p>	<p>Singleton Council Community Strategic Plan 2017-2027.</p> <p>Muswellbrook Shire Delivery Program 2017–2021</p> <p>Muswellbrook and Singleton Local Environment Plans</p>

Table 6-10: Local business actions

Objectives	Actions	Stakeholders	Timing	Performance Measures
BO1	BA1 – Local Contract Strategy Formalise the local contract strategy for construction and operation, and articulate requirements throughout major contracts to facilitate supply chain involvement of local and regional businesses. Stipulate local hire requirements in construction contracts where feasible and require contractors to engage local businesses. Consult with the local chambers of commerce to identify opportunities to strengthen local business' participation in the Project supply chain. Promote business and employment opportunities through Indigenous community leaders, existing Indigenous employment agencies and organisations.	Business stakeholders in Muswellbrook, Singleton, and adjoining LGAs	From Project approval to Year 4	Local contract strategy is included in procurement process.
	BA2 – Local Supplier Database Development of a Project-specific supply chain register that categorises interested businesses from the local area (nearby local communities within the Muswellbrook and Singleton LGAs), and region (Hunter Valley SA4) and across NSW. Enable local supplier registrations to provide a capability statement/expression of interest to Malabar for the Project.	Business stakeholders in Muswellbrook, Singleton, and adjoining LGAs Muswellbrook and Singleton Chambers of Commerce and Industry	From initial construction to Year 4	Number of local businesses goods and services have been procured from and associated expenditure per annum
BO2, BO3	BA3 – Strengthen Service Industries Consult business and industry stakeholders to identify existing programs that are focused on strengthening the service industry sector. Investigate options to strengthen service industry pathways as part of partnerships proposed in HWA3. Sponsorship and donation focus on liveability and community resilience as per CA6.	Muswellbrook and Singleton Chambers of Commerce and Industry	From Project approval to Year 4	Evidence of consultation

6.7 Mine closure, decommissioning and rehabilitation

As described in Section 5.10, the closure of large mining operations in rural communities can result in material changes to:

- local populations, should people leave the area to seek new employment and economic opportunities;
- housing availability and affordability, as some people move from the area and others move in with different employment backgrounds and potentially different housing needs; and
- social infrastructure and local business trade associated with the change in local populations and associated demand for consumable goods and services.

Closure planning would require regular and ongoing consultation between Malabar, the DP&E and Councils to anticipate and identify potential impacts ahead of the mine's closure.

A Closure Plan would be prepared three to five years in advance of the Project's anticipated closure date to accurately inform planning and management of social impacts.

Completion and relinquishment of some of the Project areas may represent beneficial re-use opportunities for local community members. As such the Project has committed to a community engagement and visioning process five years prior to Project closure (i.e. currently 2041) which would inform the development of this plan.

Whilst other local employment is likely to be available for skilled mining workers, the Project's closure may lead to a population decrease in Muswellbrook and other local population centres, with consequential effects for established social networks and potential for a small decrease in local housing demand (Section 5.10). If community consultation indicates this is likely, it is recommended that Malabar develop a transition strategy (e.g. promotion of the area's values to attract new residents and/or businesses to town) in consultation with Council and the Muswellbrook Chamber of Commerce.

As discussed in Section 5.10, the substantial resource inventory within the leases owned by Malabar within the Project area and surrounds (approximately 1,400 million tonnes JORC Resource estimate) provides Malabar with the opportunity to recover additional coal beyond the life of the Project. It is Malabar's intention to be a long-term employer in the region with underground operations delivering predominantly metallurgical coal to the global metals market.

The extraction of additional coal beyond the life of this Project would be subject to similar rigorous approval and consultation processes as this Project.

Therefore, it is Malabar's strategy to maintain its 'social licence' by being a reputable underground miner, enhancing its agricultural assets, providing long-term employment to multiple generations, and supporting the broader community.

6.8 Monitoring and reporting

The social impact management strategies outlined in previous subsections include performance measures for each action, to enable the Project to track their implementation. The results of monitoring of performance measures would be reported to the Project's CCC and to the DP&E.

Table 6-11 outlines the social indicators to be monitored to support adaptive management of social impacts and benefits. This monitoring program applies to the Project's construction and operations phase, and to mine closure and decommissioning.

Table 6-11 identifies:

- key social indicators to be monitored;
- how and when monitoring data would be collected; and
- community participation in monitoring.

To reinforce transparency in the Project's commitments, the Project would report annually on the actions undertaken to implement each social impact management strategy, including the status of performance measures, other relevant outcomes and the results of social indicator monitoring.

Table 6-11: Social Indicators

Social Matters	Indicators	Frequency	Data Source
Amenity of Surroundings	Feedback on changes to residential and local amenity attributed to the Project	Monitored with CCCs	Maxwell Infrastructure, Spur Hill and Antiene Rail Spur CCCs
Personal and property rights	Number of complaints received and resolved	Annual	Project complaints register
Culture	Feedback regarding emerging concerns or opportunities of cultural and/or historic significance	At least annually with key stakeholders	Consultation records with Aboriginal community leaders and community members
Community	Local population changes – Muswellbrook, Denman, Jerrys Plains	Annual	Council feedback (also ABS Census, five yearly)
Way of life	Number of existing and number of new local Project employees permanently based in Muswellbrook and Singleton LGAs	Annual	Malabar employment records
Access /Use of Infrastructure, Services and Facilities	Effectiveness of stakeholder agreements and joint working arrangements	At least annually with key stakeholders	Consultation with training/community partners
Health and wellbeing	Compliance with environmental management criteria	Annual	Environmental monitoring data
	Feedback on emerging concerns or opportunities for community wellbeing resulting from the Project	Monitored with CCCs	Maxwell Infrastructure, Spur Hill and Antiene Rail Spur CCCs
Fears and aspirations	Feedback on emerging community concerns and/or aspirations with respect to the Project	Monitored with the CCCs and neighbours	Maxwell Infrastructure, Spur Hill and Antiene Rail Spur CCCs Neighbour Meetings
Decision-making systems	Relative frequency of complaints about Project impacts and key issues raised	Monitored with the CCCs	Complaints register and the CCCs meeting notes

7. CONCLUSIONS

7.1 Project benefits and opportunities

The Project is likely to have the following benefits and opportunities:

- an average of 90 FTE and a peak of approximately 250 FTE construction jobs over a three year construction period, with emphasis on local supply and employment;
- an average of 350 personnel during the first ten years, 270 personnel during the second ten year period and 190 personnel for the remaining six years of operation, with consequent social benefits at family and community levels;
- local employment benefit and workforce diversity, including Indigenous people, women and people who are new to the underground coal mining industry;
- positive contributions to local and regional population increases and associated economic stimulus from workforce households;
- support for local community objectives and aspirations;
- community investment through a proposed VPA with Muswellbrook Shire Council;
- community investment through Malabar's Sponsorship and Donations, that focus on support for:
 - local community infrastructure, including health, education and childcare;
 - local community values and cohesion, including support for local events and community-led projects;
- direct supply opportunities available to businesses based in the Project region and adjoining LGAs, supporting the vitality and growth of local and regional businesses;
- the Project, as an underground mining operation, has the ability to co-exist with other land-users in the region; and
- payment of royalties and taxes to the NSW and Commonwealth Governments, which contribute to providing services and infrastructure for the people of NSW.

7.2 Social impacts and residual impacts

Assuming implementation of social impact mitigation and enhancement strategies as specified, the Project is likely to have the following social impacts:

- potential for occasional minor noise or dust associated with Maxwell Infrastructure or the Antiene Rail Spur to affect residential amenity for nearby landholders;
- potential for stress and/or anxiety for some nearby landholders due to uncertainties or concerns about environmental or social impacts associated with the Project;
- minor changes to road use and traffic conditions on Thomas Mitchell Drive, Edderton Road, New England Highway and Golden Highway;
- whilst EIS technical reports indicate no potential for changes to the landscape or environmental qualities which would be detrimental to the nearby horse studs, negative perceptions may persist until successful environmental management and cooperation with neighbours can be demonstrated;

- potential for community concern about impacts on water resources, to be addressed by communication and monitoring strategies as detailed in Section 6 of the EIS;
- potential effects on community cohesion due to community conflict about the Project, offset by Malabar's review and expansion of community investments;
- small incremental increases in demand for services including GPs, hospitals, police and emergency services, childcare, education and training, Council services and facilities, within the limits of projected population growth for the Project region;
- increased demand (including potential cumulative demands) for rental housing; and
- potential for cumulative competition for skilled labour at a local and regional level.

Measures to avoid, mitigate, manage and offset the potential environmental impacts of the Project are described in the EIS and its specialist studies. Residual social impacts following the Project's implementation of Malabar commitments and social impact management strategies (see Sections 6.1-6.7) include:

- emerging or unanticipated environmental impacts at individual neighbouring properties, to be identified and addressed through regular engagement;
- potential for residual levels of anxiety or stress among individual neighbouring landholders regarding property-specific or more general environmental impacts, to be addressed through ongoing and adaptive management strategies;
- potential for ongoing reservation, negative perception or opposing community views about the Project's interaction with the region's equine and viticulture CICs, or perceived conflict with regional economic transition goals; and
- cumulative impacts on housing affordability, social infrastructure capacity, local labour and skill shortages, to be addressed through a cumulative impact monitoring framework with local and state agencies and other nearby operations.

7.3 Distributional equity

This assessment considers the potential for Project impacts and opportunities to affect different population and socio-economic groups, including the potential for disproportionate effects on neighbouring landholders, low income households and local Aboriginal households, women, young people and unemployed people. The Project's Social Impact Management Strategies seek to engage these stakeholders specifically in relation to potential impacts, and to maximise their access to associated Project opportunities and benefits.

As for all major projects located near human settlements, negative impacts may be experienced by those living closest to the Project. Landholders neighbouring or near to the Maxwell Infrastructure and Antiene Rail Spur may experience occasional impacts on residential amenity associated with noise and dust. The EIS predicts that these impacts would be minor. The Project may also contribute to stress or anxiety for neighbouring landholders who are concerned about the potential for environmental impacts on their properties or more generally.

On the basis of EIS findings on environmental impacts, property and business owners near the Project's mining area are unlikely to experience a change to their current operations, lifestyle or amenity. However, negative views regarding the Project's perceived incongruence with nearby equine and viticulture businesses may persist among some community members. Malabar would seek to allay these concerns and perceptions through; project design and self-imposed design constraints, genuine community engagement and successful environmental management over time.

Malabar has committed to a comprehensive program of engagement with its neighbours and nearby landholders to provide them with access to timely information about potential impacts and management strategies relevant to their properties, and to a responsive complaints mechanism. Over time, this should reduce anxieties and establish confidence in the relationship between Malabar and neighbours, however concerns may persist for some community members regardless of these strategies.

In relation to distribution of impacts over time, residents at neighbouring and nearby properties may experience effects such as anxiety about potential impacts or minor environmental impacts during the construction phase and/or early years of operation, as social and environmental management measures are optimised.

Potential cumulative impacts on housing availability could be experienced during the first three years of operation, across the Project region. Benefits related to employment would be experienced over a period of up to 27 years. The Project has provided a mitigation program to address social impacts and invest in local communities to offset impacts on distributional equity.

7.4 Assessor qualifications

This report was prepared by Dee Elliott, Director of Elliott Whiteing Pty. Ltd. Dee holds the degrees of Bachelor of Arts (Behavioural Sciences) and Master of Social Policy.

Dee has 32 years' professional experience including 25 years' consultancy experience.

The social impact assessment was undertaken during mid 2018 to early 2019. It contains all information relevant to the SIA for the Project and to the author's knowledge, does not contain information that is false or misleading.



Dee Elliott BA MSocPol

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APPENDIX A: SUPPORTING DATA

Table A-1: Total Share of Employment by Industry, 2011 and 2016, local communities

Industry	Denman			Jerrys Plains			Muswellbrook		
	2011	2016	Change	2011	2016	Change	2011	2016	Change
Agriculture, forestry and fishing	8.9%	8.7%	-0.2%	35.0%	47.5%	12.5%	1.9%	2.1%	0.2%
Mining	19.0%	22.4%	3.4%	14.5%	11.1%	-3.4%	23.7%	24.3%	0.6%
Manufacturing	7.5%	5.9%	-1.6%	13.3%	5.6%	-7.7%	4.8%	3.5%	-1.2%
Electricity, gas, water and waste	4.2%	3.9%	-0.3%	0.8%	0.0%	-0.8%	5.1%	5.4%	0.3%
Construction	8.6%	6.8%	-1.7%	5.0%	0.0%	-5.0%	7.0%	4.6%	-2.4%
Wholesale trade	3.2%	1.7%	-1.5%	1.5%	3.0%	1.5%	3.8%	2.9%	-0.8%
Retail trade	7.7%	7.5%	-0.2%	1.5%	3.0%	1.5%	10.8%	10.6%	-0.3%
Accommodation and food	7.8%	7.5%	-0.3%	7.5%	4.5%	-3.0%	7.7%	7.2%	-0.5%
Transport, postal and warehousing	4.5%	5.6%	1.1%	2.3%	1.5%	-0.7%	2.8%	3.2%	0.4%
Information media, telecommunication	0.5%	1.2%	0.7%	0.0%	0.0%	0.0%	0.4%	0.7%	0.3%
Financial and insurance services	0.7%	0.9%	0.2%	1.5%	1.5%	0.0%	1.3%	1.4%	0.1%
Rental, hiring and real estate	1.2%	0.7%	-0.5%	0.0%	1.5%	1.5%	1.4%	0.9%	-0.5%
Professional, scientific and technical services	3.1%	2.8%	-0.3%	3.0%	4.0%	1.0%	2.8%	3.0%	0.1%
Administrative and support services	2.0%	3.2%	1.2%	4.3%	7.6%	3.3%	3.6%	4.2%	0.7%
Public administration and safety	4.4%	3.2%	-1.2%	2.3%	0.0%	-2.3%	4.3%	5.0%	0.7%
Education / training	4.3%	4.7%	0.4%	1.5%	1.5%	0.0%	5.3%	6.7%	1.4%
Health care and social assistance	7.5%	9.2%	1.8%	4.0%	4.0%	0.0%	7.5%	9.4%	1.9%
Arts and recreation services	0.5%	0.4%	-0.1%	1.5%	2.0%	0.5%	0.9%	0.7%	-0.2%
Other services	4.4%	3.6%	-0.8%	0.8%	1.5%	0.8%	5.0%	4.2%	-0.7%

Source: Australian Bureau of Statistics 2011 and 2016 Census of Population and Housing

*Note: 2011 and 2016 data for Denman are not comparable due to variance in SSC statistical geography; change columns are percentage point change.

Table A-2: Total Share of Employment by Industry, 2011 and 2016, Regional

Industry	Muswellbrook LGA			Singleton LGA			Hunter Valley			NSW		
	2011	2016	Change	2011	2016	Change	2011	2016	Change	2011	2016	Change
Agriculture, forestry and fishing	7.3%	7.2%	-0.1%	3.9%	3.9%	0.0%	3.4%	3.4%	0.0%	2.3%	2.2%	0.0%
Mining	21.8%	23.0%	1.2%	25.3%	24.6%	-0.7%	9.5%	9.4%	-0.1%	1.0%	1.0%	0.0%
Manufacturing	5.3%	4.0%	-1.3%	7.0%	4.5%	-2.6%	9.9%	6.5%	-3.4%	8.7%	6.1%	-2.6%
Electricity, gas, water and waste	4.6%	5.0%	0.5%	2.3%	2.7%	0.4%	1.7%	1.6%	0.0%	1.1%	1.0%	-0.1%
Construction	6.9%	5.1%	-1.8%	6.4%	6.6%	0.2%	8.2%	9.0%	0.9%	7.5%	8.8%	1.3%
Wholesale trade	3.5%	2.7%	-0.9%	3.2%	2.1%	-1.1%	2.9%	1.9%	-0.9%	4.5%	3.2%	-1.3%
Retail trade	9.6%	9.0%	-0.6%	8.4%	7.9%	-0.5%	11.1%	10.6%	-0.5%	10.6%	10.1%	-0.5%
Accommodation and food	7.1%	6.9%	-0.2%	6.8%	8.0%	1.3%	8.2%	8.6%	0.5%	6.9%	7.4%	0.6%
Transport, postal and warehousing	3.0%	3.5%	0.5%	3.2%	3.2%	-0.1%	4.4%	4.6%	0.2%	5.1%	4.9%	-0.1%
Information media, telecommunication	0.4%	0.7%	0.3%	0.4%	0.3%	-0.1%	0.6%	0.5%	-0.1%	2.4%	2.3%	-0.1%
Financial and insurance services	1.1%	1.1%	0.0%	1.2%	1.1%	-0.1%	1.7%	1.8%	0.2%	5.2%	5.2%	0.0%
Rental, hiring and real estate	1.4%	0.9%	-0.5%	1.6%	1.6%	0.0%	1.6%	1.6%	-0.1%	1.7%	1.8%	0.2%
Professional, scientific and technical services	2.9%	3.0%	0.1%	3.7%	2.8%	-1.0%	4.5%	4.3%	-0.2%	8.1%	8.5%	0.4%
Administrative and support services	3.1%	4.0%	0.9%	3.6%	4.3%	0.7%	3.1%	3.9%	0.8%	3.3%	3.7%	0.3%

Industry	Muswellbrook LGA			Singleton LGA			Hunter Valley			NSW		
	2011	2016	Change	2011	2016	Change	2011	2016	Change	2011	2016	Change
Public administration and safety	4.2%	4.5%	0.3%	5.4%	7.0%	1.6%	6.5%	7.0%	0.4%	6.3%	6.3%	0.1%
Education / training	5.1%	6.1%	1.0%	5.2%	6.3%	1.1%	6.3%	7.1%	0.8%	8.1%	8.8%	0.7%
Health care and social assistance	7.3%	8.7%	1.4%	6.6%	8.0%	1.4%	10.5%	12.4%	1.9%	11.9%	13.1%	1.2%
Arts and recreation services	1.0%	0.8%	-0.2%	0.5%	0.8%	0.3%	1.0%	1.0%	0.0%	1.5%	1.6%	0.1%
Other services	4.4%	3.8%	-0.6%	5.3%	4.6%	-0.7%	4.9%	4.7%	-0.2%	3.8%	3.9%	0.0%

Note: Change columns are percentage point change.

Source: Australian Bureau of Statistics 2011 and 2016 Census of Population and Housing

APPENDIX B: SIA STAKEHOLDERS

Stakeholders invited to participate in the Maxwell Project Social Impact Assessment are presented in Table A-3.

Table A-3: SIA Stakeholders

Stakeholder Group	Stakeholder
Landholders and Community Stakeholders	<ul style="list-style-type: none"> Maxwell Infrastructure CCC Antiene Rail Spur CCC Spur Hill CCC Neighbouring landholders General community – Denman, Jerrys Plains, Muswellbrook
Local Government	<ul style="list-style-type: none"> Muswellbrook Shire Council Singleton Council
Police and Emergency Services	<ul style="list-style-type: none"> NSW Police (Muswellbrook and Singleton) Hunter New England Division, Ambulance of NSW NSW RFS, also Jerrys Plains RFS and Dalswinton RFS
Health Stakeholders	<ul style="list-style-type: none"> Muswellbrook District Health Service, Health Service Manager Singleton Hospital, A/ Health Services Manager
Education Stakeholders	<ul style="list-style-type: none"> Jerrys Plains Public School St Joseph's Primary School Denman Denman Public School Muswellbrook Public School Muswellbrook South Public School Muswellbrook High School Singleton High School NSW TAFE Hunter Central Coast – Muswellbrook Campus
Community Service and Housing Stakeholders	<ul style="list-style-type: none"> Upper Hunter Community Services PCYC Muswellbrook Denman News Power 98.1 FM Radio JTS Realty Singleton Neighbourhood Centre Singleton Community Health Service Singleton Family Support Salvation Army Employment Plus Mission Australia Employment Solutions Joblink Plus Singleton
Indigenous Community Stakeholders	<ul style="list-style-type: none"> Wanaruah Local Aboriginal Land Council Wonnarua Nation Aboriginal Corporation Aboriginal Employment Strategy (Hunter/Central Coast NSW)

Stakeholder Group	Stakeholder
	<ul style="list-style-type: none"> • Ungooroo Aboriginal Corporation
Industry Stakeholders	<ul style="list-style-type: none"> • Coolmore Stud • Godolphin Woodlands Stud • Hollydene Estate Winery • NSW Farmers Association
Business Stakeholders	<ul style="list-style-type: none"> • Hunter Business Chamber • Muswellbrook Chamber of Commerce and Industry • Denman Chamber of Commerce (organisers of Upper Hunter Wine and Food Affair, 2004-15)

APPENDIX C: SIA REVIEW CONSIDERATIONS

Table A-4: SIA Review Questions

SIA REVIEW QUESTIONS	DP&E Recommendations (15 August 2018)*	ADDRESSED
General		
1. Has the applicant applied the principles in Section 1.3? How?	The SIA should ensure the SIA principles in the guideline are explicitly addressed, particularly with reference to adaptive management, distributive equity, rigour, inclusivity and impartial research. The SIA should also provide detail on how the social impact categories were developed. Where new social impacts are identified through technical studies, literature or community feedback, they should supplement those included in Table 6.3.	See Section 2.2.2 regarding application of Guideline and Table 2-1 for application of each principle.
2. Does the lead author of the Scoping Report meet the qualification and skill requirements in Box 2?	The SIA should include details of the lead author within the document, including relevant qualifications and experience.	See Section 7.4 Assessor Qualifications
3. Does the lead author of the SIA component of the EIS meet the qualification and skill requirement in Box 4?	No recommendations provided.	
4. Has the lead author of the SIA component of the EIS provided a signed declaration certifying that the assessment does not contain false or misleading information?	No recommendations provided.	
Community engagement for social impact assessment (Section 3)		
5. Does the SIA include adequate explanations of how the engagement objectives have been applied? How?	No recommendations provided.	Section 3 explains the approach and methodology for stakeholder engagement and the outcomes of engagement.

SIA REVIEW QUESTIONS	DP&E Recommendations (15 August 2018)*	ADDRESSED
6. Does the SIA demonstrate that there has been a genuine attempt to identify and engage with a wide range of people, to inform them about the project, its implications and to invite their input? How?	No recommendations provided.	Section 3.1 explains the approach and methodology for stakeholder engagement, including a range of community engagement options. Section 3.1.2 describes the promotional methods used to invite community participation. Appendix B lists the stakeholders expressly invited to participate in the SIA by methods including formal letters, individual email and/or phone call.
7. Does the SIA demonstrate that an appropriate range of engagement techniques have been used to ensure inclusivity and to ensure the participation of vulnerable or marginalised groups? How?	No recommendations provided.	Section 3 demonstrates application of a variety of engagement techniques including face-to-face meetings and individual conversations, interviews, daytime and after-hours community consultation session, consultation with Indigenous community representatives and social infrastructure provides representing marginalised groups. Stakeholder engagement outcomes have been incorporated through Sections 4 and 5, and informed Section 6.
Scoping – area of social influence (Section 2.4)		
8. Does the Scoping Report identify and describe all the different social groups that may be affected by the project?	Satisfied. No recommendations provided.	DP&E Review of Scoping Report (August 2018): Satisfied
9. Does the Scoping Report identify and describe all the built or natural features located on or near the project site or in the surrounding region that have been identified as having social value or importance?	Satisfied. No recommendations provided.	DP&E Review of Scoping Report (August 2018): Satisfied
10. Does the Scoping Report identify and describe current and expected social trends or social change processes being experienced by communities near the project site and within the surrounding region?	The SIA should include a much more rigorous analysis of the current and expected social trends or social change. Furthermore, the use of data from a wider range of sources will also be required in the SIA e.g. census data and NSW Health Statistics.	SIA Section 4 (Social Baseline) provides detailed data and analysis on social trends, housing availability, economic outlook, workforce planning and health. Census data has been used to inform the social baseline (Sections 4.1.3, 4.3.3, 4.4.2 and 4.4.3) and the assessment of potential impacts (Sections 5.4.1, 5.5.2 and 5.6.1). NSW Health data has been used in Sections 4.6 and 5.6.2.

SIA REVIEW QUESTIONS	DP&E Recommendations (15 August 2018)*	ADDRESSED
11. Does the Scoping Report impartially describe the history of the proposed project, and how communities near the project site and within the surrounding region have experienced the project to date and others like it?	The SIA should include further details on the history of mining in the region, documenting the views and experiences of relevant stakeholder groups from their own perspectives.	Section 4.1.4 provides further detail on the history of mining in the region. Section 4.1.5 documents the views and experiences of relevant stakeholder groups from their own perspectives.
Scoping – identifying social impacts (Section 3)		
12. Does the Scoping Report adequately describe and categorise the social impacts (negative and positive), and explain the supporting rationale, assumptions and evidence for those categories?	The SIA should provide further detail (including disaggregation) surrounding the stakeholder engagement process and how the social impact categories were developed. The project's contribution to climate change should also be assessed from a social perspective, to the level of 'Standard SIA'.	Section 5.11 (Significance of Social Impacts and Benefits) provides the social risk matrix and consequence definitions applied to the identification and assessment of social impacts and benefits. Table 5-6 provides an evaluation of social impacts and benefits. It documents the SIA section where each impact/ benefit has been described, including a summary of the impact/benefit, its significance on application of the matrix which denotes a positive or negative effect, relevant commitments made by Malabar and social impact management strategies to mitigate / enhance the effect as appropriate and a rationale for the residual impact rating. Potential social impacts associated with the Maxwell Project's contribution to climate change are assessed in Section 5.7.1.
13. How has feedback from potentially affected people and other interested parties been considered in determining those categories? Does the Scoping Report outline how they would be engaged to inform the preparation of the SIA component of the EIS?	The SIA should provide further detail surrounding the stakeholder engagement process and how the social impact categories were developed. Along with further details of the frequency of engagement that will continue during the life of the project. The SIA should also include genuine opportunities for affected and interested people and groups to participate in activities to identify, characterise, predict, and assess the likely significance of social impacts. The SIA should also report on the differential impacts of the proposal on these different stakeholders (distributive equity).	Impact categories used to structure the SIA are based on the SIA Guideline, and consultation and data inputs to the scoping report was used to refine focus areas of investigation. Community and stakeholder feedback has been documented in Section 3, and informs the analysis within each impact area identified. Feedback has also led to further investigation of some previously unidentified impact areas (e.g. potential impacts of rail operations on Main Northern Line affecting passenger access).

SIA REVIEW QUESTIONS	DP&E Recommendations (15 August 2018)*	ADDRESSED
14. Does the Scoping Report identify potential cumulative social impacts?	The SIA should provide a much deeper analysis of specific cumulative impacts that may result from the project. Taking into account cumulative impacts from multiple projects or occurring in single locations and across time-frames to understand the full extent of expected impacts.	Section 5.8 describes potential cumulative impacts in the context of other proposed infrastructure developments and/or decommissions.
Social baseline study (Appendix C – Section C1)		
15. Does the SIA component of the EIS discuss the local and regional context in sufficient detail to demonstrate a reasonable understanding of current social trends, concerns and aspirations?	Not applicable – previous DP&E review specific to Scoping Report only.	Section 3.4 presents the Project's Social Area of Influence including the local and regional framework used to analyse demographic and social baseline characteristics. Section 5.1 considers surroundings and property use in multiple local (individual, industry and community) and regional (project and regional planning) settings. Section 5.3 considers social trends, concerns and aspirations relevant to the traditional custodians, European settlement history contemporary local values of Project LGA communities, and stakeholder input relevant to Upper Hunter Region. Section 5.4 also considers housing trends at postcode level. Section 5.5 considers social infrastructure provision at neighbourhood / local and district levels. Community health and safety characteristics are considered at LGA and regional level, supplemented by local consultation input where appropriate.

SIA REVIEW QUESTIONS	DP&E Recommendations (15 August 2018)*	ADDRESSED
16. Does the SIA component of the EIS include appropriate justification for each element in the social baseline study, and provide evidence that the elements reflect the full diversity of views and potential experiences in the affected community?	Not applicable – previous DP&E review specific to Scoping Report only.	Section 3.4 presents the Project's Social Area of Influence including the local and regional framework used to analyse demographic and social baseline characteristics including labour force and housing data. Section 5.1 considers surroundings and property use in multiple local (individual, industry and community) and regional (project and regional planning) settings. Section 5.3 considers social trends, concerns and aspirations relevant to the historic tribal boundaries of the Project area's Indigenous people, in addition to European settlement history and associated values, contemporary local values of Project LGA communities, and stakeholder input relevant to Upper Hunter Region. Section 5.4 also considers housing trends at postcode level. Section 5.5 considers social infrastructure provision at neighbourhood / local and district levels. Community health and safety characteristics are considered at LGA and regional level, supplemented by local consultation input where appropriate.
17. Does the social baseline study include an appropriate mix of quantitative and qualitative analysis, and explain data gaps and limitations?	Not applicable – previous DP&E review specific to Scoping Report only.	Table 2-2 presents a data quality summary addressing quantitative and qualitative data sources, the reliability of each data types and uncertainties associated with data use.
Prediction and analysis of impacts (Appendix C – Section C2)		
18. Does the SIA component of the EIS include an appropriate description of the potential impacts in terms of the nature and severity of the change and the location, number, sensitivity and vulnerability of the affected stakeholders?	Not applicable – previous DP&E review specific to Scoping Report only.	The nature and severity of impacts, area of influence, sensitivity and vulnerability of affected stakeholders are described as relevant in Section 5. Analyses in Section 5 describe the extent of impacts for different groups. Section 5.11 provides a detailed significance assessment for each identified social impact, including affected stakeholders, nature, likelihood, duration and consequence of impacts.

SIA REVIEW QUESTIONS	DP&E Recommendations (15 August 2018)*	ADDRESSED
19. Does the SIA component of the EIS identify potential impacts at all stages of the project life cycle?	Not applicable – previous DP&E review specific to Scoping Report only.	SIA Sections 5.1-5.11 consider potential impacts and opportunities during construction and operations, and those relevant to decommissioning. Section 5.11 differentiates significant impacts by Project phase.
20. Does the SIA component of the EIS appropriately identify and justify any assumptions that have been made in relation to its predictions?	Not applicable – previous DP&E review specific to Scoping Report only.	Assumptions in relation to workforce, population, housing and social infrastructure demand are articulated in Section 5.4. Other assumptions are stated in the context of impacts assessed in various sections.
21. Does the SIA component of the EIS include appropriate sensitivity analysis and multiple scenarios to allow for uncertainty and unforeseen consequences? If relevant, does it include comparisons with studies of similar projects elsewhere?	Not applicable – previous DP&E review specific to Scoping Report only.	Different workforce and associated demand scenarios are considered at Section 5.4.1, 5.5.2, 5.5.4, 5.6.1, 5.6.2. Multiple scenarios are considered in relation to cumulative impacts at Section 5.8. Uncertainties considered in assessment of residual social impacts at Sections 5.11 and 7.
Evaluation of significance (Appendix C – Section C3)		
22. Does the SIA component of the EIS explain how impacts were evaluated and prioritised in terms of significance?	Not applicable – previous DP&E review specific to Scoping Report only.	Section 5.11 evaluates the significance of social impacts and benefits based on the SIA Guideline risk matrix and incorporates definitions for social consequences to support the assessment.
23. Does the evaluation of significance consider cumulative aspects where relevant?	Not applicable – previous DP&E review specific to Scoping Report only.	Section 5.11 considers cumulative impacts, informed by analysis in Section 5.8 and preceding SIA sections.
24. Does the evaluation of significance consider the potentially uneven experience of impacts by different people and groups, especially vulnerable groups?	Not applicable – previous DP&E review specific to Scoping Report only.	Analysis in Section 5 considers how impacts may be experienced in different context and by different stakeholder groups. The significance assessment in Section 5.11 distinguishes the stakeholder groups most likely to be affected by Project impacts or opportunities, including consideration in residual impact descriptions.

SIA REVIEW QUESTIONS	DP&E Recommendations (15 August 2018)*	ADDRESSED
Responses and monitoring and management framework (Appendix C – Sections C4 and C5)		
25. Does the SIA identify appropriate measures to avoid, reduce, or otherwise mitigate any significant negative impacts of the project, and justify these measures? 26. Does the SIA explain and justify measures to secure and/or enhance positive social impacts?	Not applicable – previous DP&E review specific to Scoping Report only.	Section 6 details the strategies to be implemented by the Project to avoid, reduce, or otherwise mitigate significant negative impacts, as well as strategies that would offset negative impacts or enhance Project benefits. Justification for these strategies is provided within the relevant subsections of Section 5 and 6.
27. Does the SIA component of the EIS impartially assess the acceptability, likelihood and significance of residual social impacts?	Not applicable – previous DP&E review specific to Scoping Report only.	Section 7.4 includes certification of impartial assessment.
28. Does the SIA component of the EIS propose an effective monitoring and management framework?	Not applicable – previous DP&E review specific to Scoping Report only.	Management Strategies in Section 6.2 to 6.6 include measures to monitor the implementation of each strategy. Section 6.8 outlines a social monitoring program to monitor the effectiveness of strategies in relation to key social indicators and stakeholder feedback. This combination of monitoring mechanisms would facilitate adaptive management of strategies as required.

* Source: NSW Department of Planning & Environment (2018) *Maxwell Project (SSD 18_9526) Internal review of Social Impact Assessment (SIA) Scoping Report*.