HVO Continuation Project
Scoping Report

Prepared for HV Operations Pty Ltd
December 2020

HUNTER VALLEY OPERATIONS

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HVO Continuation Project

Scoping Report

Report Number

H190408 RP2

Client

HV Operations Pty Ltd

Date

18 December 2020

Version

v2 Final

Prepared by		Approved by	
			
Thomas Frankham	**Nicole Armit**	**Duncan Peake**	**Brett McLennan**
Senior Environmental Scientist	Director	Director	Director
18 December 2020	18 December 2020	18 December 2020	18 December 2020

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Executive Summary

Hunter Valley Operations (HVO) is a multi-pit open cut mining complex, comprising two mine sites separated by the Hunter River; HVO North and HVO South. HVO is approximately 24 kilometres north-west of Singleton in the Hunter Valley of New South Wales. While the two mine sites are approved under separate development consents, they are operated as one complex with fully integrated environmental management systems. HVO is owned by subsidiary companies of Yancoal and Glencore, as participants in the unincorporated HVO Joint Venture (JV). HV Operations Pty Ltd is the appointed manager of the JV.

Since its inception in 1949, HVO has been, and continues to be, an important contributor to the Hunter Valley economy, producing high quality thermal and semi-soft coking coal suitable for use in international markets.

The HVO Continuation Project (the Project) comprises the continuation of the life of HVO North and HVO South, from the current approved mining completion dates of 2025 and 2030 respectively, to approximately 2050 at HVO North and 2045 at HVO South. The continuation of mining across the HVO Complex will optimise resource recovery from the existing operation, predominantly by mining through previously mined areas and to the extent of existing mining tenements, and extracting coal from deeper seams.

A number of infrastructure upgrades and changes will also be required to facilitate the Project (and are included as part of it), including upgrades to the Hunter Valley and Howick Coal Preparation Plants, replacement of the Newdell rail load out facility and construction of a new product stockpile at the facility, relocation of transmission and telecommunication lines and the realignment of part of Lemington Road.

To enable the Project, two new State significant development (SSD) consents will be required; one for HVO North and one for HVO South, under Part 4, Division 4.1 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The Project will seek to maintain separate development consents for HVO North and South, as is currently the case.

HV Operations Pty Ltd is seeking the Department of Planning, Industry and Environment Secretary's Environmental Assessment Requirements (SEARs) for the Environmental Impact Statement (EIS) being prepared for the Project.

A consultation stakeholder engagement strategy has been prepared for the Project and engagement with key stakeholders has commenced as part of the scoping phase of the Project. The outcomes of this engagement are summarised in Chapter 6 and in Appendix A (Social Impact Assessment Scoping Report).

The Project will enable the efficient use of existing infrastructure to economically recover an additional 400 Mt of run of mine coal reserves within existing mining tenements and predominately existing approved disturbance footprints across the HVO Complex. It will provide ongoing employment opportunities for the existing workforce of approximately 1,500 full time equivalent workers well beyond the life of the current planning approvals under which the Complex operates, as well as continuing the ongoing contribution to the local, regional and State economies from this well-established mining operation.

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1 Introduction

1.1 Background

Hunter Valley Operations (HVO) is a multi-pit open cut mining complex, comprising two mine sites separated by the Hunter River; HVO North and HVO South. HVO is approximately 24 kilometres (km) north-west of Singleton in the Hunter Valley of New South Wales (NSW) (refer to Figure 1.1 and Figure 1.2). While the two mine sites are approved under separate development consents, they are operated as one complex with fully integrated environmental management systems. The HVO Complex is illustrated at a local scale in Figure 1.3.

Operations first commenced at HVO approximately 70 years ago, in 1949. Since its inception HVO has been, and continues to be, an important contributor to the Hunter Valley economy, producing high quality thermal and semi-soft coking coal suitable for use in international markets. HVO extracts coal from the Wittingham Coal Measures of the Hunter Coalfield, which is part of the Permian coal basin known as the Sydney basin.

The existing HVO North operation comprises the approved mining areas of West Pit, Mitchell Pit and Carrington Pit, as shown in Figure 1.3. It operates under development consent DA 450-10-2003 which allows extraction of up to 22 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal until 12 June 2025.

HVO South operates under Project Approval (PA) 06_0261 and comprises the approved mining areas of Riverview Pit and Cheshunt Pit, where mining activities currently take place, and the Riverview South East Extension and South Lemington Pits 1 and 2. PA 06_0261 allows the extraction of up to 20 Mtpa of ROM coal until 24 March 2030.

Mining across HVO is undertaken using dragline and truck and shovel methods. ROM coal from HVO North and South is currently processed at the Hunter Valley (HV) Coal Preparation Plant (CPP) and/or the Howick CPP (both at HVO North), from which product coal is predominantly transported via overland conveyor to the HV load point (LP) or Newdell LP and via rail to the Port of Newcastle for export. The Lemington CPP (LCPP) and associated rail loop which would process and rail coal from HVO South, approved under PA 06_0261, is yet to be constructed.

HVO is owned by subsidiary companies of Yancoal and Glencore, as participants in the unincorporated HVO Joint Venture (JV). HV Operations Pty Ltd is the appointed manager of the JV.

1.2 Project overview

Significant coal resources remain across the HVO Complex beyond what is currently approved for extraction. Extensive investigations have been undertaken into a long-term plan for the complex beyond the approved mine life to achieve maximum recovery of the remaining coal resources while balancing social, environmental and economic outcomes. Based on the outcomes of these investigations, HV Operations Pty Ltd will be seeking approval for the HVO Continuation Project (the Project).

Broadly, the Project comprises the continuation of the life of HVO North and HVO South, from the current approved mining completion dates of 2025 and 2030 respectively, to approximately 2050 at HVO North and 2045 at HVO South. The continuation of mining across the HVO Complex will optimise resource recovery from the existing operation, predominantly by mining through previously mined areas and to the extent of existing mining tenements and extracting coal from deeper seams at HVO North.

At HVO South an extension to the life of the mine is proposed to facilitate improved mine sequencing outcomes. The Project proposes a reduced mining footprint compared to what is currently approved for extraction under PA 06_0261, with the removal of coal extraction in the Riverview South East Extension area and South Lemington Pits 1 and 2 from the proposed mine plan. However, some rehabilitation works will be required to be undertaken in these pits.

The approved shorter rail loop option associated with the LCPP has also been removed from the Project. This reduction in footprint avoids the disturbance of some areas of Warkworth Sands Woodland (WSW) listed as a critically endangered ecological community (CEEC) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and an EEC under the NSW *Biodiversity Conservation Act 2016* (BC Act).

A number of infrastructure upgrades and changes will also be required to facilitate the Project (and are included as part of it), including replacement of the Newdell LP and construction of a new product stockpile at the facility, relocation of transmission and telecommunication lines and the realignment of part of Lemington Road.

The Project will enable the efficient use of existing infrastructure to economically recover an additional 400 Mt of run of mine (ROM) coal reserves within existing mining tenements and predominately existing approved disturbance footprints across the HVO Complex. It will provide ongoing employment opportunities for the existing workforce of approximately 1,500 full time equivalent (FTE) workers well beyond the life of the current planning approvals under which the Complex operates, as well as continuing the ongoing contribution to the local, regional and State economies from this well-established mining operation.

To enable the Project, two new State significant development (SSD) consents will be required; one for HVO North and one for HVO South, under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Project will seek to maintain separate development consents for HVO North and South, as is currently the case. The approval pathway is discussed further in Chapter 5.

1.3 Proponent details

As described above, HVO is owned by subsidiary companies of Yancoal and Glencore, as participants in the unincorporated HVO JV. HV Operations Pty Ltd is the appointed manager of the JV in which:

- 51% interest is held by Coal & Allied Operations Pty Ltd (a wholly owned subsidiary of Yancoal); and
- 49% interest is held by Anotero Pty Ltd (a wholly owned subsidiary of Glencore).

HV Operations Pty Ltd is the proponent of the Project, as detailed in Table 1.1.

Table 1.1 Proponent details

Requirement	Detail
Proponent	HV Operations Pty Ltd
Postal address	PO Box 315 Singleton NSW 2330
ABN	76 606 478 399
Nominated contact	Vicki McBride
Contact details	02 6570 0062
Site owner	HV Operations Pty Ltd

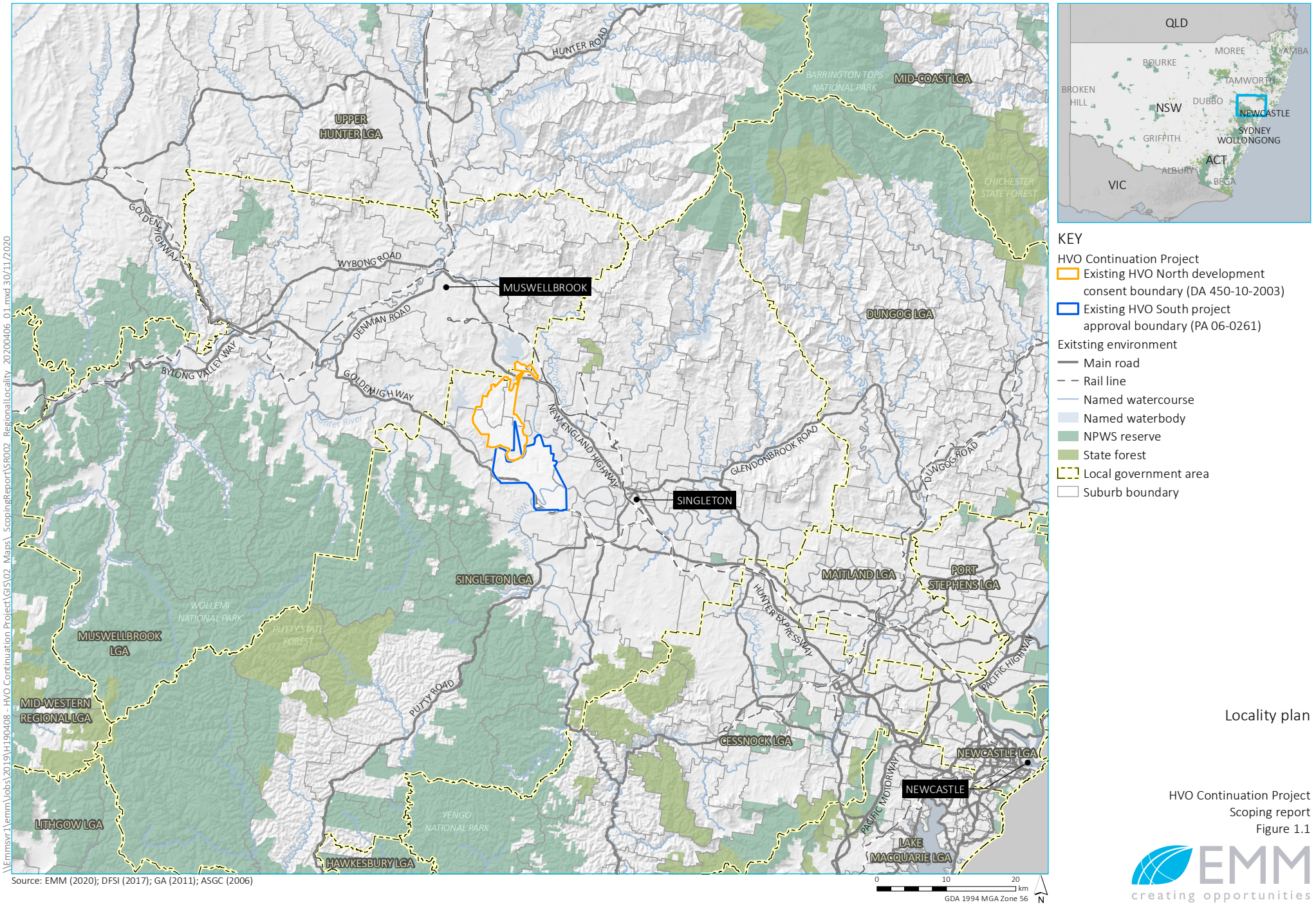
1.4 Document purpose

The purpose of this Scoping Report is to request and inform the content of the Secretary's Environmental Assessment Requirements (SEARs) for the Project. The SEARs will specify the requirements and level of environmental assessment needed to accompany the two development applications.

As described in Section 1.2, HV Operations Pty Ltd will be seeking a new SSD consent for HVO North and a new SSD consent for HVO South. Given that the two mine sites operate as one complex, one Environmental Impact Statement (EIS) and associated technical assessments will be prepared to support the two planning applications required for the Project.

This Scoping Report:

- provides an overview of the Project;
- describes the alternatives considered, or being further explored;
- explains the strategic context of the Project;
- describes the statutory context relevant to the Project;
- details the engagement activities undertaken with relevant stakeholders, including government agencies and community members, during the scoping phase;
- outlines the key environmental issues relevant to the Project, identifying which matters will need further investigation in the EIS; and
- describes the proposed engagement activities to be undertaken as part of the EIS preparation.



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Source: EMM (2020); DFSI (2017); GA (2011); ASGC (2006)

Locality plan

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Figure 1.1

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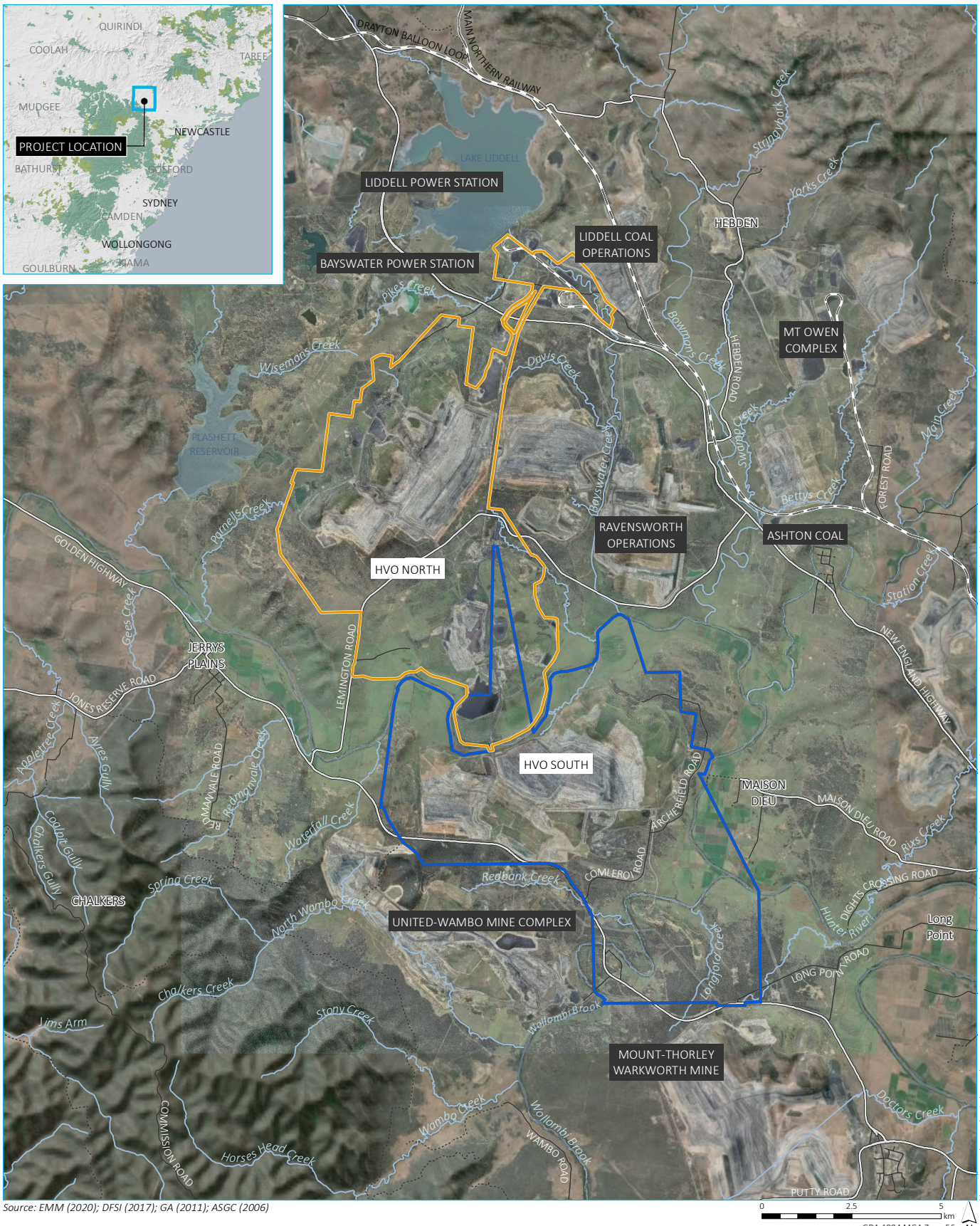

Source: EMM (2020); DFSI (2017); GA (2011); ASGC (2006)

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GDA 1994 MGA Zone 56

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KEY

- Existing HVO North development consent boundary (DA 450-10-2003)
- Existing HVO South project approval boundary (PA 06-0261)
- Rail line
- Major road
- Minor road
- Vehicular track
- Named watercourse
- Named waterbody
- NPWS reserve (refer to inset)
- State forest (refer to inset)

Regional context

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Figure 1.2

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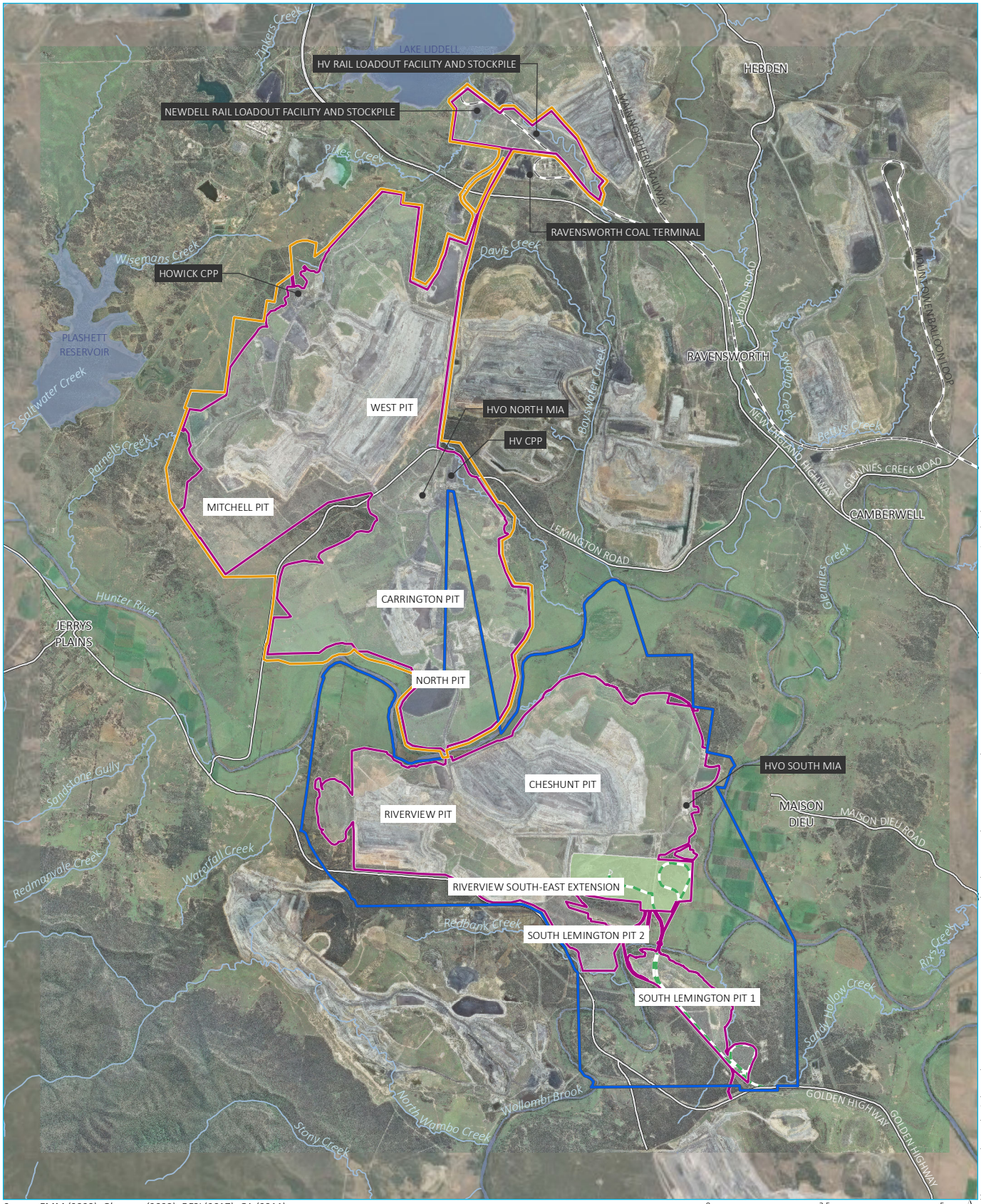

Source: EMM (2020); Glencore (2020); DFSI (2017); GA (2011)

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KEY

- Existing HVO North development consent boundary (DA 450-10-2003)
- Existing HVO South project approval boundary (PA 06-0261)
- Approved disturbance footprint
- Lemington Coal Preparation Plant (approved, not yet constructed)
- South Lemington Rail Loop and haul route (approved, not yet constructed)

Existing environment

- Rail line
- Major road
- Named watercourse
- Named waterbody

NOTE: Overlapping boundaries have been offset for visual purposes

HVO local context

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Scoping report
Figure 1.3

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2 Existing operations

2.1 Approval history

Since the beginning of operations in 1949, the development of HVO occurred through a series of expansion and acquisitions that, at one point, resulted in the operation managing 18 separate development approvals for activities north of the Hunter River. HVO North now operates under DA 450-10-2003, which was issued by the then NSW Minister for Infrastructure, Planning and Natural Resources in 2004, under Part 4 of the EP&A Act. The 2004 approval consolidated the 18 historical approvals for the activities undertaken at HVO North. DA 450-10-2003 has since been modified a number of times, the most recent being Modification 7 in July 2017, which was an administrative modification to update the Schedule of Lands to which the development consent applies.

The project approval under which HVO South operates, PA 06_0261, was granted on 24 March 2009 by the then NSW Minister for Planning. The project, amongst other things, consolidated 25 separate consents and 10 project modifications that applied to HVO South with a single project approval. PA 06_0261 has been modified on five occasions, the most recent being Modification 5 which, amongst other things, enabled an increase in the maximum ROM production rate from 16 Mtpa to 20 Mtpa, and extraction to the base of the deeper Bayswater seam in the Riverview Pit.

A summary of the current approvals and development consents held by HVO is provided in Table 2.1, including the history of modifications of these approvals. Commonwealth approvals relevant to the HVO Complex are identified in Table 2.2. The Environment Protection Licence (EPL) that applies across the Complex is detailed in Table 2.3.

Table 2.1 HVO planning approval history

Approval number	Issue date	Summary of approved activity
HVO North		
DA 450-10-2003	12 June 2004	Extension of open cut mining to the east of existing development. Production rate of 12 Mtpa ROM coal from West Pit, 10 Mtpa ROM coal from Carrington Pit. Coal haulage of 16 Mtpa from HVO South to the HVCPP. Total processing capacity of 20 Mtpa at HVCPP, 6 Mtpa at Howick CHPP and 4.5 Mtpa at Newdell CPP (subsequently demolished as approved under this development consent). Movement of coal and rejects between areas of HVO, including between HVO South and HVO North. Temporary crossings of the Hunter River for heavy equipment too heavy for the existing bridge. Consolidation of 15 existing development approvals applying to HVO North, into a single consent. Mining operations permitted until 12 June 2025.

Table 2.1 HVO planning approval history

Approval number	Issue date	Summary of approved activity
DA 450-10-2003 Modification 1	16 August 2005	Upgrade of HVLP to increase the loading rate from 4,000 tonnes per hour (tph) to an average rate of approximately 5,100 tph with a peak load of up to 7,200 tph.
DA 450-10-2003 Modification 2	25 June 2006	Extension of open cut mining to the south and east of Carrington Pit to access approximately 19 Mt of ROM coal. Construction of up to three levees and potential construction of groundwater barrier walls. Diversion of an existing drainage channel. Construction of a service corridor and modification of the development consent boundary.
DA 450-10-2003 Modification 3	19 March 2013	Extension of the Carrington Pit to the west (in an area known as the Carrington West Wing) to allow an additional 17 Mt of ROM coal to be extracted over a period of 6 years. Development of an out-of-pit overburden emplacement area to the north of the extension area. Construction of flood levees, a groundwater barrier wall, a temporary watercourse diversion and a service corridor to the south of the extension area. Rehabilitation of the site. Modification of the development consent boundary to include the extension area. Realignment and increase in size of the approved Carrington Pit final void to 100 ha.
DA 450-10-2003 Modification 4	16 January 2014	Installation of overland pipelines to transport fine reject slurry. Modification to the HVO North development consent boundary to encompass Cumnock void 3, located to the north-east of West Pit.
DA 450-10-2003 Modification 5	9 December 2016	Upgrade of a sediment dam at the HVLP. Approval for communication towers.
DA 450-10-2003 Modification 6	25 January 2017	Emplacement of fine rejects in Carrington void
DA 450-10-2003 Modification 7	28 July 2017	Administrative modification to include mining lease application areas within the Schedule of Lands.
884/2004	2 February 2005 (Singleton Council)	Construction and use of an access road to the former Energy Australia (now Ausgrid) substation.
HVO South		
PA 06_0261	24 March 2009	HVO South permitted to extract up to 16 Mtpa of ROM coal with mining operations permitted until 24 March 2030.
Modification 1	17 December 2009	Increased the storage capacity of Lake James, which forms part of HVO's water management system.
Modification 2	3 February 2012	Reallocation of 140 ha of remnant woodland vegetation and native enhancement areas with the Archerfield Biodiversity Enhancement Area to an alternative site within the Goulburn River Biodiversity Area (part of the offset package for the Warkworth Continuation Project, previously known as the Warkworth Extension Project).
Modification 3	31 October 2012	Inclusion of reference to (and biodiversity conservation measures for) the Goulburn River biodiversity offset area, and to amend the Statement of Commitments to remove the suggestion that HVO South has ongoing obligations in relation to the Archerfield Biodiversity Enhancement Area.

Table 2.1 HVO planning approval history

Approval number	Issue date	Summary of approved activity
Modification 4	31 October 2012	Clarification that the proponent would not undertake any mining-related activities in the biodiversity offset areas established for the Warkworth Extension Project that lie within the area subject to the HVO South Project approval.
Modification 5	28 February 2018	The progression of mining from the Cheshunt Pit into Riverview Pit to mine to the base of the deeper Bayswater seam and in South Lemington Pit 2 to mine to the base of the Vaux seam below the Bowfield seam; amendment to the overburden emplacement strategy, an increased rate of extraction to 20 Mtpa of ROM coal and an update to the Statement of Commitments within the Project Approval to remove inconsistencies with approved management plans.

Table 2.2 HVO referrals under the EPBC Act

Referral number	Date	Status	Description
EPBC 2016/7640	10 October 2016	Controlled action	The continuation of open cut coal mining operations in areas that were previously approved under the NSW EP&A Act after the commencement of the EPBC Act within the HVO Complex. Expiry date: 31 December 2030.
EPBC 2016/7641	20 March 2018	Not a controlled action	A referral was made relating to HVO South Modification 5, which was to extend open cut coal mining operations at HVO South in the existing Cheshunt Pit to the base of the Bayswater seam within the existing disturbance footprint of the Riverview Pit. The action did not include mining in South Lemington Pit 2.

Table 2.3 HVO licensed activities

Licence number	Dated	Licensee detail	Scheduled activity and scale
Environment Protection Licence – 640	10 September 2020	Licensee: HV Operations Pty Ltd Premises: Hunter Valley Operations	Coal works > 5 Mtpa capacity Crushing, grinding or separating >2 Mtpa capacity Land-based extractive activity 50–100 ktpa capacity Mining for coal >5 Mtpa capacity

2.2 Mining at HVO North

As mentioned in Section 1.1, HVO North comprises the approved mining areas of West Pit, Mitchell Pit and Carrington Pit. The consent allows extraction of up to 22 Mtpa of ROM coal until 12th June 2025, comprised of the following:

- 12 Mtpa from West Pit/Mitchell Pit; and
- 10 Mtpa from Carrington Pit.

Coal extraction currently occurs in the West Pit/Mitchell Pit. Mining in Carrington Pit was paused in 2018 to allow tailings emplacement to commence in-pit, as approved by Modification 6. Mining is undertaken via means of dragline, shovel and excavator, assisted by loaders, dozers, graders, water trucks and haul trucks.

2.3 Mining at HVO South

HVO South comprises the approved mining areas of Cheshunt Pit, Riverview Pit, South Lemington Pit 1 and South Lemington Pit 2, and the Riverview South East Extension (also referred to as the Glider Pit). Mining currently occurs in the Cheshunt and Riverview Pits. Some coal extraction has taken place in South Lemington Pit 1 previously, although is not currently taking place, and mining in South Lemington Pit 2 has not commenced to date. No mining activity is currently taking place in the Riverview South East Extension area.

Mining is undertaken at HVO South via the same methods as HVO North.

2.4 Mineral processing

Coal extracted across the HVO Complex is transported to one of two CPPs; the HVCPP or the Howick CPP (refer to Figure 1.3), where it is crushed to size and either processed to remove impurities or bypassed where coal quality is appropriate. Processing produces saleable coal, along with coarse and fine reject materials. Coarse rejects are disposed of in pit, and fine rejects are placed in a tailings dam, according to commitments outlined in the Mining Operations Plan (MOP). Each CPP site has storage facilities for raw (unprocessed/ROM) coal and processed (saleable/product) coal.

Product coal is transported to one of the three loading points on the northern side of the New England Highway (refer to Figure 1.3). Coal from the HVCPP is transported to the HVLP or Newdell LP by overland conveyor or via truck to the Ravensworth Coal Terminal (RCT), whereas product coal from the Howick CPP is trucked to the Newdell LP. After the coal has reached either HVLP, RCT or the Newdell LP, it is transported to the Port of Newcastle by rail.

Product coal may also be transported directly from the Howick CPP via conveyor to the AGL Energy Limited (AGL) held Bayswater and Liddell power stations.

The HVCPP may process up to a total of 20 Mtpa of ROM coal from the HVO Complex, of which only 16 Mtpa may be received from HVO South. The Howick CPP may process up to 6 Mtpa of ROM coal.

Coarse rejects from both CPPs are disposed of in pit. Fine rejects (tailings) have been emplaced in various approved tailing storage facilities (TSFs). Currently, tailings are emplaced in the Carrington In-Pit TSF and Dam 6 TSF at HVO North and the adjacent Ravensworth Operations' Cumnock Void 3 TSF.

The HVO South approval authorises the use of the HV and Howick CPPs and the HVLP and Newdell LP for coal extracted from HVO South. HVO South also holds approval to construct and operate the LCPP and rail loop off the Wambo rail spur. To date construction of this infrastructure has not commenced.

3 The Project

3.1 Overview

The Project aims to optimise ROM coal production from HVO by mining largely within the extents of HVO's tenements and mining deeper seams at HVO North over an extended mine life of 25 years. No changes are proposed to the current approved maximum annual coal extraction rate at HVO North of 22 Mtpa.

At HVO South, the Project proposes to reduce the extent of mining as a result of not proceeding with the approved Riverview South East Extension, South Lemington Pit 1 and South Lemington Pit 2 mining areas. In addition, the short rail loop options associated with the LCPP are no longer proposed. A minor increase to the mining footprint associated with the north boundary of Riverview Pit is proposed, to realise mining efficiencies. Reflective of changes to the extent of mining, minor variations to mine sequencing is proposed. Notably, at HVO South a reduction in the maximum annual ROM coal extraction rate is proposed, from 20 Mtpa to 18 Mtpa.

Coal from HVO will continue to be predominately processed at the HV and Howick CPPs. Processing efficiency upgrades are proposed at both CPPs. A TSF will be constructed within West Pit at HVO North, as part of a complex wide tailings strategy to be developed as part of the Project. In addition, a new product stockpile including train loading facilities will also be constructed at the Newdell LP. Approval to construct the LCPP and long rail loop is proposed to be retained should future operational requirements and or market conditions deem it necessary.

Infrastructure upgrades to support mining activities will be required, including carparks, bathhouses, wash bays and administration buildings. Upgrades to, and construction of additional water management infrastructure such as levees, diversion drains, water storage tanks and dam storage enlargement will also be required.

Part of Lemington Road will require realignment to enable the proposed progression of mining at HVO North as well as sections of existing transmission and telecommunication lines.

No changes are proposed to workforce numbers or operational hours of the Complex to that currently approved. The extended life of the Complex will provide ongoing employment opportunities for the current workforce of approximately 1,500 FTE workers.

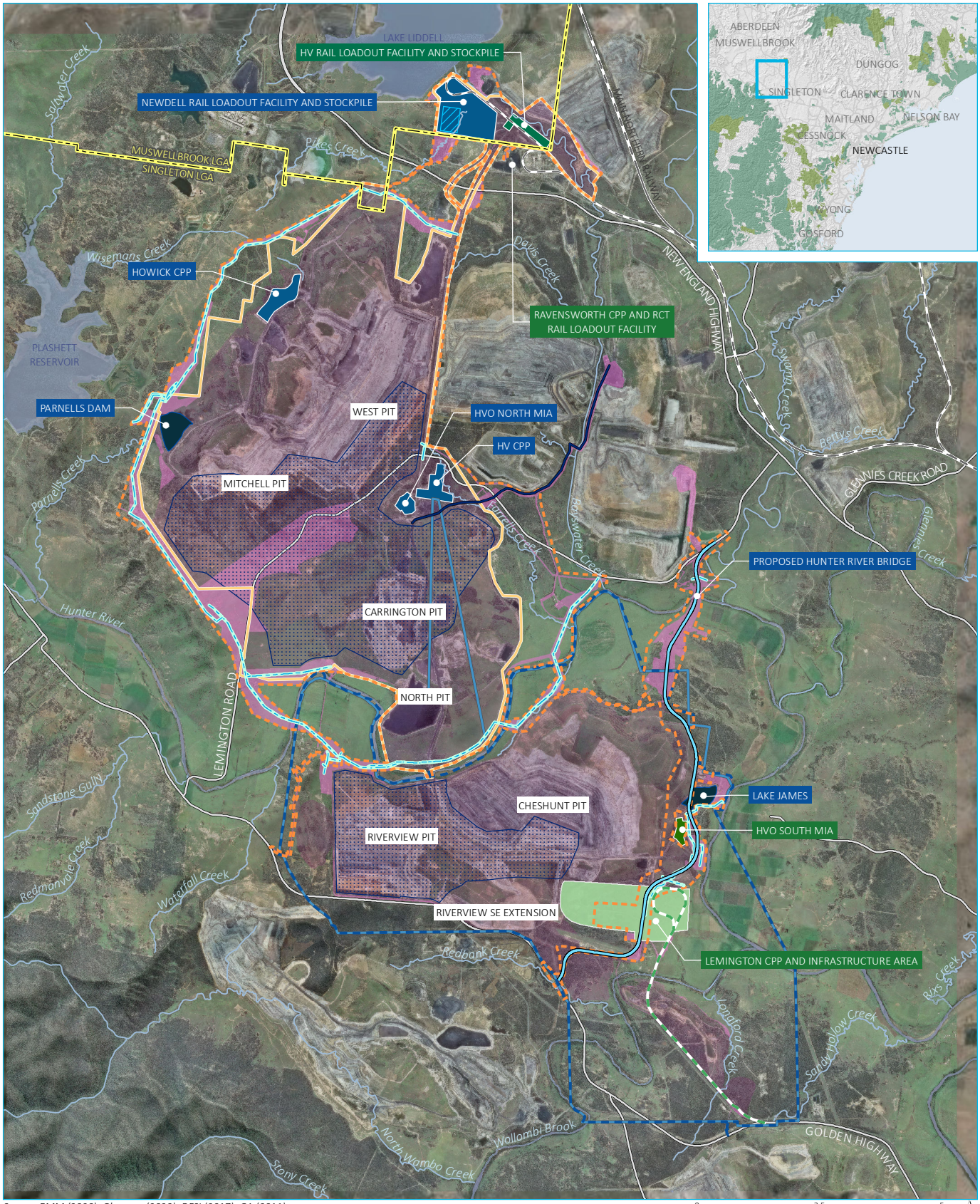
The Project conceptual layout is displayed in Figure 3.1. The key Project components as they relate to HVO North and HVO South are further detailed in Sections 3.5 and 3.6.

3.2 Mine life

As described, the Project seeks an extension to the life of mining activities at HVO North by 25 years, from 2025 to 2050. An additional 15 years is sought to the approved mine life at HVO South, from 2030 to 2045. Progressive rehabilitation activities will be carried out as mining progresses; however, final rehabilitation activities will be completed following cessation of mining activities at HVO North in 2050 and HVO South in 2045.

3.3 Project area

The Project area that is the subject of the HVO Continuation Project comprises the proposed development consent boundary for HVO North and the proposed development consent boundary for HVO South, as shown in Figure 3.1. The proposed development consent boundary for HVO North is similar to the existing consent boundary, with some changes proposed primarily to accommodate infrastructure relocation and upgrades and the additional mining footprint between the Mitchell and Carrington Pits. The HVO South development consent boundary will remain largely the same, as can be seen in Figure 3.1.



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Source: EMM (2020); Glencore (2020); DFSI (2017); GA (2011)

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GDA 1994 MGA Zone 56

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KEY

- HVO North proposed development consent boundary
- HVO South proposed development consent boundary
- Existing HVO North development consent boundary (DA 450-10-2003)
- Existing HVO South project approval boundary (PA 06-0261)
- Approved disturbance footprint

Proposed HVO Continuation Project elements

- Lemington Road realignment
- Proposed haul route to Ravensworth
- Proposed powerline relocation
- Proposed mining area
- Dam subject to upgrade
- Coal Preparation Plant/Mining Infrastructure Area to be upgraded
- Proposed product stockpile
- Proposed additional disturbance footprint

Existing HVO elements to be maintained

- South Lemington Rail Loop (approved, not yet constructed)
- Existing mining infrastructure area
- Lemington Coal Preparation Plant (approved, not yet constructed)

Existing environment

- Rail line
- Major road
- Named watercourse
- Named waterbody
- Local government area

Proposed conceptual layout

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Figure 3.1

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The changes proposed compared to the existing development consent boundary at HVO North are summarised below:

- **Proposed mining area** – the progression of mining is proposed through land comprising of existing infrastructure, such as part of Lemington Road which is between the Mitchell and Carrington Pits at HVO North. This progression will add approximately 240 ha to the mining footprint.

- **Lemington Road realignment** – the proposed realigned corridor is partly within the HVO South project approval boundary. However, as the realignment is required to facilitate the progression of mining through the Mitchell and Carrington Pits at HVO North, the works associated with the road realignment will form part of the HVO North development application.

- **Transmission and telecommunication line relocations** – sections of Ausgrid's 132kV, 66kV, 33kV and 11kV transmission lines will be realigned, as well as AGL's 33kV transmission lines. Sections of Telstra telecommunication lines will also be realigned. Access points to relocated infrastructure will also be required to be relocated to avoid interaction with mining activities. Following consultation with the infrastructure owners, it has been determined that these transmission lines will be included as part of the Project and therefore will sit within the Project area. It is likely that this infrastructure will need to be relocated at the same time as the construction of the Lemington Road realignment.

Notably, proposed mining activities will preserve the existing ridgeline between HVO North and the Jerrys Plains township, continuing to provide an effective amenity barrier.

At HVO South, while the development consent boundary will remain largely the same, the disturbance footprint will be reduced as mining of the South Lemington Pits 1 and 2 and the Riverview South East Extension are no longer proposed, although noting that rehabilitation activities will be required in these areas and form part of the Project.

The changes to the consent boundary at HVO South primarily relate to alignment with cadastral boundaries and the exclusion of the Warkworth Northern Biodiversity Offset Area.

Upgrades proposed to HVO infrastructure are described in Sections 3.5 and 3.6.

3.4 Resource definition

HVO is in the Hunter Coalfield in the northern part of the Sydney basin which contains numerous important coal producing intervals in the Permian stratigraphy. The coal seams at HVO are contained within the lower Jerrys Plains and Vane Subgroups of the Wittingham Coal Measures. The Jerrys Plains Subgroup contains 16 coal seams, with the Whybrow seam at the top in the Mt Leonard Formation and the Bayswater seam at the base in the Burnamwood Formation. The Vane Subgroup contains six coal seams, with the Lemington seam at the top and Hebden seam at the base.

The seams mined at HVO include the Woodlands Hill, Arrowfield, Bowfield, Mt Arthur, Piercefield, Vaux, Broonie, Bayswater, Lemington, Pikes Gully, Arties, Liddell and Barrett. The coal seams currently mined at HVO North, compared to the proposed mining stratigraphy, are illustrated in Figure 3.2. No changes are proposed to the seams mined at HVO South.

Given the long history of mining at HVO, there is a good understanding of the geology, geotechnical and coal quality characteristics of most seams that occur across the Complex. The HVO coal resource has been extensively explored, with exploration commencing in the 1940's by the Joint Coal Board and the Bureau of Mineral Resources.

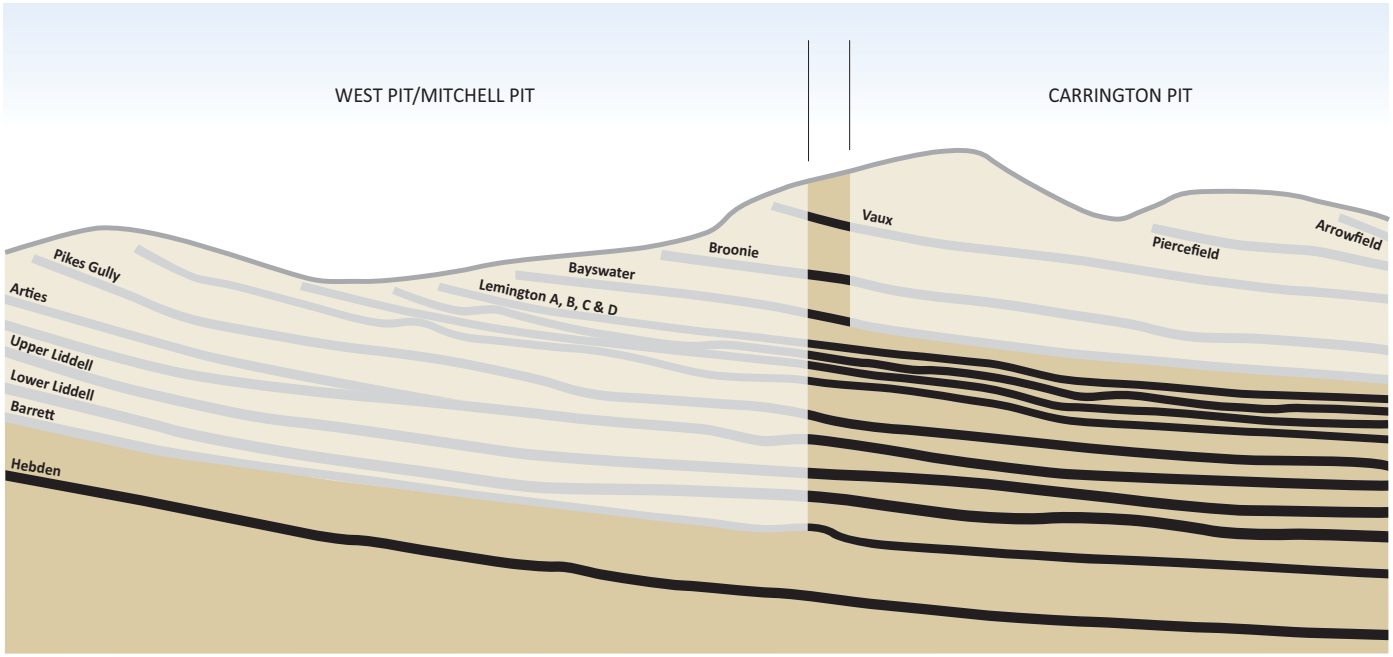
Since this time, a robust geological model has been developed and continually improved to further define the resource.

With the acquisition of HVO by the HVO JV, significant improvements have been able to be made to the HVO geological model as a result of the JV partners holding neighbouring mining assets and sharing geological data with HVO, in particular the Ravensworth Operations and United Colliery mining operations.

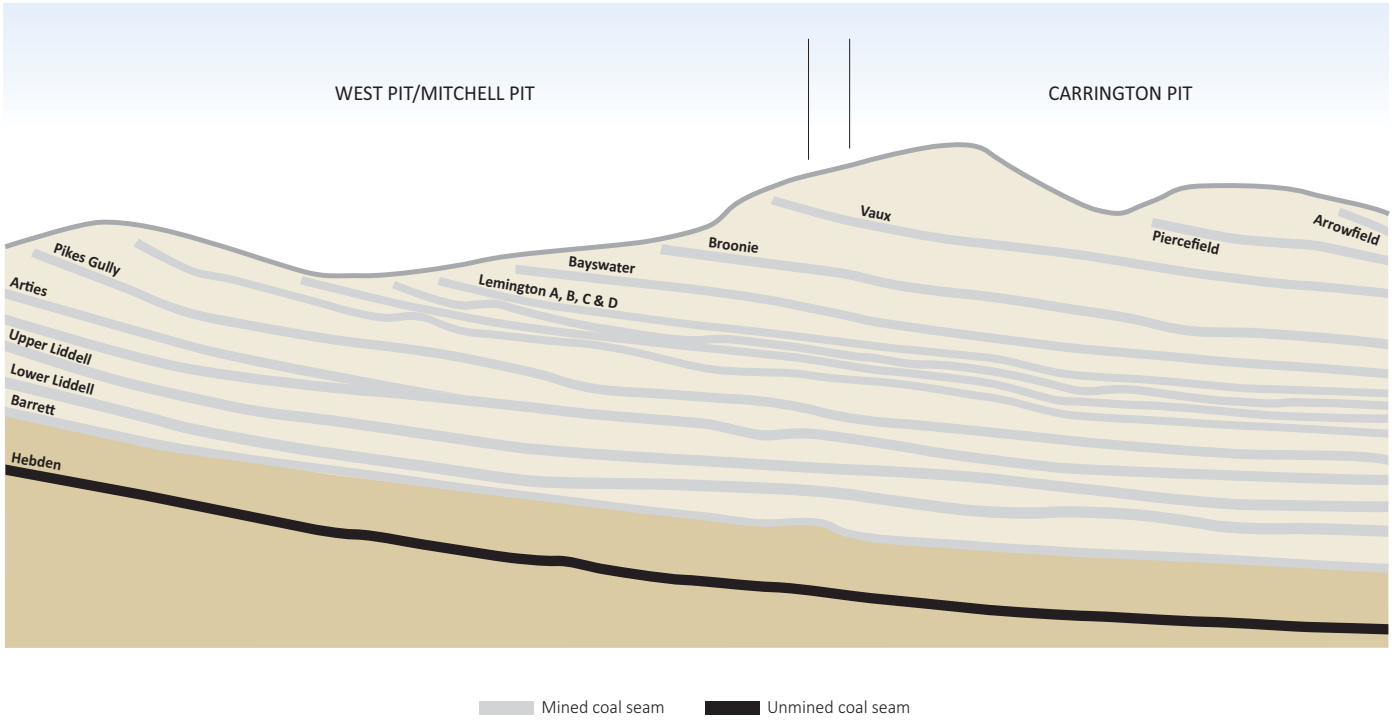
A unification process has been undertaken to combine the neighbouring mines and the HVO geological models. This process has provided a revised model informed by a substantial number of individual exploration boreholes, confirming the feasibility of mining down to the base of the Barrett Seam and to the extents of the mining tenements at HVO North.

The Project, as informed by the revised geological model, proposes to extract an additional approximate 400 Mt of ROM coal from HVO from the additional mining areas in HVO North and from the deeper Barrett seam. A total of approximately 690 Mt is proposed to be extracted over the Project life from the Complex.

HVO NORTH – CURRENT MINING STRATIGRAPHY



HVO NORTH – PROPOSED MINING STRATIGRAPHY



HVO North mining stratigraphy

HVO Continuation Report
Scoping report
Figure 3.2

3.5 HVO North

3.5.1 Key project elements

The key changes that are part of the Project at HVO North, compared to what is currently approved under DA 450-10-2003, are presented in Table 3.1 and displayed in Figure 3.1. As described in Table 3.1, key changes to the existing HVO North development consent include:

- continuation of the life of the mine from 2025 to 2050;
- extraction to the base of the Barrett seam across the HVO North mining area. Existing operations are approved to extract coal to the base of the shallower Bayswater seam in Carrington Pit;
- the extraction of an additional approximate 400 Mt of ROM coal from HVO North through the extraction of coal from deeper seams and optimising the mining extent;
- an increase in the capacity of Parnells Dam;
- demolition of the existing Newdell train loading facility and product stockpile, and construction of a new product stockpile and replacement of train loading facilities;
- coal haulage from the HVCPP to the Ravensworth ROM pad;
- revision of the tailings strategy;
- amendments to the approved final landform;
- relocation of transmission and telecommunication lines; and
- realignment of Lemington Road.

The Project includes all currently approved aspects, as amended by the key changes above. Key aspects of the currently approved development at HVO North that will remain the same under the Project include the following:

- no change proposed to the maximum allowable annual coal extraction and processing rate;
- no change to the receipt of ROM coal from HVO South via internal haul road for processing;
- no change in annual workforce numbers or associated traffic generation;
- the ridge between Jerrys Plains and HVO North will remain, continuing to provide an effective amenity barrier;
- no change in views are anticipated from the nearest sensitive receivers (in Jerrys Plains and Maison Dieu); and
- no increase to approved heights of overburden emplacement areas.

Table 3.1 HVO North – Summary of key project components compared with approved operations

Aspect	Current operations	Proposed operations
Approval period	• Operations at HVO North are approved until 12 June 2025.	• Coal extraction at HVO North until the end of 2050, representing a corresponding extension of the approved mine life by 25 years.
Mining Areas	• Mining in Carrington area to coal reserves in the Broonie and Bayswater seams. • Mining to the base of the Barrett seam in West and Mitchell Pits.	• Mining to the base of the Barrett seam in Carrington area. • Extension to approved mining area between West and Mitchell and Carrington area.
Development consent boundary	• DA 450-10-2003 covers an area of approximately 5,730 ha, shown in Figure 1.3.	• Increase in the development consent boundary to accommodate the extension to the approved mining area, as well as the areas covered by proposed infrastructure to support the Project (such as the Lemington Road and transmission and telecommunication line realignments). • The proposed development consent boundary is approximately 7,600 ha.

Schedule of Lands (land ownership)	• As per Appendix 1 DA 450-10-2003.	• Additional parcels of land owned by the following landholders:
		  • Ashton (buried 11 kV & raised 132 kV powerlines for relocated Lemington Road clearance (no new poles)).
		  • Ravensworth Operations (ROM coal haulage road from HVCPP to the ROM pad and Lemington Road realignment).
		  • AGL (powerlines, access adjacent to Newdell product stockpile, tailings pipelines (under- bored)).
		  • Singleton Council (portion of Pikes Gully Road, portion of Liddell Station Road and the existing Lemington Road alignment).
		  • Muswellbrook Council (portion of Pikes Gully Road and Liddell Station Road).

Extraction rate	• Up to 22 Mtpa of ROM coal (12 Mtpa from West Pit; 10 Mtpa from Carrington Pit).	• No change to total. Remove separation of limits for different mining areas.

Table 3.1 HVO North – Summary of key project components compared with approved operations

Aspect	Current operations	Proposed operations
Mining methods	• Dragline and truck and shovel.	• No change.
ROM coal processing and transport	• ROM coal may be transported via internal haul road to either HVCPP or Howick CPP for processing. • HVCPP washing not more than 20 Mtpa ROM coal (not receiving more than 16 Mtpa ROM from HVO South). • Howick CPP washing not more than 6 Mtpa ROM. • HV and Howick CPP flotation.	• No change to processing limits. • Temporary coal stockpiles may be constructed in-pit prior to transport for processing (or by-pass). • Construction of a haul road to enable ROM coal to be transported to Ravensworth ROM pad (up to 6 Mtpa) via haul truck to the end of Ravensworth Operations mine life (2039). • Ability of Newdell LP to receive product coal from Ravensworth CPP.
Product coal transport	• Transport product coal from HVCPP by overland conveyor to HVLP or Newdell LP. • Transport product coal from Howick CPP by overland conveyor (OLC) to power stations or by truck to Newdell LP. • Intermittent haulage of product coal between HVLP, Newdell LP and RCT.	• Upgrade of the existing Newdell product stockpile and train loading facility with the construction of a new product stockpile and replacement of train loading facilities. This upgrade will include new conveyors and access road, clean water diversion, transmission line realignment and AGL access. • Minor diversion of Liddell Station Road (for the new stockpile).
Overburden emplacement	• Ability to dispose of overburden within all pits and out-of-pit emplacement areas across HVO.	• No change.
Coarse reject	• Ability to emplace coarse rejects within overburden emplacement areas across HVO.	• No change.
Tailings	• Emplacement of tailings within approved tailings storage facilities at HVO and Cumnock Void 3.	• Tailings management strategy will be developed as part of the EIS and could include: – emplacement of tailings within the north-western extent of West Pit; – removal, relocation and/or reprocessing of tailings from TSFs; and – other opportunities for tailings management.

Table 3.1 HVO North – Summary of key project components compared with approved operations

Aspect	Current operations	Proposed operations
Water management and storage	• Integrated water management with HVO South. • Water discharges in accordance with Hunter River Salinity Trading Scheme (HRSTS). • Approved water transfers with other mining operations (MTW (via Lemington Void), Wambo, Liddell (via LPs), Cumnock (tailings decant return)). • HVO integrated mine water management with GRAWTS (two-way connections to Liddell, Narama Void and Dam). • Existing and approved flood protection levees (Carrington and Carrington West Wing (up to 185 year ARI), North Void). • Groundwater low permeability barrier walls (Carrington and Carrington West Wing). • Diversion of Unnamed Tributary to west of Carrington West Wing.	• Improved flood protection levee for North Void (up to 1,000 year Average Recurrence Interval (ARI)). • Additional mine/dirty water containment dams as required, as mining progresses. • Clean water diversion as required, as mining progresses, including the Mitchell clean water diversion. • Parnells Dam enlargement, new spillway, refurbishment of existing HRSTS discharge facility (no change to EPL/HRSTS approval)). • Mitchell levee construction.

Table 3.1 HVO North – Summary of key project components compared with approved operations

Aspect	Current operations	Proposed operations
Infrastructure	• Management of GRAWTS infrastructure via formal agreement. • HV mine infrastructure area (MIA) and Howick MIA. • HVO North access road. • Maintenance and ancillary infrastructure required to facilitate operations.	• Realignment of a section of Lemington Road from Comleroi Road in the south to the existing Lemington Road alignment in the north. • HVO access road relocation. • Realignment of sections of Ausgrid's 132 kV, 66 kV, 33 kV and 11 kV transmission lines, AGL's 33 kV transmission line. • Realignment of internal transmission lines to support mining activities. • Realignment of Telstra telecommunication lines. • Additional tailings pipelines and pumps. • HVO North MIA upgrade. • Ancillary activities as required to facilitate operations. • Access roads to facilitate service provider access. • Use of demountable/temporary buildings in construction compounds as required.
Operating hours	• Continuous operations, 24 hours per day, seven days per week.	• No change.
Workforce numbers	• Approximately 1,500 (HVO Complex).	• No change.
Blasting	• Blasting allowed 7am to 6pm Monday to Saturday inclusive (except public holidays) • Maximum 3 blasts per day and 12 blasts per week	• No change.
Rehabilitation	• Progressive rehabilitation, with mixture of pasture and native habitat areas. • Removal of levees and reinstatement of Unnamed Tributary to its original position.	• Yet to be constructed final landform to incorporate natural landform design elements. • Clean water diversion to be left in place. • Levees to be left in place or removed based on final land use plan.

Table 3.1 HVO North – Summary of key project components compared with approved operations

Aspect	Current operations	Proposed operations
Final void (including evaporative sink)	• Approved final void in Carrington Pit. • Approved final voids in West Pit and Mitchell Pit. • Carrington West Wing void to be backfilled and returned to native pasture.	• One final void at HVO North.

3.5.2 Conceptual mine plan

The Project seeks to maintain the approved annual extraction rate of 22 Mtpa at HVO North and remove the separation of limits from the West and Mitchell Pit and Carrington area. In order to extract the Barrett Seam and maximise the recovery of the coal resource, mining will be undertaken through predominantly previously disturbed land.

Upon commencement of the Project, mining will continue in HVO North in the current West and Mitchell pit areas. Mining will then progress in a southerly direction towards the Carrington area, mining through the existing pit separation. Reserves down to the Barrett seam within the Carrington area will be extracted with the completion of mining occurring east of the North Pit void (refer to Figure 1.3). Tailings in the North Pit void will not be disturbed as part of the Project. At the completion of mining a final void will be established in the south of the Carrington area. Rehabilitation, incorporating sympathetic final landforms to the existing environment, will be undertaken progressively as mining progresses from the north to south.

3.5.3 Coal handling and processing

Coal from HVO will continue to be predominately processed at the HV and Howick CPPs. A TSF will be constructed within West Pit at HVO North, as part of a complex wide tailings strategy which is currently under development. In addition, a new product stockpile including train loading facilities will be constructed at the Newdell LP.

3.5.4 Infrastructure upgrades

i Lemington Road relocation and site access

Lemington Road is currently aligned between the West Pit and the Carrington area at HVO North. As this area is proposed to be mined through, the Project will be seeking approval to realign part of Lemington Road to the east of HVO South, linking the existing Comleroi Road with newly constructed sections of Lemington Road to the New England Highway, as shown on Figure 3.1. The existing Lemington Road is proposed to be closed between the new HVO North access point and the existing Golden Highway and Lemington Road intersection. The relocation will involve the upgrade and extension of the existing Comleroi Road on the southern side of HVO to connect with the western end of Lemington Road, providing continued access to road users between the Golden and New England Highways. Access to HVO South from Comleroi Road will be maintained. Access to HVO North via the realigned Lemington Road will be via a newly constructed access road.

The Lemington Road realignment includes the construction of a new bridge over the Hunter River. The bridge is proposed to be constructed to meet the requirements of a 1 in 10 average recurrence interval (ARI) flood protection design, which will provide improved accessibility and safety outcomes in comparison to the existing Moses Crossing causeway at the southern end of the current Lemington Road.

Notably, the proposed changes to Lemington Road and the local road network are not anticipated to require changes to the existing New England Highway intersection. The realignment will provide the opportunity to upgrade the intersection at Comleroi Road with the Golden Highway. The intersection design will cater for either current Golden Highway alignment or the realignment as approved under the United/Wambo JV project as necessary.

All works undertaken to either upgrade or construct roads will be undertaken in accordance with contemporary Australian road design standards. The existing Lemington Road will be kept open and serviceable until the new alignment is completed, so that there is no disruption to traffic that uses Lemington Road. The works associated with the Lemington Road realignment will be described in full in the EIS. Further discussion on the proposed traffic assessment is provided in Section 7.2.3.

ii Transmission line relocation

The HVO North conceptual mine plan requires the relocation of a number of transmission lines owned by AusGrid and AGL to avoid interaction with planned activities at HVO North. In addition, internal HVO owned powerline and telecommunication infrastructure will be required to be relocated, as well as some Telstra owned telecommunication lines. Access points to infrastructure proposed to be relocated will also be required to be located to avoid interaction with mining activities. The proposed transmission and telecommunication line relocation pathways are shown on Figure 3.1. The conceptual mine plan estimates that the transmission lines owned by Ausgrid and AGL need to be relocated at the same time as the Lemington Road realignment. HVO owned infrastructure would be relocated as required in accordance with mine development.

Consultation has commenced with infrastructure owners and further consultation will continue to develop a final relocation path for the transmission and telecommunication lines, which will be confirmed in the EIS. The EIS will describe in detail measures to be taken to avoid and/or minimise disruption to electricity distribution and potential environmental impacts.

iii Water management

A summary of the upgrades to water management infrastructure that will be required for the Project are:

- construction of the North Void TSF flood protection levee;
- dam capacity increase of Parnells Dam;
- Mitchell clean water diversion drain;
- Mitchell levee; and
- various mine and dirty water dams required for progression of mining operations.

Further discussion on the water resources related investigations that will be prepared as part of the EIS is provided in Section 7.2.1.

3.6 HVO South

3.6.1 Key project elements

The key changes that are part of the Project at HVO South, compared to what is currently approved under PA 06_0261, are presented in Table 3.2. As described in Table 3.2, key changes proposed include:

- changes to the approved mine sequencing and extension of the life of mine until the end of 2045;
- a reduction in the approved maximum extraction rate from 20 Mtpa to 18 Mtpa;
- removal of mining areas of the Riverview South East Extension, and South Lemington Pit 1 and 2;
- removal of the short rail loop option (shown in Figure 1.3); and
- enlargement of Lake James.

Part of the relocated Lemington Road will be within the HVO South footprint; however, approval will be sought under the HVO North consent for this aspect, given that it is required as result of proposed works at HVO North.

Table 3.2 HVO South – Summary of key project components compared with approved operations

Aspect	Current operations	Proposed operations
Approval period	• Operations at HVO South are approved until 24 March 2030.	• Coal extraction at HVO South until the end of 2045.
Mining Areas	• Extraction to base of Bayswater Seam in Riverview and Cheshunt Pits. • Extraction to the base of the Bowfield Seam in South Lemington Pit 1 (SLP1). • Extraction to base of Vaux Seam in South Lemington Pit 2. • Approved (State) disturbance areas shown in Figure 2.2 of the MOD 5 EA.	• Mining in South Lemington Pits 1 and 2 and Riverview South East Extension area is no longer proposed. • No change to the other key elements.
Project approval boundary	• As shown on Figure 1.3.	• Small changes to the project boundary including on the north-eastern side of Cheshunt Pit, on the northern side of the Hunter River, to the west of the Hunter River crossing, and in the vicinity of the proposed Cheshunt levee. • The proposed development consent boundary is approximately 6,065 ha.
Extraction rate	• HVO South has approval to extract up to 20 Mtpa of ROM coal.	• Reduction in extraction rate of up to 18 Mtpa of ROM coal.
Mining methods	• Dragline and truck and shovel. • Highwall mining and auger highwall mining.	• No change.
ROM coal processing and transport	• Construction and use of the LCPP (up to 16 Mtpa). • ROM/product coal may be transported from all HVO South pits via internal haul road to all CPP within HVO (HVCPP, HCPP, Newdell CPP and LCPP) for processing (up to 20 Mtpa). • ROM coal from HVO South can also be transported via overland conveyor to HVCPP.	• Approval to construct and use the LCPP will be retained. • No change to processing limits. • No transport of ROM coal from HVO South via overland conveyor to HVCPP (approval for this conveyor will not be retained). • Temporary coal stockpiles may be constructed in-pit prior to transport for processing (or by-pass).

Table 3.2 HVO South – Summary of key project components compared with approved operations

Aspect	Current operations	Proposed operations
Product coal transport	• Transport product coal by truck or overland conveyor (OLC) from all CPP to all loading points (LP) (HVLP, Newdell LP and Lemington LP and /adjacent to proposed short rail loop south of South Lemington Pit 1). • Transfer of product coal to Wambo rail spur via either a rail spur and loop, overland conveyor, trucks or any combination. • Construction of a coal loader and new rail loop adjacent to the LCPP. The loop and associated rail line would connect to the Wambo rail spur. • Transport of product coal to a new loop proposed for construction south of South Lemington Pit 1. Coal would be hauled by truck to the loop via an existing haul road that runs adjacent to South Lemington Pit 1; and • Construction of a conveyor that would be utilised to transport coal via a new loop as described above. The conveyor would be constructed adjacent to the existing haul road described above.	• Only the construction of the long rail loop adjacent to the LCPP will be retained as a product option for LCPP. Approval for the short rail loop option will not be retained.
Overburden emplacement	• Ability to dispose of overburden within all pits and out-of-pit emplacement areas across HVO.	• No change.
Coarse reject	• Ability to emplace coarse rejects within overburden emplacement areas across HVO.	• No change.
Tailings	• Integrated tailings management with HVO North with emplacement of tailings within approved tailings storage facilities at HVO.	• LCPP tailings management integrated with HVO North. • Removal, relocation and/or reprocessing of tailings from TSFs as required.
Water	• Integrated water management with HVO North. • Water discharges in accordance with HRSTS. • Approved water transfers with other mining operations (MTW (via Lemington Void), Wambo, Liddell (via LPs), Cumnock Void 3 (tailings decant return)). • Existing and approved flood protection levee (Hobden levee).	• Cheshunt and Riverview flood protection levees. • Lake James enlargement.

Table 3.2 HVO South – Summary of key project components compared with approved operations

Aspect	Current operations	Proposed operations
Infrastructure	• HVO South MIA. • Maintenance and ancillary infrastructure required to facilitate operations.	• Ancillary activities as required to facilitate operations. • Use of demountable/temporary buildings in construction compounds as required. • Relocation of some 11 kV and 66 kV Ausgrid transmission lines.
Operating hours	• Continuous operations, 24 hours per day, seven days per week.	• No change.
Workforce numbers	• Approximately 1,500 (HVO Complex).	• No change.
Blasting	• Blasting allowed 7am to 6pm Monday to Saturday inclusive (except public holidays). • Maximum 3 blasts per day and 15 blasts per week.	• No change.
Rehabilitation	• Progressive rehabilitation. • Final land use and final landform as approved.	• Changes to final landform due to rescheduling and or infrastructure relocations.
Final void	• One final void in Cheshunt/Riverview Pit with an equilibrium water level of 30mAHD estimated to be reached after 300 years.	• Potential changes to final void dimensions due to rescheduling. • South Lemington Pit 1 final void will be filled with overburden from Cheshunt Pit and adjacent stockpiled material.

3.6.2 Conceptual mine plan

Mining activities at HVO South will continue largely consistent with currently approved activities. Mining is proposed to continue in the existing Cheshunt Pit area in a south-westerly direction, transitioning towards the west. Mining continues to progress west, including beneath parts of the previously excavated Riverview Pit, before progressing south again towards the tenement boundary. Coal extraction activities within HVO South are expected to be complete by around 2045. Overburden emplacement will occur within the Cheshunt/Riverview pit area with rehabilitation occurring progressively as mining continues. The Cheshunt/Riverview Pit final landform will be fully rehabilitated incorporating sympathetic landform structures to that of the existing environment.

The existing disturbed areas at South Lemington Pit 1 will be rehabilitated incorporating integrated landform structures to that of the existing environment.

As currently approved, a final void will remain in the south-western corner of the Riverview Pit.

The currently approved South Lemington Pits 1 and 2 are no longer proposed to be mined at HVO South, and therefore coal extraction from these areas will not be given consideration in the EIS. In addition, no further mining activities are proposed in the Riverview South East Extension area, and similarly coal extraction from these areas will not be assessed in the EIS. This reduction in footprint avoids some areas of the WSW community, listed as a CEEC under the EPBC Act and an EEC under the BC Act, that is already approved for disturbance under PA 06_0261.

Notwithstanding, as can be seen on Figure 1.3, some disturbance has previously occurred in the Riverview South East Extension area and South Lemington Pit 1 as per the existing Project Approval, and therefore rehabilitation of these areas will be included in the final landform and rehabilitation strategy for the Complex.

3.6.3 Coal handling and processing

As described in Table 3.2, the existing HVO South Project Approval includes approval for construction and operation of the LCPP and rail loop, as shown on Figure 3.1. This infrastructure has not yet been built. The Project will retain approval for the CPP and long rail loop; however, the short rail loop option will not be retained.

3.7 Workforce and operational hours

No changes are proposed to the size of the workforce currently required by the HVO Complex, with the Project providing the opportunity to continue employment of these 1,500 FTE's for a further 15-25 years. Similarly, no changes to the operational hours of the existing HVO Complex will be sought as part of the Project.

Construction activities associated with the Project will create approximately 600 temporary employment opportunities. These construction activities are anticipated to include:

- Lemington Road realignment and associated works;
- transmission line and telecommunications realignment;
- demolition of the existing Newdell LP, and construction of a new load point and product stockpile;
- augmentations to the Lake James, Parnells Dam and levee construction; and
- construction of the LCPP and rail loop, although these will not be built until later in the mine life (around 2035) should future operational requirements and or market conditions deem it necessary.

The hours during which construction activities will be undertaken will vary depending on the nature of the activity and will be defined in the EIS.

3.8 Consideration of alternatives

A review of feasible alternatives has been undertaken to demonstrate that the Project constitutes the most appropriate option to meet social, environmental and economic outcomes. Alternatives considered by HVO as part of detailed prefeasibility investigations for the Project included:

- not proceed with the Project and operating the HVO Complex as per current approvals; and
- undertake mining via an alternative mine plan, mining rate or mine life.

The alternatives considered and the associated social, environmental and economic outcomes will be further identified and discussed in detail in the EIS and are briefly considered below.

3.8.1 Not proceed with the Project

Should the Project not proceed, mining and rehabilitation at the HVO Complex would continue in accordance with the approved development consents, ceasing in 2025 at HVO North and 2030 at HVO South. While the HVO South Project Approval continues to 2030, some modifications to the operation would need to be made to continue past the closure of HVO North given that coal processing and transport and water and tailings management are currently integrated between the two mine sites.

Not proceeding with the Project would mean the opportunity to recover substantial reserves of a state significant coal resource (approximately 400 Mt) from within a largely developed mining footprint in existing mining leases (MLs) and exploration leases (ELs) using existing infrastructure would not be realised. Social and economic benefits of the Project would also not be realised at a local, State and National level and the opportunity to continue employment of 1,500 FTEs for 15-25 years would be lost. Rehabilitation and final landform improvements as proposed would not be implemented resulting in a less desirable outcome for the local and regional community.

As described further in Section 4.3, the International Energy Agency (IEA) anticipates the demand for high quality coal such as that produced by HVO will continue, and the Project will play an important role in meeting this demand as other coal mines reach the end of their mine life. Significantly, the Project presents an opportunity to meet this ongoing demand without establishing a greenfield site or creating significant new ground disturbance. Rather, the Project will enable the continued servicing of existing and growing markets from a brownfield site in a well-established coal mining precinct. Not proceeding with the Project would mean this opportunity is lost.

3.8.2 Alternative mine plan, mining rate or mine life

Considerable coal reserves remain within the HVO Complex which could sustain mining well beyond 2050. For the Project, a mine plan has been developed that achieves a balance between the potential impacts on the environment and the surrounding community and the substantial economic benefits it will provide. It is considered that the proposed mine plan therefore strikes a balance between maximising benefits and opportunities while minimising and avoiding impacts.

At HVO North, as part of the Project prefeasibility investigations, a range of mine plans have been considered. HV Operations Pty Ltd assessed the potential of mining through the existing North Void TSF. This alternative would involve mining through previously processed materials, resulting in greater volumes of tailings requiring disposal within designated locations. HVO determined that mining through this TSF would likely require larger disposal facilities translating into greater areas of disturbance. This option was ruled out due to these engineering and environmental concerns as well as potential additional stakeholder concern.

At HVO South, the existing project approval permits mining within the Riverview South East Extension area. The feasibility of mining this area during prefeasibility investigations was assessed. Part of this area is within the tenements of the United Wambo Mine. HV Operations Pty Ltd determined that United Wambo would represent a more efficient utilisation of the resource and approval to mine the area by HVO South will not form part of the Project. Further, this pit is in close proximity to the Hunter Valley Gliding Club (HVGC) and excluding this pit from the Project also reduces the potential for adverse effects or interaction with the club.

In addition, the currently approved mining areas of South Lemington Pits 1 and 2 will no longer form part of the Project. Mine planning and preliminary investigations identified environmental constraints with mining within these areas.

Removal of mining South Lemington Pit 2 has avoided the following:

- potential alluvial interactions given its proximity to the Hunter River and Wollombi Brook;
- potential ecological impacts for grassland and species habitat; and
- potential indirect and downstream flooding impacts due to required infrastructure to protect mining area from flood events.

Removal of mining South Lemington Pit 1 has avoided areas of WSW, listed as a CEEC under the EPBC Act and an EEC under the BC Act.

4 Strategic context

4.1 Site and surrounds

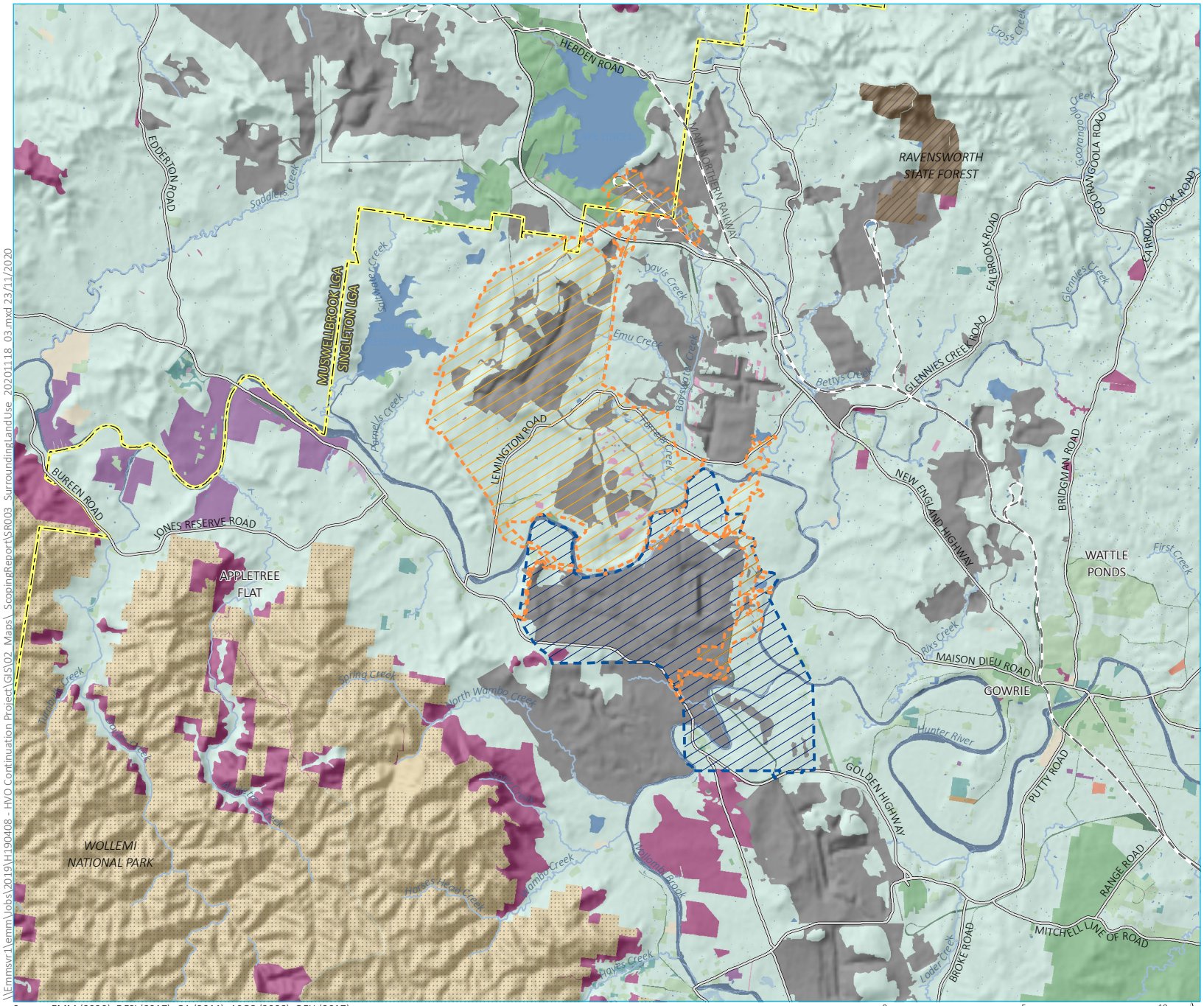
HVO is within a well-established coal mining and power generation region in the Hunter Valley. The general area surrounding the HVO Complex is comprised of various operating open cut and underground coal mining operations. Existing open cut pits, mine-related infrastructure and rehabilitated former mining areas are to the north, south-east and south-west of the HVO Complex. Surrounding mines include Liddell Coal Operations, Ravensworth Operations (inclusive of Ravensworth West, Ravensworth South and Narama), Warkworth Mine and the Wambo- United Open Cut Mine and the Wambo Underground Mine. Bayswater and Liddell power stations are to the north-west. The Project will take into consideration neighbouring mining operations in determining potential cumulative impacts.

Other land uses in the area include agriculture, mine-owned buffer land, biodiversity offsets, Crown land, national park and rural residential areas. Grazing and cropping land are to the north-east of HVO South and west of HVO North. Biodiversity offset areas are immediately to the east of HVO South and further afield to the south of Warkworth village. The Wollemi National Park is approximately 5 km south-west of the HVO Complex. Identified surrounding land uses are displayed on Figure 4.1.

There are limited private residences in close proximity to the Project, with the closest residences at Maison Dieu to the east, Long Point to the south-east, Warkworth village to the south, Camberwell to the north-east and Jerrys Plains to the west. Noted residential localities are displayed on Figure 4.2 The Australian Bureau of Statistics (ABS) defined ‘state suburbs’ are shown in Figure 4.2.

Key natural features within the locality include the Hunter River and Wollombi Brook. These items will be the subject of detailed assessment so that potential impacts are identified, and measures proposed to mitigate these impacts in consultation with the community and regulatory stakeholders. The Hunter River and Wollombi Brook are shown on Figure 4.1. Notably, HVO has been operating for a long time in proximity to both the Hunter River and Wollombi Brook, and these mining activities have been the subject of numerous detailed technical studies, which has enabled HVO to develop a thorough understanding of the environment in which it operates and effective measures to manage the impacts of its operation. These management measures will be further discussed in the EIS.

The Project is largely within the existing approval boundaries of HVO North and South. Given that mining activities are currently occurring within the Project area it is very unlikely that new hazards and or risks will be introduced into the surrounding area by the Project. Hazards and risks are further discussed in Section 7.3.



KEY

HVO North proposed development consent boundary

HVO South proposed development consent boundary

Major land use

- Forestry
- Land in transition
- Nature conservation
- Cropping
- Grazing
- Horticulture
- Intensive animal production
- Manufacturing and industrial
- Residential and farm infrastructure
- Utilities & services
- Transport and communication
- Mining
- Marsh/wetland
- Reservoir/dam
- River & drainage system
- Waste treatment and disposal
- Managed resource protection
- Other minimal use

Existing environment

- Rail line
- Main road
- Named watercourse
- Local government area
- NPWS reserve
- State forest

Source: EMM (2020); DFSI (2017); GA (2011); ASGC (2006), OEH (2017)

0 5 10 km

GDA 1994 MGA Zone 56

N

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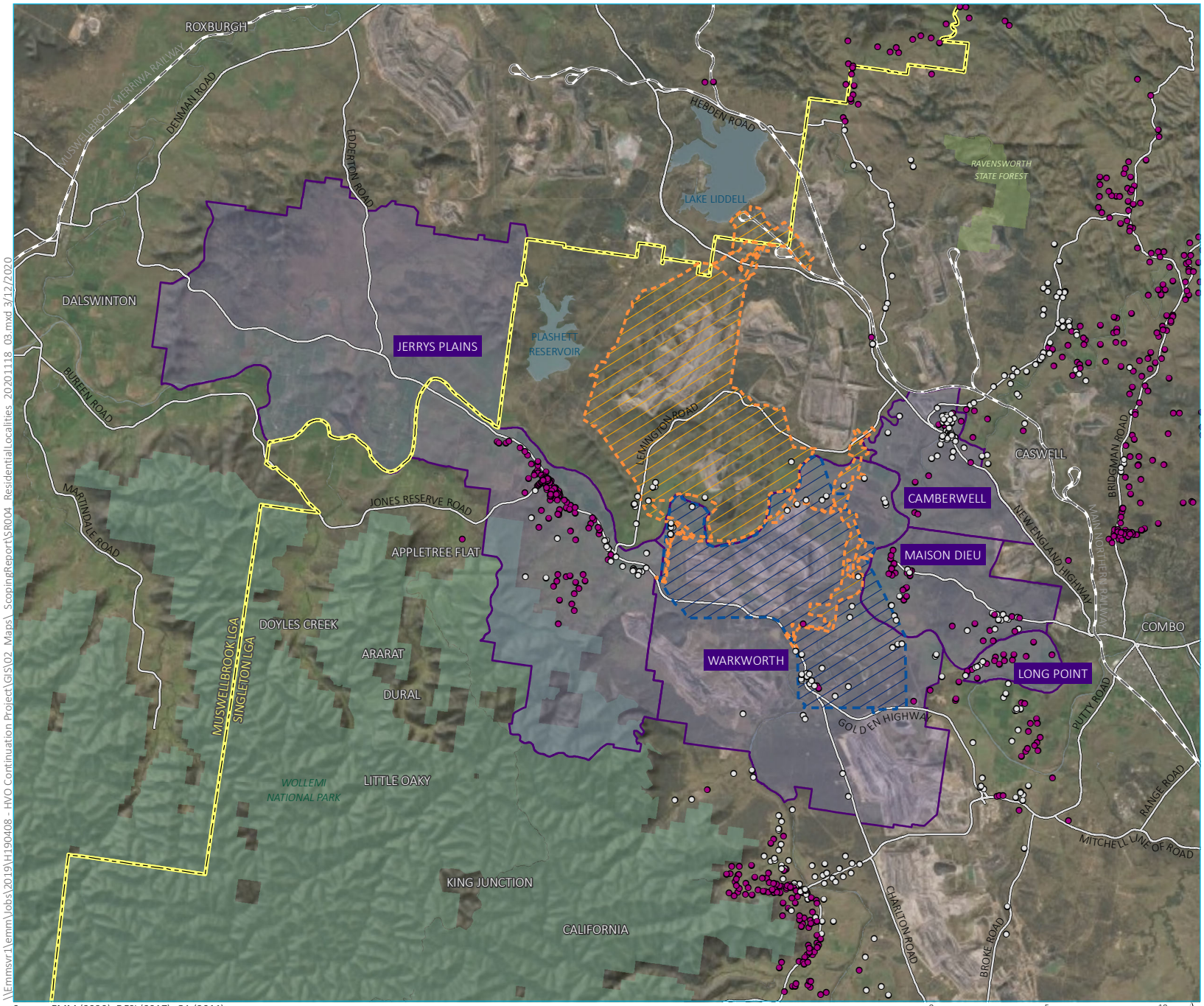
Surrounding land use

HVO Continuation Project
Scoping report
Figure 4.1

EMM
creating opportunities



KEY

- HVO North proposed development consent boundary
- HVO South proposed development consent boundary
- ABS State suburb

Receptor location

- Mine owned
- Private

Existing environement

- Local government area
- NPWS reserve
- State forest
- Named waterbody
- Rail line
- Main road

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Source: EMM (2020); DFSI (2017); GA (2011)

0 5 10 km

GDA 1994 MGA Zone 56

N

ABS State suburbs

HVO Continuation Project
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Figure 4.2

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4.2 Land ownership

The majority of land within the Project area is owned by HVO, as shown on Figure 4.3. Properties not owned by HVO generally relate to road and utility infrastructure providers such as Singleton Council, Muswellbrook Council, AGL, and Ausgrid, as well as some Crown land and land owned by other mining operations such as Ravensworth Operations, Ashton, United Wambo and Liddell Coal Operations. Within the Project disturbance footprint, it is anticipated there will be no privately owned land. HVO will continue to engage and consult with local landholders as the Project is further defined and throughout the assessment process.

4.3 Resource demand

The HVO Complex produces high quality thermal coal (approximately 90%) and some semi-soft coking coal (approximately 10%) to meet the continued demand of the export market.

The IEA predicts that, when considering announced policy targets and existing energy policies, significant growth is anticipated in the demand for coal by Southeast Asia. While countries in Southeast and South Asia are relatively small importers individually, collectively, the region is expected to play a substantial role in thermal coal markets going forward. Strong economic and population growth is driving robust growth in demand for electricity, and coal-fired power generation is expected to play a key role in meeting growing usage. Southeast and South Asia's share of world imports is expected to increase from 12 per cent in 2018 to 19 per cent in 2025 (Office of the Chief Economist, March 2020). In the longer term, overall energy demand in Southeast Asia is expected to grow 60% by 2040 (IEA 2019).

The continued shift in world coal trade towards the Asia-Pacific favours Australia's thermal coal exporters over competitors like the United States and Colombia (Office of the Chief Economist, March 2020). The IEA also anticipates that energy produced via coal fired powered stations will account for approximately 24% of the total 2040 Southeast Asia energy. To support this coal fired energy demand, increasingly efficient coal fired power stations are currently being constructed throughout Asia. The Project is well placed to meet this ongoing demand, as coal mined at HVO is of a quality that meets the stringent Southeast Asian coal quality requirements.

4.4 Project justification

The HVO Complex has been operating for over 70 years. Over that time HVO has gained extensive experience in the environment in which it operates and in successfully managing the operation so that impacts on the surrounding environment and community can be effectively managed. The Project will prolong the life of HVO North by 25 years and HVO South by 15 years, enabling optimal recovery of available coal resources within predominantly existing mining tenements and approved mining footprints using existing infrastructure.

As described above, the Project is well placed to meet coal demand, particularly in the Asian market.

In August 2020, the NSW Government released their Strategic Statement on Coal Exploration and Mining which sets out the Government's approach to global transition to a low carbon future, consistent with Australia's ambition under the Paris Agreement, and management of impacts to coal-reliant communities. The Statement stated:

> In the short to medium term, coal mining for export will continue to have an important role to play in NSW… Under some scenarios, this could see the global demand for thermal coal sustained for the next two decades or more.
>
> The NSW Government will recognise existing industry investment by continuing to consider responsible applications to extend the life of current coal mines…

The Project is therefore consistent with the Government's approach to the coal industry, as outlined in the Strategic Statement.

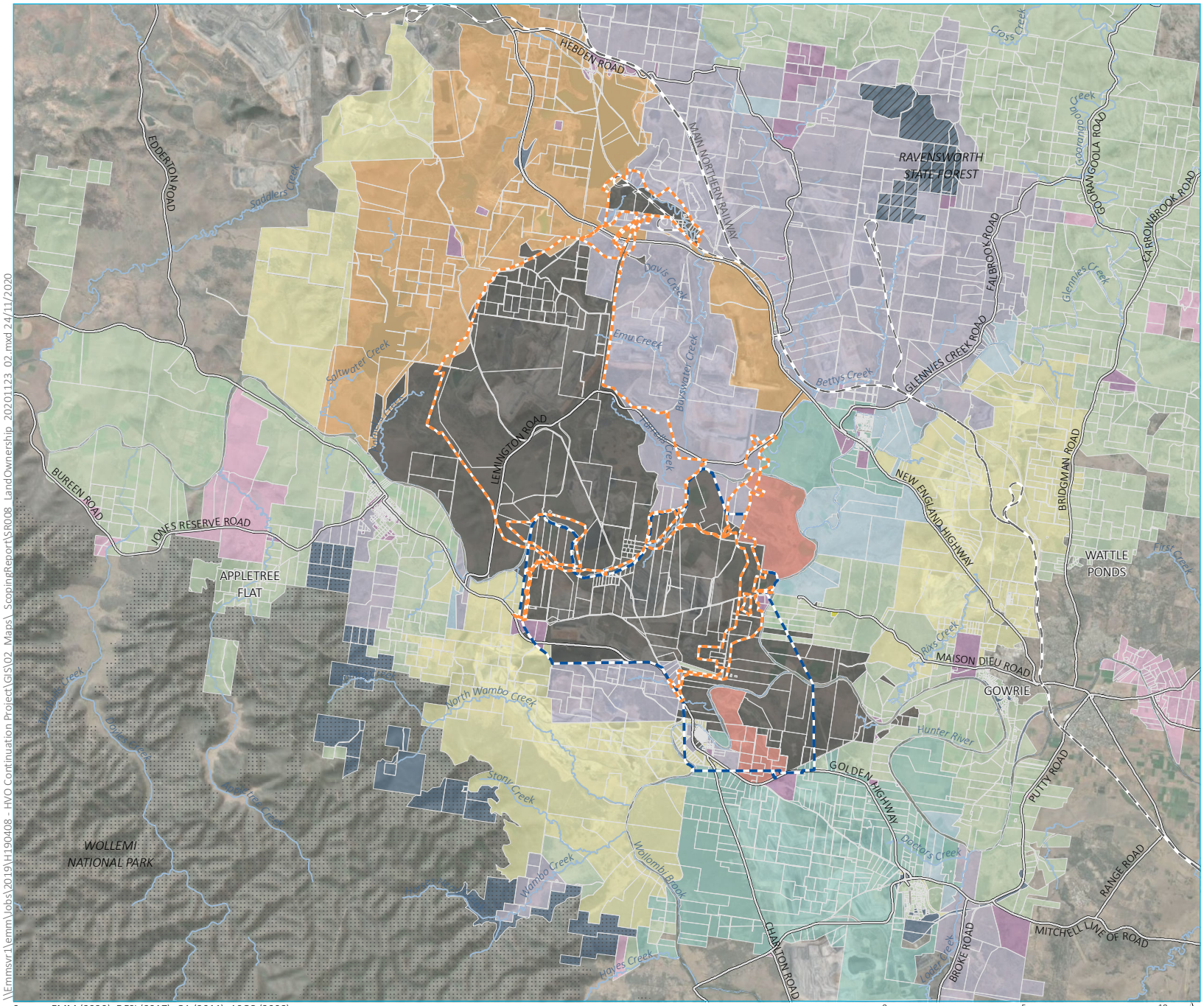
Further, HVO is a low-cost operation generally providing certainty throughout economic cycles and therefore plays an important part in providing security of supply to energy producers. The Project will enable this security of supply to continue. In addition, it is expected that a number of existing mines in the Hunter Valley will start to close in the coming decades, as a result of depleting available resources and as mines reach the end of approval timeframes. Given this anticipated reduction in the volume of export quality coal from the Hunter Valley, it is expected that the Project will play an integral role in servicing the need of export coal markets.

The Hunter is the largest regional economy in Australia (NSW Government 2016), to which HVO is an important contributor. The existing social and economic benefits of the HVO Complex would continue as a result of the extended mine life. The Project would enable the continued annual expenditure of approximately $500 million in goods and services and the employment of approximately 1,500 FTE employees, while supporting approximately 650 individual suppliers.

The Project aims to provide ongoing security to the community as the local and regional economy diversifies in the coming decades, while allowing time for the required skills to be developed locally to support this diversification. The Project would provide stability and certainty to local and regional communities, contributing to negating possible social and economic impacts during a period of change and transition.

In addition to the continuation of employment for the HVO workforce, improvements to coal processing infrastructure and the construction of ancillary infrastructure would also provide an estimated 600 temporary construction jobs. Economic benefits would extend to state and national levels with ongoing royalty payments and export sales.

The Project will enable the continuation of a brownfield site in a long-established coal mining precinct. Minimal or no changes are proposed to a number of key aspects of the existing operations at HVO; in particular there is no proposed increase in annual coal extraction volumes, workforce numbers or traffic movements, and the Project predominantly involves mining through previously disturbed land to access deeper seams so that the need to disturb additional land will be minimal. Potential environmental impacts of the Project, such as impacts in relation to air quality, noise, blast activities and visual amenity, are well understood and are not anticipated to be different to those associated with the existing operations. The Project allows for improved final landform and rehabilitation outcomes across the existing operation by means of implementing current best practice methodologies and design.



KEY

- HVO North proposed development consent boundary
- HVO South proposed development consent boundary

Existing environment

- Rail line
- Main road
- Named watercourse
- NPWS reserve
- State forest

Land ownership

- HVO JV land
- Other mine owned - Glencore land
- Other mine owned - Yancoal
- Other mine owned
- HVO JV (subject to subdivision with MTW)
- AGL Macquarie
- Ausgrid
- Crown
- Private
- Private - subject to acquisition rights
- Public
- Unknown

Source: EMM (2020); DFSI (2017); GA (2011); ASGC (2006)

0 5 10 km

GDA 1994 MGA Zone 56

N

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Land ownership

HVO Continuation Project
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Figure 4.3

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5 Statutory context

5.1 NSW planning framework

5.1.1 Approval pathway and process

The EP&A Act and the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation) establish the statutory framework for planning in NSW. Two planning approval pathways have been considered for the Project under the EP&A Act. These include:

- a modification to the existing development consents under section 4.55; or
- an application for a new development consent.

Each pathway is considered below.

i Modification

Section 4.55 of the EP&A Act sets out the relevant considerations for a consent authority in modifying a consent and requires that the consent authority be '*satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified*'.

As described in Chapter 3, the Project seeks approval for a longer life of mine at both HVO North and HVO South.

At HVO North, approval will be sought for a further 25 years of resource extraction. This includes the extraction coal from deeper seams (down to the Barrett) than is currently approved across the HVO North mining area. As such, HVO have formed the view that a new development consent will be required for HVO North.

At HVO South, while the majority of the key components of the mine will remain broadly the same, including the primary mining footprint of Riverview and Cheshunt pits and the coal seams being mined, the extended life for which approval will be sought of 15 years. Thus, HV Operations Pty Ltd have formed the view that a new development consent will be required to enable these proposed changes. Notwithstanding this, it is noted that the Project will no longer require the currently approved mining activities for South Lemington Pits 1 and 2 as well as the Riverview South East Extension.

ii New Development Application

Division 4.7 of the EP&A Act sets out provisions relating to the declaration and assessment of State significant development (SSD). In accordance with section 4.36 of the EP&A Act, a SEPP may declare any development, or any class or description of development, to be SSD.

State Environmental Planning Policy (State and Regional Development) 2011 (the SRD SEPP) states the following:

> 8 Declaration of State significant development: section 4.36
>
> (1) Development is declared to be State significant development for the purposes of the Act if:
>
> a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and
>
> b) the development is specified in Schedule 1 or 2.

In this regard, the following is noted:

1. the Project is not permissible without consent under Part 4 of the EP&A Act; and
2. clause 5 in schedule 1 of the SRD SEPP specifies development for the purposes of coal mining as SSD.

Accordingly, the HVO Continuation Project is SSD.

A summary of the existing development consents and planning approvals for the HVO Complex is provided in Table 2.1. Subject to development consent being granted for the Project, it is anticipated that the existing development consent and planning approval (listed in Table 2.1) will be surrendered, with ongoing operations under these consents and planning approvals to continue in effect under any new planning approval issued in relation to the HVO Continuation Project.

HVO understands that relevant consent authority will either be the Minister for Planning and Public Spaces or the Independent Planning Commission (IPC). In accordance with clause 8A of the SRD SEPP, the IPC will be the consent authority for SSD in circumstances where:

- the council of the area in which the development is to be carried out has duly made a submission by way of objection,
- at least 50 submissions (other than from a council) have duly been made by way of objection, or
- the application is made by a person who has disclosed a reportable political donation under section 10.4 of the EP&A Act in connection with the application.

The Minister, or his/her delegate, is the consent authority for all other SSD applications.

A development application for SSD must be accompanied by an EIS, prepared in accordance with the EP&A Regulation. Before preparing an EIS, an applicant must request SEARs, which are the terms of reference for the EIS. This document accompanies HVO's request for SEARs for the HVO Continuation Project, which will comprise two SSD applications (one for HVO North and one for HVO South).

Should approval be granted for new SSD consents for HVO North and HVO South, the existing approvals for these operations would be surrendered. Accordingly, section 4.63 of the EP&A Act provides that if a development consent is surrendered as a condition of a new development consent, the consent authority is not required to re-assess likely impacts of the continued development of the existing consents.

5.1.2 Permissibility

As noted in in section 5.1.1, the HVO Continuation Project is declared SSD under the SRD SEPP.

Notwithstanding this, HVO notes that open cut mining is permissible with consent within land zoned RU1 Primary Production in both the Singleton Local Environmental Plan 2013 (Singleton LEP) and the Muswellbrook Local Environmental Plan 2009 (Muswellbrook LEP). The EIS will further consider the Project's permissibility in detail as well as its consistency with the existing and planned future character of the area, and the zoning objectives.

5.1.3 Strategic Agricultural Land

Clause 50A of the EP&A Regulation outlines special provisions for development applications relating to mining or petroleum development on strategic agricultural land. If a project involves a mining development within the meaning of Part 4AA of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (the Mining SEPP), clause 50A of the EP&A Regulation requires that the development application be accompanied by either:

- a “Gateway Certificate”, where the development occurs on land which meets the definition of Biophysical Strategical Agricultural Land (BSAL); or
- a “Site Verification Certificate” (SVC) that certifies that the land on which the proposed development is to be carried out is not BSAL.

Part 4AA of the Mining SEPP states that:

(1) In this Part, mining or petroleum development means:

(a) development specified in clause 5 (Mining) of Schedule 1 to *State Environmental Planning Policy (State and Regional Development) 2011*, but only if:

(i) a mining lease under the *Mining Act 1992* is required to be issued to enable the development to be carried out because:

(A) the development is proposed to be carried out outside the mining area of an existing mining lease, or

(B) there is no current mining lease in relation to the proposed development, or

(ii) the development is for the purposes of extracting a bulk sample as part of resource appraisal or a trial mine comprising the extraction of more than 20,000 tonnes of coal or of any mineral ore…

At HVO North, the Project involves the extraction of coal from deeper seams (i.e. down to the Barrett seam) in areas that have been predominantly previously mined. Despite these areas being previously mined, the deeper seams are covered by ELs only as existing MLs do not extend to the depth of the Barrett seam across the entire proposed mining area. Therefore, a new ML will be required at depth in some areas. In addition, there is a small area that is within the proposed mining footprint within a surface EL and therefore a new ML will be required to cover this area.

At HVO South, the Project involves a small change to the approved footprint to straighten the highwall, and in doing so steps outside the area covered by an existing ML into an area covered by an EL. A new ML will also be required at HVO South to cover this small area.

Given that new MLs will need to be issued to enable the Project to be carried out, in accordance with Clause 4AA of the Mining SEPP, the development applications for HVO North and HVO South will need to be preceded by either a Gateway Certificate or an SVC.

An assessment has been conducted in accordance with the *Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land* (NSW Government 2013), which concludes that the areas over which new MLs will be required do not meet the definition of BSAL, and therefore an SVC certifying this will be applied for and obtained prior to lodgement of the development applications for the Project.

5.1.4 Other State approvals and licences

Under sections 4.41 and 4.42 of the EP&A Act, certain separate environmental authorisations will not be required for the Project or will be required to be issued consistent with the planning approval granted the Project. Each of these separate environmental approvals is considered in Table 5.1. Further environmental and other approvals may be required in addition to those referred to under section 4.41 and 4.42 of the EP&A Act, and these will be considered and outlined where relevant to the assessment of the Project as part of the EIS.

Table 5.1 Permits and approvals under NSW legislation that may be required for the Project

Legislation	Relevance to the project	Comment
Approvals not required under section 4.41		
A permit under section 201, 205 or 219 of the *Fisheries Management Act 1994 (FM Act)*.	Relevant but not required	A new bridge crossing over the Hunter River is proposed as part of the Project for the realignment of Lemington Road. An aquatic ecology assessment will be conducted as part of the environmental assessment to identify potential impacts and appropriate management measures in relation to maintaining the passage of fish in the River.
An approval under Part 4, or an excavation permit under section 139 of the *Heritage Act 1977*	Relevant but not required	No known historic heritage sites occur within or in close proximity to the Project area. Notwithstanding the EIS will consider potential impacts to historic heritage items and identify appropriate management and mitigation measures as required.
An Aboriginal heritage impact permit under section 90 of the *National Parks and Wildlife Act 1974*	Relevant but not required	An Aboriginal Cultural Heritage Assessment will be conducted over the proposed new disturbance areas to identify any heritage sites and appropriate management and mitigation measures to be implemented, if required, as part of the Project.
A bushfire safety authority under section 100B of the *Rural Fires Act 1997*	Relevant but not required	The existing HVO bushfire management plan would be updated following receipt of approval of the proposed Project.
A water use approval under section 89, a water management work approval under section 90 or an activity approval (other than a groundwater interference approval) under section 91 of the *Water Management Act 2000*	Relevant but not required	A Water Assessment will be prepared for the Project, comprising a groundwater assessment and a surface water assessment. This assessment will consider potential impacts to water resources as a result of the Project, including any groundwater and surface water access licence requirements.
Approvals required to be issued consistently under section 4.42		
An aquaculture permit under section 114 of the FM Act	No	The Project does not involve aquaculture.
Approval under section 15 of the *Mine Subsidence Compensation Act 1961*	Yes	The Project is within the Patrick Plains mine subsidence district.
A mining lease under the *Mining Act 1992*	Yes – HVO North and HVO South	As described in Section 5.1.3, new MLs will be required to enable the Project.
A production lease under the *Petroleum (Onshore) Act 1991*	No	The Project does not involve petroleum production.
An environment protection licence under Chapter 3 of the *Protection of the Environment Operations Act 1997*	Yes – the HVO Complex	The HVO Complex currently operates under one Environment Protection Licence (EPL) 640. EPL 640 will be varied as required if the Project is approved.
A consent under section 138 of the *Roads Act 1993*	Yes – HVO North	A consent is required under section 138 to work on or above a road or to connect a road to a classified road. Approval from Singleton Council as the appropriate road authority will be required for the Lemington Road and Liddell Station Road Realignment.
A licence under the *Pipelines Act 1967*	No	

5.1.5 Consistency with State environmental planning policies

A number of State and regional policies are relevant to the HVO Continuation Project. Consideration of its consistency with these policies and plans is provided in Table 5.2.

Table 5.2 Consideration of relevant State environmental planning policies

Policy	Relevant project elements	Consistency of the Project
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007	The Project.	This SEPP provides for the orderly development of resources to promote the social and economic welfare of NSW. It also establishes planning controls to encourage ecologically sustainable development. Part 3 specifies certain non-discretionary standards for management of impacts associated with mining and the project's compliance with these will be assessed in the EIS. Consideration of Part 3 matters will be given in the EIS.
State Environmental Planning Policy No. 33 – Hazardous and Offensive Development	Storage and transport of dangerous goods.	Consideration of the Department's guideline *Applying SEPP 33* (2011) and, if required, preparation of a Preliminary Hazard Assessment will be undertaken.
State Environmental Planning Policy (Koala Habitat Protection) 2019	Clearance of potential Koala habitat	A biodiversity assessment will be undertaken which will include surveys for Koalas to determine whether Koala habitat will be impacted.
State Environmental Planning Policy No 55 – Remediation of Land	Historic mining and agricultural activities have potential for land contamination.	A contamination assessment will be undertaken which will identify any land contamination.

5.1.6 Other relevant policies

i NSW Government Strategic Statement on Coal Exploration and Mining

In August 2020, the NSW Government released the *Strategic Statement on Coal Exploration and Mining* (The Statement) which sets out the Government's approach to global transition to a low carbon future, consistent with Australia's ambition under the Paris Agreement, and management of impacts to coal-reliant communities. The Statement provided a four-point action plan:

1. Improving certainty about where coal mining should occur
2. Supporting responsible coal production
3. Reducing the impact of coal mining
4. Supporting diversification of coal-reliant regional economies to assist with the phase-out of thermal coal mining

The Statement commits the NSW Government to consider responsible applications to extend the life of existing coal mines, which is consistent with the proposed applications for both HVO North and HVO South as part of the Project.

ii Integrated Mining Policy 2018

The *Integrated Mining Policy* (IMP) is a whole-of-government policy that aims to:

- improve the regulation and assessment of major mining projects;
- strike a balance between the significant benefits mining can bring to the economy and the potential impacts on communities and the environment;
- help manage the environmental and social impacts of mining; and
- ensure the community has access to relevant and timely information about mining projects.

The IMP is inclusive of a suite of documents relevant to the preparation of assessment material for mining developments. Documents that are to be taken into consideration for the Project include:

- *Technical Notes supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals* (DPIE, formerly DPE, 2018);
- *Mine Application Guideline* (DPIE, formerly DPE, 2015); and
- *Water Regulation Overview* (DPIE, formerly DPE, 2015).

The documents provide key considerations, approval requirements and policy frameworks. The EIS will include review and assessment of the Project against each of the controls and policies noted within the IMP and associated documents.

The IMP is inclusive of guidelines and policies relevant to mining operations post approval. Should the Project receive approval, these requirements will be considered.

iii NSW Aquifer Interference Policy

The NSW *Aquifer Interference Policy* (AIP) defines the regime for protecting and managing the impacts of aquifer interference activities on NSW's water resources and assist proponents to prepare necessary information for activities that may affect aquifers. It describes the requirements for obtaining water licences for aquifer interference activities and establishes considerations in assessing whether more than minimal impacts might occur to a key water-dependent asset.

Where an aquifer interference activity, such as open-cut mining, results in the movement of adjacent, overlying or underlying water into the groundwater source separate licences are required for each of these sources for the predicted volume of impact. Potential impacts to water resources and water-dependent receptors (such as groundwater dependant ecosystems and privately-owned bores) will be assessed in the EIS, and will include consideration of the AIP and the identification of any water licence requirements for the Project in addition to water licences currently held by HVO.

iv Hunter Regional Plan 2036

The *Hunter Regional Plan 2036* (NSW Government 2016) (HRP) aims to guide the NSW Government's land use planning priorities and decisions over the next 16 years in the Hunter region. It provides an overarching framework to guide subsequent and more detailed land use plans, development proposals and infrastructure funding decisions.

The HRP is inclusive of actions to identify the land and infrastructure requirements to develop the Hunter's coal and alternative energy resources.

The Project is aligned with the HRPs key goals for the Hunter including;

- continue contributing to developing the Hunter region as the leading regional economy;
- providing ongoing opportunities for Hunter communities to thrive; and
- ensuring the ongoing employment for approximately 1,500 FTEs in the region.

The EIS will further consider the Project's alignment with the Hunter Regional Plan.

v Upper Hunter Strategic Regional Land Use Plan

The *Upper Hunter Strategic Regional Land Use Plan* (NSW Government 2012) (UHRLUP) provides mechanisms to improve environmental outcomes and reduce land use conflict in the Upper Hunter Region. The UHRLUP identifies high quality agricultural land (BSAL) that may be impacted by resource developments. It ensures areas of BSAL are identified early and are subject to a rigorous and independent assessment before a development application can be determined.

As described in Section 5.1.3, an application for an SVC will be prepared for the Project, which will include a supporting BSAL assessment carried out in accordance with the *Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land* (NSW Government 2013).

vi Singleton Local Strategic Planning Statement 2041

The *Singleton Local Strategic Planning Statement 2041* (Singleton Council, 2020) (SLSPS) is a local land use strategy that applies to the Singleton LGA, guiding land use polices and principles to 2041. The SLSPS was adopted by council in July 2020.

The SLSPS aims to provide clear direction for Singleton Council and NSW Government agencies to guide decisions relating to future use of land within the Singleton LGA. It establishes a policy framework to facilitate opportunities as they emerge in the future.

The SLSPS recognises coal mining as significant land use and economic driver of the Singleton LGA for the foreseeable future. The Project is aligned with the SLSPS as it aims to support continual economic development in the Singleton LGA.

vii Muswellbrook Shire Council Community Strategic Plan 2017-2027

The *Muswellbrook Shire Council Community Strategic Plan* (Muswellbrook Shire Council 2017) (MSCCSP) defines the Muswellbrook Shire Council's main priorities and vision based on community consultation. The priorities identified in the MSCCSP aim to provide improved community and environmental outcomes. The Project is aligned with the number 1 goal identified in the MSCCSP, which is to support job growth.

Further consideration of the alignment of the Project with the MSCSP and other strategic planning documents of MSC will be included in the EIS for the Project.

5.2 Commonwealth legislation

5.2.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the primary Commonwealth legislation that governs protection of the environment and is administered by the Department of Agriculture, Water and the Environment (DAWE). Part 3 of the EPBC Act states that an action that has, will have or is likely to have a significant impact on a Matter of National Environmental Significance (MNES), may not be undertaken without prior approval.

A search of the Commonwealth's protected matters search tool was used to generate a list of MNES or other matters protected by the EPBC Act likely to occur within the Project area. The results of the search are summarised in Table 5.3. Further discussion on listed ecological communities and species known to occur in the Project area is provided in Section 7.2.8.

Table 5.3 Results of the protected matters search relevant to the Project area

MNES	Relevant to the HVO Continuation Project
World heritage properties	Wollemi National Park, which forms part of the Greater Blue Mountains Area, is located within the search tool buffer radius (10 kilometres).
National heritage places	Wollemi National Park, which forms part of the Greater Blue Mountains Area, is located within the search tool buffer radius (10 kilometres).
Wetlands of international importance (listed under the Ramsar Convention)	None within search tool buffer radius (10 kilometres). Hunter Estuary Wetlands is identified as occurring 50 – 100 km downstream of the search area.
Commonwealth listed threatened species	44 listed threatened species identified within the search area
Commonwealth listed threatened ecological communities (TECs)	Six Commonwealth listed TECs may/are likely to occur in the vicinity of the proposal: Central Hunter Valley Eucalypt Forest and Woodland CEEC Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland EEC Hunter Valley Weeping Myall (*Acacia pendula*) Woodland CEEC Lowland Rainforest of Subtropical Australia CEEC Warkworth Sands Woodland of the Hunter Valley CEEC White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC
Migratory species (protected under international agreements)	15 listed migratory species
Commonwealth marine areas	Not applicable
Great Barrier Reef Marine Park	Not applicable
Nuclear actions (including uranium mines)	Not proposed
A water resource, in relation to coal seam gas development and large coal mining development	Yes – the HVO North is a large coal mining development likely to impact on a water resource.

Table 5.3 Results of the protected matters search relevant to the Project area

MNES	Relevant to the HVO Continuation Project
Other matters covered by the EPBC Act	
Commonwealth land	No Commonwealth land is within the Project Area or is anticipated to be impacted by the Project.
Commonwealth heritage places outside Australia	No impacts will occur to Commonwealth heritage places outside Australia as a result of the Project.

Two referrals with respect to operations at the HVO Complex have previously been made under the EPBC Act. These include:

1. EPBC Act referral 2016/7640; and

2. EPBC Act referral 2016/7641 and request for variation received 12 April 2017.

EPBC 2016/7640 was declared a controlled action and covers some discrete areas relating to the presence of Central Hunter Valley Eucalypt Forest (CHVEF). A second referral with respect to HVO South, relating to the proposed deeper mining in the Bayswater seam within the Riverview Pit area (EPBC 2016/7641), was deemed not to be a controlled action as it was not considered likely to significantly impact water resources.

In addition to these referrals, large portions of HVO (North and South) benefit from 'grandfathering' provisions under sections 43A and 43B of the EPBC Act. HVO has been developed over many years through the amalgamation of several smaller mines with separate planning and environmental approvals. The majority of these approvals were in place at the commencement of the EPBC Act (being July 2000) and, in the case of water, July 2013 (which is the date on which 'water' became a matter of national environmental significance for large coal mine developments). As such large portions of HVO were 'grandfathered' under sections 43A and 43B of the EPBC Act.

It is noted that these 'grandfathering' provisions will cease to apply if additional authorisations are required to carry out a relevant action. As described in Chapter 1, the existing project approval for HVO South allows mining operations to continue up until 24 March 2030 and the existing project approval for HVO North allows mining operations to continue up until 12 June 2025. HVO North and South will not be able to operate under the 'grandfathering' provisions of the EPBC Act following these dates as further authorisation will be required to carry out the action. Similarly, the decision and approval that has been obtained for HVO South under the EPBC Act expires in 2030 and will require further authorisation to operate until 2045. In addition, changes to disturbance areas at HVO North may impact a number of Commonwealth listed populations, communities and species (refer to Table 5.3). Increases to the depth of mining at HVO North may also impact water resources in the local area.

It is expected that the Project will require two referrals under the EPBC Act, one for HVO North and one for HVO South. If deemed to be controlled actions, assessment and determination under the EPBC Act will be necessary. This will require the preparation of an MNES technical report which responds to the relevant heads of consideration.

The Commonwealth and NSW entered into a bilateral agreement for environmental assessment under section 45 of the EPBC Act dated 26 February 2015. Since entering into this bilateral agreement, NSW has repealed the *Threatened Species Conservation Act 1995* with the commencement of the *Biodiversity Conservation Act 2016* and the *Environmental Planning and Assessment Amendment Act 2017*.

The bilateral agreement between NSW and the Commonwealth was recently amended on 24 March 2020 to reflect these changes in NSW biodiversity legislation, endorsing the Biodiversity Assessment Method and the Biodiversity Offset Scheme as the accredited assessment approach for assessing biodiversity impacts for major projects in NSW.

The use of an accredited assessment process does not alleviate the approval requirements of the Commonwealth Minister for the Environment under the EPBC Act. While the NSW Minister or the IPC will be the determining authority for the Project under the EP&A Act, the Commonwealth Minister for the Environment must decide whether or not to approve the controlled action under the EPBC Act.

Early consultation activities with DAWE regarding the nature of the Project, its potential environmental interactions and likely assessment pathways have been carried out. Should approval under the EPBC Act be required for either or both applications, a bilateral assessment will be requested.

5.2.2 Native Title Act 1993

The Commonwealth *Native Title Act 1993* recognises and protects native title rights in Australia. It allows a native title determination application (native title claim) to be made for land or waters where native title has not been validly extinguished, for example, extinguished by the grant of freehold title to land.

Proposed activities or development that may affect native title are called 'future acts'. Claimants whose native title claims have been registered have the right to negotiate about some future acts, including mining and granting of a mining lease over the land covered by their native title claim. Where a native title claim is not registered, a development can proceed through mediation and determination processes, though claimants will not be able to participate in future act negotiations.

There are currently no native title claims over the Project area. While a native title claim relevant to the Project area was registered on 16 January 2015 on behalf of the Plains Clans of the Wonnarua People (NC2013/006), this claim has since been withdrawn.

The EIS will identify the presence or otherwise of any parcels of Crown Land or Crown roads in the Project area.

6 Engagement during scoping

6.1 Community and stakeholder engagement strategy

6.1.1 Overview

A community and stakeholder engagement strategy (CSES) has been developed to prescribe the methods for engagement throughout the development of the scoping and delivery phases of the EIS. The CSES is a dynamic document and will be revised upon receipt of the SEARs and during preparation of the technical studies as a part of the EIS.

HVO has been operating for over 70 years and therefore has well established relationships with the local community, landholders and other local stakeholders. In engaging with its stakeholders, HVO will maintain and build upon their existing relationships by:

- delivering an EIS which meets government requirements relating to EIS engagement outlined in the *Draft Community and Stakeholder Engagement Guidelines* (DPIE 2017) (Engagement Guideline); and
- maintaining HVO's social licence to operate by undertaking a social impact assessment in line with the *Social impact assessment guideline for State significant mining, petroleum production and extractive industry development* (SIA Guideline) (DPIE 2017).

The CSES has been developed in consultation with HVO representatives and supports the project team in delivering the following outcomes:

- afford meaningful involvement of key Project stakeholders, by disseminating information on the Project, as well as gathering input to inform the project design, social impact assessment and relevant technical studies;
- build and strengthen relationships between key stakeholders and HVO; and
- facilitate internal and external stakeholder confidence that the design of the Project has been carefully considered, and that its environmental, social and economic effects have been comprehensively assessed.

6.1.2 Engagement during COVID-19

At the time of consultation commencing, the NSW Government was in Stage 3 of COVID-19 restrictions. This generally did not allow for face-to-face consultation to take place during the scoping phase of the Project. Where possible, meetings were held using teleconference and videoconference. Details of methods of engagement are outlined within this chapter.

6.2 Government agency engagement

The stakeholder engagement process commenced in September 2020 with briefing meetings held with Federal, State and Local Government agencies, as detailed in Table 6.1.

Table 6.1 Government agency engagement

Stakeholder group	Stakeholder	Method and purpose of engagement	Date of meeting
Federal Government	Department of Agriculture, Water and the Environment (DAWE)	• Meeting via teleconference to discuss EPBC Act referral and potential for controlled action	14 September 2020
State Government	Department of Planning, Industry and Environment (DPIE) - Sydney	• Meeting via teleconference to provide a Project overview and to discuss approval pathway and consultation strategy for scoping phase.	15 September 2020
	Department of Regional NSW - Mining, Exploration and Geoscience, Resources Regulator	• Meeting via teleconference to present the Conceptual Project Development Plan (CPDP). • Second meeting via teleconference to provide a Project overview and discussion on rehabilitation and final land use aspects of the Project.	CPDP Briefing - 14 October Meeting with RR - 5 November
	DPIE Water and NRAR	• Meeting via teleconference to provide a Project overview, and an overview of the approach to assessing potential impacts on water resources	Meeting held with DPIE Water 15 October – NRAR did not attend
	Environment Protection Authority (EPA)	• Meeting via teleconference to provide a Project overview, and discuss the approach to air, noise and water studies.	22 October 2020
	DPIE – EES (Biodiversity & Conservation)	• Meeting via teleconference to provide a Project overview and to discuss the methodology for the biodiversity assessment and potential impacts/offset options.	12 October 2020
	Heritage NSW	• Cultural heritage and archaeological methodology discussion.	To be held.
	Transport for NSW (TfNSW)	• Meeting via teleconference to provide a Project overview and to discuss the methodology for the traffic impact assessment, and relevant project elements including the Lemington Road realignment.	23 October 2020
Local Government	Singleton Council – Council officers	• Meeting to provide a Project overview, and to discuss relevant project aspects including Lemington Road realignment.	16 September 2020
	Singleton Council – Elected councillors	• Meeting to provide councillors with a Project overview.	26 October 2020
	Muswellbrook Council – Council officers	• Meeting to provide a Project overview.	17 September 2020
	Muswellbrook Shire Council – Elected Councillors	• Meeting to provide councillors with a Project overview.	27 October 2020

6.3 Community engagement

The CSES reflects the Engagement Guideline (DPE 2019) and SIA Guideline (DPIE 2017) requirements for community engagement related to environmental impact assessments for SSD projects. The Engagement Guideline and SIA Guideline provide instruction regarding the management and implementation of community and stakeholder engagement throughout a project's planning and approvals process, including the appropriate identification of potentially impacted people and groups, the methods of engagement to be undertaken, timing of consultation and feedback mechanisms.

A variety of engagement tools have been developed to support community engagement activities for the Project, a description of each is provided in Table 6.2.

Table 6.2 Engagement tools

Engagement tool	Description	Utilised in scoping phase
Newsletter	A newsletter to introduce the proposed Project, provide a map, summary of planning and approvals process and invitation to participate in consultation process.	Newsletter 1 was issued in September 2020.
Letters/emails	Letters and emails sent to potentially impacted stakeholders requesting meetings.	Letters and emails have been sent throughout the scoping phase and as outlined in Tables 6.1 and 6.3.
Community survey (online & mail)	A survey was developed to inform the SIA to gauge community perception and inform the identification of potential social impacts. Surveys were circulated online and via letter box drop.	The SIA survey received 103 responses. Further details of the outcomes are found in Appendix A (Section 5.2 of the SIA Scoping Report).
HVO website	hvo.com.au provides information regarding the Project, including a link to the HVO Social Pinpoint online engagement tool. (Further details can be found in Section 6.4.4)	The HVO website has been updated to provide information on the HVO Continued Operations Project.
Face to face meetings (Video conferencing /teleconferencing)	Meetings with directly impacted stakeholders to introduce the Project, advise of the planning process, and discuss potential project impacts.	Teleconferences and videoconferences were held in lieu of face-to-face meetings in line with Covid-19 restrictions during the scoping phase.
Community information session	An informal community event attended by members of the community and the HVO Project team to discuss the Project.	Three community information sessions are scheduled for: • Thursday 26 November 2020 – Jerrys Plains • Saturday 28 November 2020 – Maison Dieu • Thursday 3 December 2020 – Long Point

All community interactions are registered in HVO's Project information register which tracks issues and ensures that appropriate responses are provided and documented.

Engagement during the scoping phase of the planning and approvals process has been undertaken with potentially impacted local and regional community members and groups as detailed in Table 6.3.

Table 6.3 Community engagement

Stakeholder group	Stakeholder	Purpose of engagement	Engagement tools	Timeframe/Date
Community Consultative Committee (CCC)	CCC	• Briefing on the Project, and the progression of the approvals process and environmental assessment.	• Presentation • Newsletter • Ordinary meeting	9 September 2020 and 18 November 2020.
Residents and near neighbours	• Jerrys Plains • Maison Dieu • Long Point • Camberwell	• Inform residents and seek feedback on aspects to be addressed in the SEARs/EIS.	• Newsletter • Project website • Survey (online and mail out) • Community open days	September – December 2020
	Hunter Valley Gliding Club (HVGC)	• Inform and seek feedback on aspects to be addressed in the SEARs/EIS.	• Interviews (SIA) • Newsletter	23 September
Tenants – Mine Owned Properties	Tenants	• Inform residents and seek feedback on aspects to be addressed in the SEARs/EIS.	• Newsletter	September – October 2020
	Singleton Clay Target Club (SCTC)	• Inform, HVO Tennant	• Interviews (SIA) • Newsletter	20 October 2020
Partners/ Collaborators	Mount Thorley Warkworth Mine	• Inform and discuss implementation of water sharing agreement and data sharing.	• Email and briefing meeting	Ongoing
	Colinta	• Inform as lessee of project area and required future input to Agricultural Impact Statement.	• Briefing meeting	Ongoing meetings
	United Wambo	• Inform and discussions on the management of cumulative impacts.	• Email and briefing meeting	9 September 2020
	Liddell Coal Operations	• Inform of project.	• Email and briefing meeting	Ongoing meetings
	Ravensworth Operations	• Inform of project and discussions on the management of cumulative impacts.	• Email and briefing meeting	9 September 2020
	Ashton	• Inform and discuss powerline realignment on Ashton land.	• Briefing meeting • Emails	Ongoing

Table 6.3 Community engagement

Stakeholder group	Stakeholder	Purpose of engagement	Engagement tools	Timeframe/Date
	AGL	• Inform and discuss powerline realignment owned by AGL, and on AGL land.	• Teleconference • Emails	Ongoing
	TransGrid	• Inform and discuss telecommunication lines relocation.	• Phone calls • Emails	6 November 2020
	Telstra	• Discuss telecommunication lines relocation.	• Phone calls • Emails	Ongoing
	Ausgrid	• Discuss telecommunication lines relocation.	• Phone calls • Emails	Ongoing
	Singleton Chamber of Commerce	• Inform - Understanding predicted project impacts / benefits to local business • Input to SIA	• Briefing meeting	24 September 2020
	NSW Minerals Council	• Understanding cumulative impacts and industry impacts • Input to SIA	• Briefing Meeting • Interviews (SIA)	22 October 2020
Broader Community	Residents of Singleton and Muswellbrook LGAs	• Inform	• Newsletter/newspaper	Newspaper article in Hunter River Times
Aboriginal Community	Registered Aboriginal Participants	Inform Collaborate	• Invitation to register • Project methodology letter • Aboriginal Focus Group (AFG) Meeting • HVO Cultural Heritage Working Group (CHWG) briefing	Initial engagement September/ October 2020 AFG 27 November 2020

6.4 Engagement statistics and outcomes

A total 101 residents and community groups/organisations were identified and, of those, 69 did not respond to attempts to make contact by HVO and EMM. A total of 20 meetings were held with residents and community groups/organisations and 12 residents declined. A summary of the residents and community groups identified and contacted throughout the scoping phase of the Project is provided in Table 6.4.

Table 6.4 Community engagement statistics

Stakeholder Group	Identified	Consultations/ Meetings	Declined	Unable to be contacted
Jerrys Plains Resident	69	12	10	47
Long Point Resident	8	2	1	5
Maison Dieu Resident	17	3	1	13
Community Groups / Organisations	7	3	0	4
TOTAL	**101**	**20**	**12**	**69**

In addition to the consultation noted in Table 6.3 and Table 6.4, and to ensure all nearby members of the community were informed, a total of 329 newsletters and surveys were issued via letterbox drop on 14 September 2020. 101 newsletters and surveys addressed to the individual residents identified in Table 6.4 from HVO's existing community database were posted. In addition, to ensure that all residents received a newsletter in the identified areas, newsletters were also sent to:

- all residents of Jerrys Plains – 131 newsletters and surveys posted;
- all residents of Long Point – 18 newsletters and surveys posted;
- all residents of Camberwell – 47 newsletters and surveys posted; and
- all residents of Maison Dieu – 32 newsletters and surveys posted.

In addition to the above, 91 newsletters and surveys were issued to Aboriginal stakeholders with previously registered interest in HVO.

The HVO Senior leadership team was provided with a copy of the newsletter and the HVO workforce has been briefed on the Project during daily briefings.

6.4.1 Outcomes of community engagement meetings

During the scoping phase of the planning and approvals process 20 consultation meetings were held. All attendees were provided with a newsletter prior to the meeting and a detailed interview guide was developed to address key aspects of the project including:

- a summary of the Project;
- the planning and approvals process;
- opportunities to ask questions and seek clarifications; and
- SIA interview questions.

i Awareness of the project

As the Project is in the scoping phase this data will form a baseline as the EIS progresses and will allow HVO to track and measure their engagement outcomes. During community consultation meetings, stakeholders were asked to rate their awareness of the Project using a scale of very poor, poor, neutral, good, very good. Those who participated rated their awareness as shown in Figure 6.1. Residents of Jerrys Plains and Maison Dieu were most likely to rate their awareness of the Project higher than community groups/organisations.

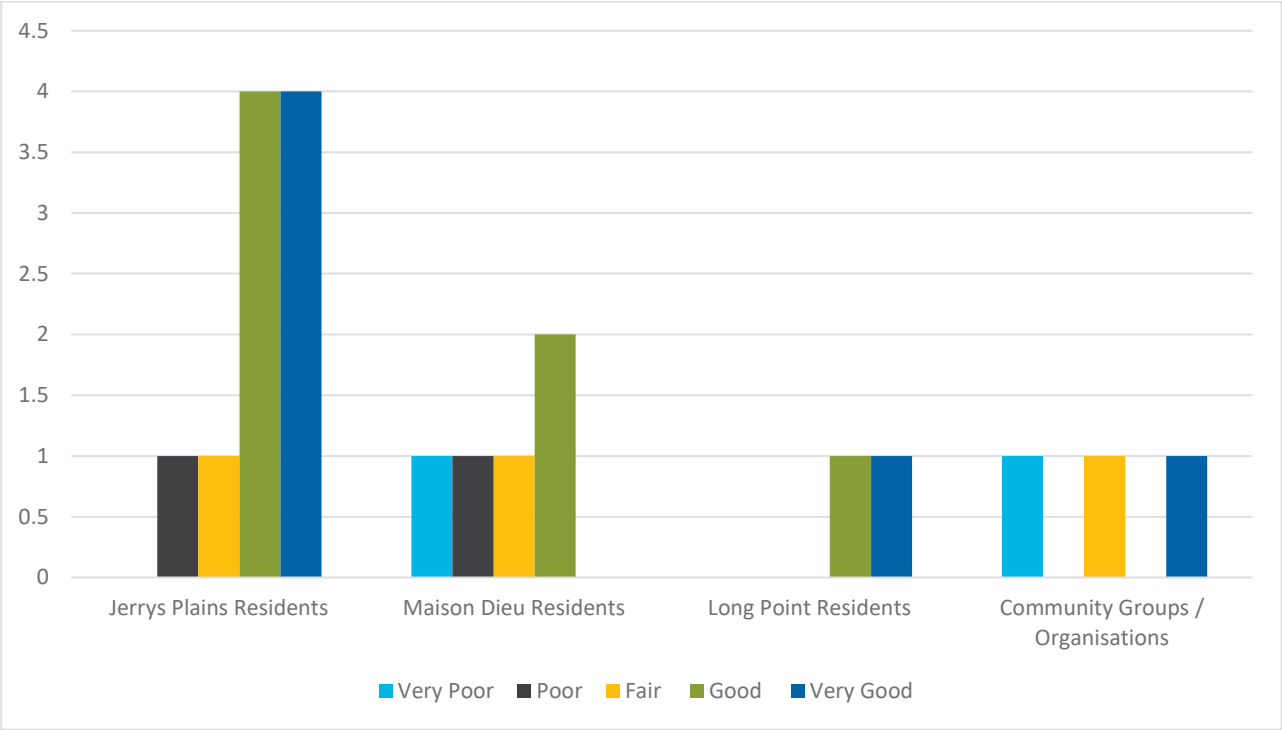


Figure 6.1 Awareness of the project

ii Support for the project

During consultation meetings, stakeholders were asked to rate their support for Projects on a scale of strongly opposed, opposed, neutral, supportive, strongly supportive. A summary of the results from stakeholders who participated in consultation meetings is shown in Figure 6.2. While there was some opposition to the Project, the majority expressed their support, particularly those in Jerrys Plains (7) and Maison Dieu (5). No objections were raised by community groups/organisations. Support for the Project by local residents was also evident in the community survey (included as Appendix A, Section 5.2.2 of the SIA Scoping Report).

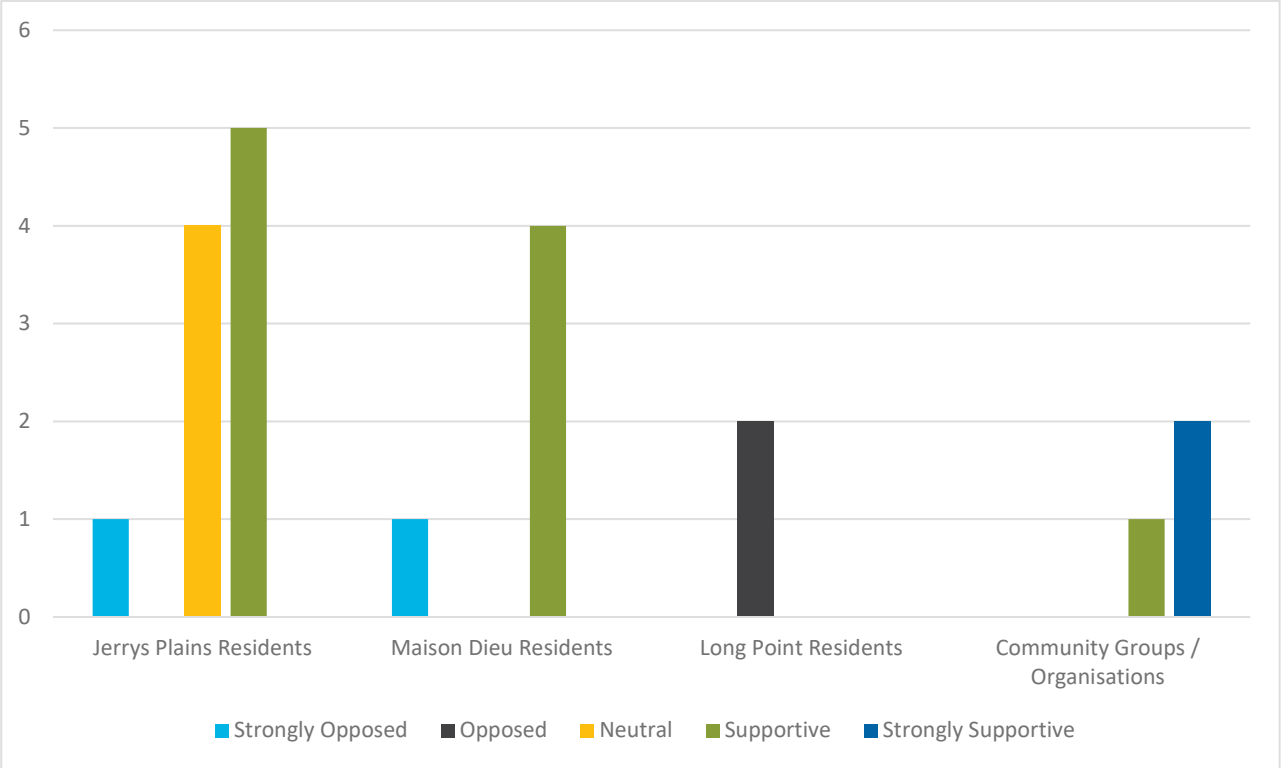


Figure 6.2 Support for the project

iii Issues raised during scoping phase

Stakeholders who were directly engaged during the scoping phase were asked to identify (unprompted) potential impacts and benefits of the Project. A range of impacts and benefits have been captured for assessment against the relevant technical study areas and summarised below. Key issues raised during the course of the consultation meetings are provided in Figure 6.3.

a Residents of Jerrys Plains

Residents of Jerrys Plains most frequently cited concerns related to noise, vibration and air quality. Residents noted concerns for the cumulative impacts with several mines in the area nearby to HVO. Specifically, residents were concerned with the impacts mines in the area have on the structure of their properties and their health as result of diminished air quality due to dust. Some local residents noted that they had been engaged by HVO previously and offered dust and water quality mitigation measures such as replacement of tank water filters and expressed that they would be interested in additional mitigation programs to assist with impacts to their properties. Residents of Jerrys Plains also expressed concerns with the realignment of Lemington Road, querying additional travel times and increased risk to safety of drivers who reside in the area.

b Residents of Maison Dieu

Residents of Maison Dieu noted their key concerns as being air quality, land rehabilitation, visual impacts, noise and water quality. Residents of Maison Dieu noted that they were concerned with potential increases to overburden heights at HVO South. Residents noted that they were concerned with the care and maintenance of their properties and the potential health impacts as result of diminished air quality due to dust. Residents provided positive feedback regarding ongoing employment for members of the local community.

c Community groups and organisations

Community groups and organisations cited their key concerns as being air quality and employment for the local community. Specifically, positive feedback was received regarding ongoing employment in the local area. Conversely, air quality was raised as a concern for community groups who operate close to HVO.

Community groups and organisations noted that HVO provide grants and support to the community and that the economy within the regional area is reliant on mining to remain strong.

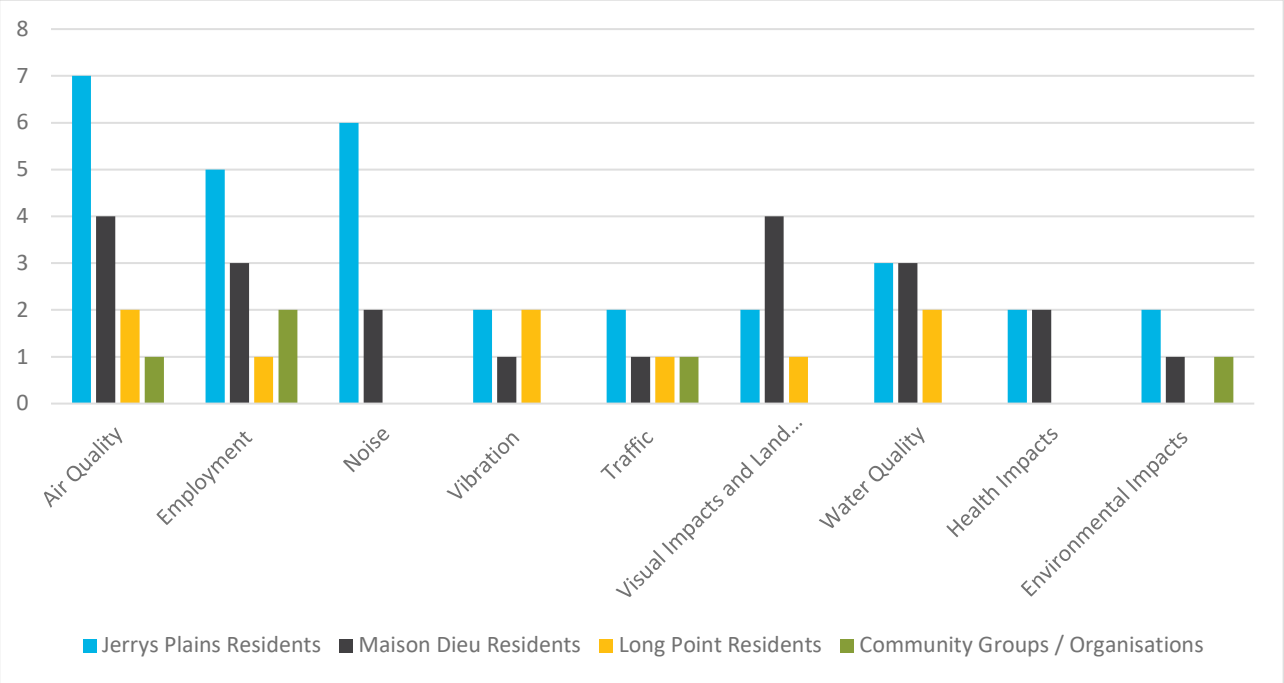


Figure 6.3 Issues raised according to stakeholders

6.4.2 Outcomes from meetings with Council

Singleton and Muswellbrook Councils were engaged and were provided briefings:

- Singleton Council:
  - 16 September 2020 (in Singleton) - Singleton Council Officers.
  - 26 October 2020 (in Singleton) – Elected councillors.
- Muswellbrook Shire Council:
  - 17 September 2020 (videoconference) – Singleton Council Officers.
  - 27 October 2020 (videoconference) – Elected councillors.

During the separate briefings, both Singleton and Muswellbrook Councils raised questions relating to the realignment of Lemington Road as well as potential environmental and community impacts.

Singleton Council expressed interest in the rehabilitation stages of the Project and wish to continue working with HVO on future land use. Additionally, continued consultation was requested by Singleton Council regarding the technical aspects of the Lemington Road realignment.

Important considerations for Muswellbrook Shire Council concerned the nature of the realignment of Lemington Road, the height of overburden dumps and final voids. Muswellbrook Shire Council shared concerns for the threatened species within the Project Area as well as communities within close proximity to the Project. The council also requested further technical meetings regarding Pikes Gully Road and Newdell works.

6.4.3 Outcomes from Aboriginal engagement

Letters were sent to the following agencies seeking registrations of interest and additional contact information for local Aboriginal Groups in the Singleton and Muswellbrook LGAs on 17 September 2020:

- Heritage NSW;
- Wanaruah Local Aboriginal Land Council (LALC);
- the Registrar, Aboriginal Land Rights Act;
- the National Native Title Tribunal;
- Native Title Services Corporation (NTSCorp);
- Hunter Local Land Services;
- Singleton Council; and
- Muswellbrook Shire Council.

Following receipt of responses from the above agencies, 91 letter invitations were issued to previously registered HVO Registered Aboriginal Participants (RAPs); 29 of which registered their interest in being involved in the project.

6.4.4 Outcomes from HVO Website – Social Pinpoint Engagement Platform

An online engagement platform hosted by Social Pinpoint has been developed to offer additional community engagement options for the Project. The Project Social Pinpoint site (SPP site) has been active since 8 September 2020 with the following key engagement outcomes as of 17 November 2020:

- 740 total visits to the SPP site;
- 149 unique users (stakeholders) have visited the SPP site; and
- On average, 38 minutes are spent by each unique stakeholder exploring the information provided on the SPP site.

A link to the SPP site has been provided in all project collateral and made available via the HVO website. The SPP site includes the following pages:

- Hunter Valley Operations Continuation Project: summary of the Project and existing operations;
- Community information: summary of the engagement activities and how to have your say;

- Planning and approvals: approvals required, assessment process and timing, and status of the planning process;
- Project updates: updates on the progress of the EIS;
- Project map: interactive map of the project site with ability for community members to make comments and tag locations relevant to any identified issue/comment; and
- Contact us: contact details for HVO Approvals Manager and Environment and Community Manager and SIA team.

The SPP site can be found directly at https://emm.mysocialpinpoint.com/HVO, or via the HVO website (through the link to the Continuation Project on the home page) at https://www.hvo.com.au/en/Pages/home.aspx.

6.5 Ongoing community and stakeholder engagement

Ongoing opportunities for engagement have been identified as a part of the Project's planning and approvals process. HVO has committed to its stakeholders that ongoing community consultation will be undertaken, including communication of the outcomes of technical assessments throughout the development and implementation of the Project. A summary of engagement opportunities to be implemented throughout the development of the EIS is provided in Table 6.5.

Further to the community stakeholders identified for engagement in Table 6.3, and the proposed EIS engagement summarised in Table 6.5, it is noted that a mapped equine Critical Industry Cluster (CIC) is approximately 2.6 km from the nearest point of the Project area boundary (refer to Section 7.9.2). Notably, the Project is not within this CIC; at HVO North mining will continue progressing to the south-east away from the CIC; no changes are proposed to the annual coal extraction rate at HVO North and a reduction is proposed to the annual coal extraction rate at HVO South. The Project is therefore not anticipated to result in impacts to the CIC. In addition, the equine industry has not commented on existing HVO operations or previous modifications and development applications.

Notwithstanding, the potential for impacts on the CIC will be assessed as part of the preparation of the EIS, and if impacts are predicted as a result of the Project, HVO will consult with the relevant equine industry bodies.

Table 6.5 EIS delivery engagement opportunities

Engagement tool	Description
Face to face meetings	Meetings with directly impacted stakeholders to provide project updates and cultivate ongoing collaborative relationships within the community, through continued identification of issues and areas of concern.
Community surveys	Community surveys will be circulated via post and online to gauge community perception and inform the identification of potential social impacts and benefits.
Community Consultative Committee	Regular briefings will be provided to the Community Consultative Committee to provide information on technical report findings, updates on EIS progress, updates on community engagement activities and sentiment and other project updates.
Community Newsletters	Community newsletters will be distributed as the Project progresses to provide project updates, and EIS progress updates including findings of technical studies as they become available.
Community Information Sessions	Community information sessions will be held to provide the community with the opportunity to engage directly with the HVO project team, learn about outcomes from technical studies and provide feedback.

7 Scoping of key issues

7.1 Issues identification

The environmental, social and economic matters relevant to the Project have been reviewed. Key issues and the proposed level and scope of assessments have been identified using the draft *Preparing a Scoping Report* guideline and the supporting Scoping Worksheet (DPIE 2019).

Matters have been characterised and allocated to one of the following categories:

- Matters requiring further assessment in the EIS – these have been identified as key issues requiring detailed assessment; for example, detailed field surveys and/or quantified modelling techniques to fully understand the impacts and identify project-specific mitigations and/or alternatives.
- Matters requiring no further assessment in the EIS – potential for a material impact on a matter; however, measures to manage the impact are well understood and routinely used on site or other similar projects, for example, odour, parking onsite and rail network capacity.

Matters considered have been characterised based on:

- stakeholder consultation and engagement outcomes as discussed in Chapter 6 and Appendix A.
- risk assessments taking into consideration known and identified issues;
- knowledge and experience gained via previous approval applications and the operation of the HVO Complex; and
- baseline environmental data.

Further information on each aspect is provided below. It is noted that the potential social impacts identified, and the proposed approach to the social impact assessment (SIA), is provided in the SIA scoping report attached in Appendix A.

7.2 Matters requiring further assessment

7.2.1 Water

The Project proposes to increase the approved disturbance area and depth of mining at HVO North whilst reducing the mining footprint and maintaining the depth of mining at HVO South. Increases to existing surface water storages and changes to the final landform design will also occur as part of the Project. Potential impacts to surface water, groundwater and groundwater dependant ecosystems (GDEs, including stygofauna) will be assessed and reported as part of the EIS.

To ensure all impacts to water and dependent ecological systems are identified and appropriately assessed, HVO will prepare an overall water assessment to inform the EIS. The water assessment will take into consideration all water-related technical assessments to clearly demonstrate that the Project has been considered against relevant guidelines and policy outlined in the SEARs.

i Water availability

a Existing environment

The current mining operations at HVO intercept groundwater directly via the Permian coal seams and indirectly, via seepage from the alluvium to the underlying Permian coal seams. Surface water is taken directly from the Hunter River for water use on site. The current operations hold sufficient Water Access Licences (WALs) to account for all water taken for current site operations.

b Potential impacts

Water security for site demand is an important consideration for the operations. Insufficient water supply may impact site operations and production.

Potential impacts on surface water and groundwater are discussed below.

c Treatments and assessment approach

The water balance model for the existing operations will be adopted to represent the existing and proposed water balance for the Project. The primary objective of the mine water management system is to ensure there is sufficient water available to meet the requirements of the Project. The existing Water Management Plan (WMP) and site water balance will confirm proposed water management systems are suitable to manage predicted inflows, operational requirements, and licensing conditions.

As part of the EIS, HVO will review the WALs currently held for the Project and the estimated future direct and indirect water take for the operations. The groundwater take will be incorporated into the site water balance modelling. The assessment will demonstrate that HVO have a suitable pathway for securing water allocations for the life of the project.

ii Surface water

a Existing environment

HVO is within the Hunter River Basin catchment and is drained by the Hunter River, Wollombi Brook and minor tributary drainage channels. The Hunter River is a key surface water feature in the area and flows in an easterly direction between the HVO North and HVO South operational areas, then flowing in a southerly direction. Another key feature is Wollombi Brook, which flows in a north to north-easterly direction immediately south of Cheshunt Pit at HVO South where it joins with the Hunter River. Other minor drainage lines in the area are ephemeral, flowing after rainfall events.

HVO is within the water sources of the:

- Hunter regulated river water source, management zones 1B, 2A and 2B covered by the *Water Sharing Plan for the Hunter Regulated River Water Source 2016*; and
- Lower Wollombi Brook, Singleton, Jerrys and Glennies water sources covered by the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009*.

HVO hold WALs for both regulated and unregulated water sources.

The HVO Complex holds approval to release water via licensed discharge points into the Hunter River under EPL 640 and the Hunter River Salinity Trading Scheme (HRSTS). Discharge points are located at Parnells Dam, Lake James, Dam 11 and the Alluvial Lands.

HVO, under existing approval provisions, is currently being integrated into the Greater Ravensworth Area Water and Tailings Scheme (GRAWTS). The GRAWTS enables water and tailings to be transferred between mining operations within the Greater Ravensworth locality ensuring water use and management at operations is optimised whilst allowing for the efficient management of tailings from CHPPs. HVO will be incorporated into GRAWTS to accept and transfer water. Operations which are integrated in to GRAWTS include Ravensworth Operation, Liddell Operations, Integra Underground and the Mount Owen Complex (including Glendell Mine). Once integrated into the GRAWTS, it will provide HVO with additional flexibility and security in terms of water supply and management of additional water, where required.

Where possible, surface water is diverted away from disturbed areas at the HVO Complex via means of clean water diversions to minimise impact to the receiving environment. Surface water which interacts with operations is managed in accordance with the approved WMP. The surface water monitoring program, under the WMP, includes monitoring surface water quality at a number of locations across the HVO Complex. The WMP monitors compliance with approval conditions and contains mechanisms for ensuring impacts to surface water are minimised. The approved WMP is available via the HVO website.

b Potential impacts

Aspects of the Project that have been recognised as key potential changes, which may impact surface water outcomes include:

- increased mining footprint at HVO North;
- reduced mining footprint at HVO South;
- progression of mining at HVO North towards the Hunter River;
- construction associated with the realignment of transmission and telecommunication lines and Lemington Road and associated Hunter River bridge; and
- construction and operation of new flood levees to protect mining operations.

Identified potential impacts to surface water outcomes include:

- changes to streamflow in drainage systems due to changes in catchment areas associated mining activities;
- changes to aquatic ecosystems and /or habitat areas;
- changes to site water management systems;
- changes to approved final voids at HVO North and HVO South;
- cumulative mining impacts on the Hunter River and Wollombi Brook water flow and quality;
- changes to flows during high flow events in response to changed disturbance area, final landforms and proposed infrastructure; and
- changes in licensing requirements.

c Treatments and assessment approach

A detailed assessment of potential surface water impacts associated with the Project will be undertaken and documented in the EIS. The surface water impact assessment (SWIA) will include an update to the existing site water balance and flood model, as well as updating the HVO input into the GRAWTS water balance. The water balance will confirm proposed water management systems are suitable to manage predicted inflows and rainfall and runoff events, erosion and sediment controls, operational requirements and licensing conditions. The SWIA will also assess the final void pit lake recovery and water quality.

Stakeholder engagement with water users within the local area will be completed as part of the detailed social impact assessment. Stakeholder feedback will be taken into consideration within the water assessment to ensure impacts are either eliminated or mitigated.

A scope of work has been developed to address the identified potential impacts and follow relevant guidelines and policies. The scope of work for the detailed SWIA is outlined below.

- Baseline analysis of watercourse condition, streamflow, surface water quality and water users. This will define the watercourse network and associated catchments and sub-catchments boundaries within the Project area; and assess flood flow and environmental flows.
- A water management system will be developed to reduce and mitigate impacts of the Project on local watercourses.
- Water balance modelling to ensure there is management of water under many climate scenarios (including prolonged wet and dry climatic sequences) and sufficient water availability to meet the requirements of the Project whilst minimising the potential for environmental harm.
- Streamflow and flood modelling to assess potential impacts on flood behaviour for a full range of flood events. Potential impacts associated with climate change will also be assessed.
- Final void hydrology and water quality modelling to estimate pit lake recovery and characterise the water quality dynamics to inform closure planning and potential beneficial use.
- Impact assessment and mitigation measures, including addressing flooding; streamflow sequencing; water quality assessment, including erosion and sediment controls; and a cumulative impact analysis.
- A detailed SWIA report will document the findings of the assessment and address relevant guidelines and polices. Implications for licensing will be addressed in the overarching water assessment.

The SWIA will reference to the following guidelines and policies:

- *Australian and New Zealand guidelines for fresh and marine water quality* (Australian New Zealand Guidelines 2018)
- *Information guidelines for proponents preparing coal seam gas and large coal mining development proposals* (Independent Expert Scientific Committee 2018)
- *NSW Government Water Quality and River Flow Objectives* (DECC 1999)
- *Managing Urban Stormwater: Soils & Construction and associated Volume 2E: Mines and Quarries* (DECC 2008)
- *NSW Floodplain Development Manual* (Department of Infrastructure, Planning and Natural Resources 2005)
- NSW Water Sharing Plans:
  - *Water Sharing Plan for the Hunter Regulated River Water Source 2016*
  - *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009*

- *Australian Rainfall and Runoff: A Guide to Flood Estimation* (Ball et al 2019)
- *Deriving site-specific guideline values for physicochemical parameters and toxicants* (Huynh T and Hobbs D 2019). Report prepared for the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development through the Department of the Environment and Energy.
- Whetton P, Hennessy K, Clarke J, McInnes K and Kent D 2012. Use of Representative Climate Futures in impact and adaptation assessment. Climatic Change, 115 (304): 433-442.

iii Groundwater

a Existing environment

A significant number of groundwater studies and site investigations have been conducted for the HVO Complex and the wider Hunter area. The approved HVO Complex operates below the watertable and therefore intercepts and extracts groundwater to allow safe mining conditions. The main groundwater bearing unit in the Project area is the Quaternary alluvium, with less productive groundwater occurring within coal seams of the Permian Coal Measures. The Permian Coal Measures outcrop north-east of HVO. Recharge to the alluvial groundwater source occurs from infiltration of rainfall and leakage from the regulated Hunter River and Wollombi Brook.

Drawdown of the watertable and decline of the piezometric head has been occurring at the HVO Complex and wider area as a result the mining since the 1950s.

The coal measures form unconfined groundwater systems at outcrop, becoming semi-confined as they dip towards the south-west. The direction of groundwater flow for the Permian Coal Measures is influenced by the local geomorphology and structural geology, as well as the long history of mining within the region. There is no significant use of groundwater sourced from the Permian Coal Measures in the area. This is likely due to the high salinity in the coal seams and access to water associated with perennial surface water flows (Hunter River and Wollombi Brook) and the more productive alluvial aquifer. Groundwater flow direction in the alluvial groundwater source is consistent with the Hunter River flow direction.

HVO is within the groundwater sources of:

- Sydney Basin-North Coast groundwater source covered by the *Water Sharing Plan for North Coast fractured and Porous Rock Groundwater Sources 2016*; and
- Hunter regulated river alluvial water source, Lower Wollombi Brook and Singleton water sources covered by the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009*.

The HVO Complex currently hold sufficient WALs to account for both direct and indirect take of groundwater that is intercepted during mining operations. Historic groundwater take at HVO is defined in the Annual Review Reports available on the HVO website.

Groundwater monitoring (levels and quality, as well as pit inflows) has been occurring at the HVO Complex since 2000, with monitoring focused on the alluvium groundwater sources and coal measures above the Bayswater seam. As a result of a recent data gap analysis, additional monitoring locations are currently being installed in the Project area, with a focus on the deeper coal measures.

b Potential impacts

The Project has the potential to have direct and indirect effects on groundwater resources including:

- changes to watertable and piezometric head in the immediate and surrounding area, with potential cumulative impacts due to neighbouring approved projects;
- changes to groundwater quality;
- changes to groundwater levels at third-party bores; and
- changes to interaction with surface water, including baseflow and river leakage to groundwater, which may affect aquatic ecosystems and/or habitats.

As mining progresses deeper, additional drawdown in the coal measures is expected to occur during operations. Following mining, groundwater level recovery and filling of the final void will slowly decrease the hydraulic gradient towards the mine area, progressively reducing the magnitude and extent of drawdown surrounding the mined areas and establishing a new equilibrium groundwater level. This will be dependent on and affected by other mining in the area.

c Treatments and assessment approach

A detailed assessment of potential groundwater impacts associated with the Project will be undertaken and documented in the EIS. The detailed groundwater assessment will assess:

- potential groundwater drawdown during the life of the Project and post-closure, including cumulative mining impacts;
- potential groundwater quality changes;
- groundwater inflow into active mining areas;
- pit lake recovery (post-mining); and
- changes to interaction with surface water.

Licensing considerations and implications will be addressed in the overarching water assessment.

A scope of work has been developed to assess the identified potential impacts and follow relevant guidelines and polices. The scope of work for the detailed assessment includes:

- field investigations comprising installation of additional groundwater monitoring locations and hydraulic testing;
- review of the current conceptual hydrogeological understanding to describe the key hydrogeological processes, interaction with surface water and the groundwater flow regime;
- development of an updated numerical groundwater model to predict changes in groundwater levels during mining and post closure; groundwater inflows to active mining areas; and changes in baseflow and river leakage during mining and post closure. The groundwater model will include simulation of other mining activity in the wider area to allow assessment of cumulative impacts; and

- a detailed Groundwater Impact Assessment report will document the findings of the assessments and address relevant guidelines and polices.

The detailed assessment will be completed with reference to the following guidelines and policies:

- *NSW Aquifer Interference Policy* (DPI Water 2012);
- NSW Water Sharing Plans:
  - *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources* (2009);
  - *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources* (DEW NSW2016);
- *Australian and New Zealand guidelines for fresh and marine water quality* (Australian New Zealand Guidelines2018);
- *Australian Groundwater Modelling Guidelines* (Barnett et al 2012);
- *Information guidelines for proponents preparing coal seam gas and large coal mining development proposals*, Commonwealth of Australia (Independent Expert Scientific Committee 2018); and
- *Risk assessment guidelines for groundwater dependent ecosystems* (DPI Water 2012).

7.2.2 Groundwater dependent ecosystems

i Existing environment

GDEs can be opportunistic users of groundwater or entirely dependent on access to groundwater. GDEs in the Hunter area include subterranean ecosystems (stygofauna), terrestrial (eg River Red Gums) and aquatic ecosystems. A significant number of ecological studies and site investigations have been conducted for the HVO Complex and the wider Hunter area.

The approved HVO Complex operates below the watertable and therefore intercepts and extracts groundwater to allow safe mining conditions. Drawdown of the watertable and decline of the piezometric head has been occurring at the HVO Complex and wider area as a result the mining since the 1950s.

ii Proposed changes and potential impacts

Proposed Project changes which may impact GDEs, including stygofauna include:

- changes to watertable and piezometric head in the immediate and surrounding area, with potential cumulative impacts due to neighbouring approved projects, potentially reducing access to water; and
- changes to groundwater interaction with surface water, potentially affecting aquatic ecosystem habitats and access to water.

iii Treatments and assessment approach

A detailed assessment of potential impacts on GDEs will be completed and documented in the EIS. The assessment will consider relevant GDE types, including river baseflow systems (aquifer ecosystems), terrestrial vegetation, wetlands and stygofauna.

The assessment will include the previously identified River Red Gum Community along the Hunter River and other ecological communities which rely on access to groundwater within the vicinity of the Project. Results of the assessment and mitigation measures adopted will be documented within the EIS.

A scope of work has been developed to address the identified potential impacts and follow relevant guidelines and polices. The scope of work includes:

- ecological surveys to identify terrestrial, aquatic and subterranean ecosystems, including stygofauna sampling from site groundwater monitoring locations;
- assessment of potential reliance on and interaction with groundwater; and
- detailed aquatic ecology and GDE assessment report will document the findings of the assessments and address relevant guidelines and polices.

The detailed assessment will be completed with reference to the following guidelines and policies:

- *Risk Assessments Guidelines for Groundwater Dependent Ecosystems* (NSW Office of Water 2012);
- *Policy and Guidelines for Fish Habitat Conservation and Management* (Fisheries NSW 2013); and
- *Australian and New Zealand Guidelines for Fresh and Marine Waters* (Australia New Zealand Guidelines 2018).

7.2.3 Traffic and transport

i Existing road network

The road network surrounding the HVO Complex consists of the New England Highway, Golden Highway, Lemington Road, Comleroi Road Archerfield Road, Pikes Gully Road and Liddell Station Road. Their features and role for the HVO Complex are further described below:

- New England Highway –TfNSW Classified highway which runs east-west connecting the Pacific Highway at Hexham to Muswellbrook via Singleton; and runs north-south to the Queensland border at Wallangarra. The New England Highway runs along the northern boundary of the HVO Complex.
- Golden Highway – TfNSW Classified highway which runs east-west connecting the New England Highway at Minimbah and the Newell Highway at Dubbo. The Golden Highway runs along the southern boundary of the HVO Complex.
- Lemington Road – Singleton Council managed two-lane two-way local road linking the New England Highway in the north, to the Golden Highway in the south. Lemington Road traverses the HVO Complex, whilst providing access to the HVO Complex administrative area and to Ravensworth Operations. The south end of Lemington Road crosses the Hunter River via means of a low-lying bridge, known as Moses Crossing. Lemington Road has a signposted speed limit of 100 km/h.
- Comleroi Road – Singleton Council managed two-lane two-way local road accessible via the Golden Highway which provides access to HVO South and the HVGC from the Golden Highway. Comleroi Road has a signposted speed limit of 80 km/h.

- Archerfield Road – HVO managed single carriage way gravel road which intersects with Comleroi Road approximately 3 km north of the Golden Highway. It provides access to rural properties to the east of HVO South. Archerfield Road has a signposted speed limit of 60 km/h.

- Pikes Gully Road – Singleton Council managed two-lane two-way sealed road accessible via the New England Highway which provides access to the Howick CPP at HVO North. Pikes Gully Road has a signposted speed limit of 60 km/h.

- Liddell Station Road – Singleton and Muswellbrook Council managed two-lane two-way sealed road accessible via the New England Highway which provides access to the Newdell and HVLP at HVO North. Pikes Gully Road has a sign posted speed limit of 50 km/h.

The existing road network surrounding the HVO Complex is displayed in Figure 1.3. Mine-related traffic from operations at HVO and surrounding mines comprise a significant proportion of existing traffic volumes on the road network surrounding the Project area.

ii Proposed changes and potential impacts

The Project will mine through a large section of Lemington Road and requires its realignment east of the HVO Complex to maintain its function as a connection between New England and Golden Highways. The existing Lemington Road is proposed to be closed west of the HVO North access point and at the existing Golden Highway and Lemington Road intersection. The realignment of Lemington Road will utilise the existing Comleroi Road and extend east of HVO South to connect with Lemington Road in the north, providing continued access to road users between the Golden and New England Highways.

The Lemington Road realignment will require the construction of a bridge over the Hunter River. The bridge is proposed to be constructed to meet the requirements of a 1 in 10 ARI flood protection design. This will provide improved reliability, accessibility and safety to road users, as the existing Lemington Road level crossing, or Moses Crossing, is routinely impassable following rainfall events. In addition, the existing Comleroi Road and Golden Highway intersection will need to be upgraded to facilitate the Lemington Road realignment. There are two possible intersection designs to accommodate the potential United Wambo Project realignment of the Golden Highway.

The Project will require the realignment of a small section of Liddell Station Road to allow for construction activities at the Newdell LP. Access to HVO North and Ravensworth Operations will be maintained via Lemington Road. Access to HVO South will be revised to be via the realigned Lemington Road. Access to the Howick CPP is via Pikes Gully Road and access to the Newdell LP is via Liddell Station Road. Proposed changes to the road network are displayed in Figure 3.1.

The proposed changes to the local road network will largely not impact through-traffic travel times given the existing Lemington Road alignment is not the most direct route to key localities such as Singleton or Muswellbrook from Jerrys Plains. The most notable impact to road users will be travel times from Jerry Plains to smaller localities along the New England Highway between Singleton and Muswellbrook. This includes localities such as Camberwell, Singleton Heights and Ravensworth as road users will be required to travel further south from Jerry Plains to reach the proposed Lemington Road realignment intersection compared to the existing alignment.

The Project also involves upgrades to and construction of infrastructure to support ongoing mining activities, as documented in the Project description. Construction activities will require some plant and equipment delivered to site using the local road network. The construction of this infrastructure is likely to be carried out on a campaign basis. The additional traffic movements required during this campaign/s will be considered in the traffic impact assessment.

It is anticipated that traffic-related impacts from the Project will largely occur during the construction of infrastructure, predominantly the realigned Lemington Road, given that there are no proposed changes to the existing 1,500 FTEs on site. These temporary construction impacts are likely to include:

- additional traffic movements during the realignment of Lemington Road and transmission and telecommunication lines, construction of the Newdell LP and product stockpile, construction of the LCPP and rail loop and upgrades to the water management system and MIAs; and
- disturbance caused by the construction of the proposed changes to the local road network.

Given existing employment numbers are proposed to be maintained, the Project will not result in additional traffic movements generated from the site than currently experienced. As such, the primary operational change to the road network resulting from the Project will be the realignment of Lemington Road. Therefore, these existing movements and impacts will require consideration in the context of the augmented road network.

The Project is likely to result in the following potential additional operational impacts:

- cumulative traffic movements over time as a result of the extended Project life with neighbouring mining operations, noting a number of operations are proposed to cease operating during the life of the Project;
- some travel time changes due to the realigned Lemington Road;
- temporary traffic delays as result of tie-in works between the existing Lemington Road and the proposed Lemington Road realignment; and
- temporary traffic delays as result of upgrades to the Golden Highway and Comleroi Road intersection as result of the Lemington Road realignment.

The Project has been designed to reduce traffic impacts where possible. In its assessment of alternatives, HVO has actively sought to reduce impacts and minimise disruption to the community. Key benefits with the proposed realignment include:

- maintaining accessibility for the New England and Golden Highways during construction – No works are proposed at Lemington Road intersection with the New England Highway as such, existing operations of the road network can be maintained, with disruptions generally limited to additional construction traffic movements;
- maximising workers and public safety and minimising disruptions to local residents and businesses as the proposed realignment can be constructed off-line, allowing for its completion prior to the opening for public use;
- improved reliability, accessibility and safety to road users with the proposed bridge over the Hunter River designed to meet the 1 in 10 year ARI which is an improved design from the existing Moses Crossing which is routinely impassable following rainfall events; and
- separation of general access traffic on the realigned Lemington Road from the operational mining areas. As a result, road users will not be exposed to ongoing temporary delays associated with operational activities as experienced along the existing Lemington Road alignment.

iii Treatments and assessment approach

A detailed Traffic Impact Assessment (TIA) will be prepared to assess the Project's potential impacts to road and intersection capacity, traffic safety and accessibility including consideration of the Austroads design standards relevant to the construction of new road infrastructure with the realignment of Lemington Road.

The TIA will be undertaken in accordance with the following guidelines and plans:

- *Guide to Traffic Generating Developments* (Transport for NSW (formerly RTA) 2002);
- *Guide to Traffic Management* (Austroads 2019);
- *Guide to Road Design* (Austroads 2015);
- *Temporary Traffic Management and Road Safety* (Austroads 2019);
- Singleton LEP; and
- Muswellbrook LEP.

The TIA will further assess and identify potential Project impacts and mitigation measures. Key areas of focus will be the assessment of cumulative impacts of neighbouring mining operations including road safety and impacts to travel times and accessibility due to the changed road network with the realignment of Lemington Road.

7.2.4 Air quality and greenhouse gas

i Existing environment

Air quality in the vicinity of the Project is influenced by a range of potential sources. Such sources may include the existing operations at HVO, neighbouring mining operations, agricultural activity, construction works, bushfires and 'burning off', other industry such as the nearby power stations, vehicle movements, roads, wind-blown dust from nearby and remote areas, fragments of pollens, moulds and domestic wood fires.

The HVO Complex currently operates in accordance with the *HVO Air Quality and Greenhouse Gas Management Plan* (AQGGMP). The AQGGMP is a requirement of the existing HVO Complex approvals and aims to reduce and mitigate potential sources which may decrease air quality in the vicinity of the HVO Complex.

ii Proposed changes and potential impacts

Air quality is a key issue for the Hunter community and has been identified in stakeholder engagement. A key area of focus for the Project will be to minimise off-site impacts to neighbouring sensitive receptors, particularly the communities of Jerrys Plains (approximately 3 km west), Maison Dieu (2.5 km east), Long Point (7 km south-east) and Warkworth (1.5 km south-west) of the HVO Complex, as displayed in Figure 1.3.

Air quality impacts of the Project are expected to be much the same to that of the existing operations. The Project will employ the same mining method and maintain similar operational air quality controls, as such dust generation is not expected to change. Notably, the maximum annual ROM coal extraction rate at HVO North will remain the same as currently approved, and the rate at HVO South will reduce from 20 Mtpa to 18 Mtpa. The key changes to existing operations which may impact air quality include:

- construction of new infrastructure such as the realignment of Lemington Road, transmission line augmentation, upgrades and construction of coal handling infrastructure and upgrades to dams and MIAs;
- temporary construction activities to facilitate the Project will require additional emission sources to that currently approved; and
- operational duration of the HVO Complex – emissions from mining operations which are currently experienced will continue until 2050 at HVO North and 2045 at HVO South.

The key air quality matters for the Project will be emissions of particulate matter and the potential for these emissions to cause adverse impacts at nearby sensitive receptors for an increased period than that currently approved.

Greenhouse gases generated by the Project through its operational life and its potential impact will also be a key matter for consideration in the EIS.

iii Treatments and assessment approach

a Air quality

A detailed assessment of potential impacts on air quality will be undertaken in accordance with the assessment guidelines from the EPA, namely the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA 2016).

Air dispersion modelling (CALPUFF) will be used to predict the off-site dust concentrations and deposition levels due to estimated emissions from the Project. Model predictions will be compared with EPA air quality assessment criteria, and the potential for adverse impacts will be assessed based on the level of compliance with the criteria. In addition to dust, a range of other potential air quality impacts will be assessed including post blast fume, spontaneous combustion and diesel exhaust emissions.

As part of the Project pre-feasibility assessment, a number of additional controls were considered which may be implemented to further reduce air quality impacts. One key potential control will include the construction of a covering or 'hood' over the HV ROM bin. The hood would provide shielding from wind reducing a potential dust emission source. Controls considered by HVO to reduce air quality impacts will be further identified in the EIS.

Potential cumulative impacts of neighbouring mining operations to sensitive receptors, particularly the neighbouring communities of Jerrys Plains and Maison Dieu, will be assessed and documented in the EIS, taking into consideration particulate matter and emissions.

b Greenhouse gas

A detailed assessment of greenhouse gas emissions associated with the Project will be completed. The assessment will be inclusive of an estimation of direct and indirect greenhouse gas emissions, comparing these to the State and National emissions. The detailed assessment will include emission calculations in accordance with *National Greenhouse Accounts Factors (DAWE 2019), National Greenhouse and Energy Reporting System* (administered by Australian Government Clean Energy Regulator)*, and Australia Greenhouse Emissions Information System* (administered by the Australian Government Department of Industry, Science, Energy and Resources).

7.2.5 Noise and vibration

i Existing environment

Noise is also a key issue for the neighbouring community, as has been identified in stakeholder engagement. Noise and vibration in the vicinity of the Project is currently influenced by the existing HVO Complex, neighbouring mining operations, agricultural activity and traffic on the existing road network.

There are limited sensitive noise receivers in close proximity to the Project, with the closest residences at Maison Dieu to the east, Long Point to the south-east, Warkworth village to the south-west and Jerrys Plains to the west.

The HVO Complex currently operates in accordance with the *HVO Noise Management Plan* (NMP) and the *HVO Blast Management Plan* (BMP). The NMP and BMP are a requirement of the existing HVO Complex approvals and aim to reduce and mitigate potential noise and vibration sources which may impact amenity in the vicinity of the HVO Complex.

ii Proposed changes and potential impacts

Noise and vibration impacts are key issues for the local community, as demonstrated by previous stakeholder and community engagement, and will be a key area of focus for the Project and EIS.

Noise and vibration impacts are expected to be similar to the existing operations. As previously noted, the Project will employ the same mining method and maintain similar operational noise and vibration controls. In addition, the approved maximum annual ROM extraction rate will be maintained at HVO North and reduced at HVO South. The key changes to existing operations which will influence noise and vibration include:

- Construction of new infrastructure such as the realignment of Lemington Road, transmission line augmentation, upgrades and construction of coal handling infrastructure and upgrades to dams and MIAs.
- Operational duration of the HVO Complex – Noise and overpressure emissions and vibration will continue until 2050 at HVO North and 2045 at HVO South.
- Change to the mining footprint at HVO North – approval will be sought to mine into an area not previously approved for disturbance in the south-west of the HVO North development consent boundary.

HVO has recently completed a noise reduction project, in which the existing haul truck fleet has been fitted with noise attenuation. The aim of the noise reduction project was to reduce the sound power levels (SPLs) of the existing fleet to minimise potential noise impacts. HVO will undertake monitoring to determine the effectiveness of the noise attenuation works and take into consideration within the EIS.

iii Treatments and assessment approach

a Noise

A detailed assessment of potential noise impacts will be completed and documented in the EIS. The assessment will consider relevant noise impacts to local receptors within the vicinity of the Project. The assessment will include consideration of the Complex ambient noise environment and potential cumulative impacts posed by neighbouring mining operations. Results of the assessment and mitigation measures adopted will be documented within the EIS.

A scope of work has been developed to address the identified potential impacts and follow relevant guidelines and polices. The scope of work includes:

- Determine ambient noise levels via deployment of noise loggers within proximity of the Project;
- Establish noise sources and relevant noise outputs of existing equipment that proposed to be utilised by the Project;
- Undertake noise modelling and assessment, taking into consideration the following:

- Predictive modelling;
- Operational noise mitigation strategies;
- Potential construction activity impacts; and
- Potential road traffic impacts;

- The detailed assessment will be completed with reference to the following guidelines and policies:
- *NSW Noise Policy for Industry* (NPfI) (EPA 2017);
- *Voluntary Land Mitigation and Acquisition Policy* (VLAMP) (NSW Government 2018);
- *Interim Construction Noise Guideline* (ICNG) (NSW Department of Environment Climate Change (DECC) 2009); and
- *Road Noise Policy* (RNP) (NSW Department of Environment Climate Change and Water (DECCW) 2011).

b Vibration

A detailed assessment of potential vibration impacts associated with the Project will be undertaken taking into consideration:

- local receptors in proximity of the Project;
- existing and proposed infrastructure, including transmission infrastructure;
- known items of Historic and Aboriginal heritage;
- livestock; and
- cumulative impacts as result of neighbouring mining operations.

The detailed assessment will be completed with reference to *Assessing Vibration: a technical guideline* (Department of Environment and Conservation (DEC) NSW 2006).

The findings of the detailed assessment will be documented within the EIS. The assessment will guide the requirements of the Project and principles to ensure potential vibration impacts are effectively mitigated.

7.2.6 Visual amenity

i Existing environment

The Hunter Valley has a diversity of landforms, vegetation patterns and land uses resulting in considerable variation in scenic quality. HVO is in a well-established coal mining precinct, and therefore in the vicinity of the HVO Complex, mined surfaces, coal-related infrastructure (eg conveyors, mining surface facilities, rail facilities and lines) and other infrastructure (eg electricity transmission lines) contribute to the existing visual environment.

The predominant land uses in the vicinity of the Project include coal mining, grazing and rural residential holdings. These areas have varying views of existing coal mining activities and associated infrastructure and electricity transmission lines. Other land uses include regenerating woodland, rehabilitated land, grazing and rural residential holdings.

Long distance views of the HVO Complex are limited by the surrounding area's moderately undulating topography. These views are generally of HVO South from Maison Dieu to the east and further away at Long Point to the south-east. A ridge west of HVO North obscures views from Jerrys Plains.

Significant areas of mining and power generation-related infrastructure are visible from both the Golden Highway and New England Highway within proximity of the Project. Other land uses along the Golden Highway and within proximity of the Project include the HVGC and SCTC.

The SCTC is directly visible from the Golden Highway, and the HVGC is approximately 500 m west of the Golden Highway and screened via dense vegetation. The HVGC is visible from Comleroi Road.

Visual amenity impacts of the HVO Complex are currently mitigated by means of rehabilitated final landforms sympathetic to the natural environment and screening, where appropriate. Rehabilitation and final landform design are currently implemented in accordance with the objectives of the existing MOPs.

ii Proposed changes and potential Impacts

Visual amenity impacts (namely visibility of mine-related infrastructure) are likely to be a key issue for stakeholders and local sensitive receivers (eg neighbouring landholders). Proposed changes to the approved HVO Complex which may change previously assessed and approved visual amenity impacts include:

- introduction of micro-relief into the yet to be constructed final landforms at HVO North. Current approved operations rely on traditional bench style landforms. At HVO South, micro-relief is incorporated into rehabilitated landform as approved, which is to be continued as part of the Project;
- the realignment of Lemington Road will introduce temporary views of operational mining areas to road users. Operational mining areas visible from the realigned Lemington Road will be primarily from HVO South with intermittent views of HVO North. Aspects of HVO North that may be visible from the realignment of Lemington Road will predominantly be former mining areas undergoing rehabilitation;
- changes to off-site lighting impacts as a result of temporary construction activities and ongoing operation of the HVO Complex;
- proposed works to the Newdell LP and product stockpile may introduce temporary views of mining infrastructure and activities to users of the New England Highway. This may also influence offsite lighting impacts; and
- visibility of relocated transmission lines.

No change is proposed to the existing emplacement height at HVO South.

No change is proposed to the existing emplacement height at HVO North; however, the location of emplacement areas will change given the increased mining footprint. Changes to emplacement locations are not predicted to impact visual receptors as views of the area are limited by moderately undulating topography. Specific topographic features reducing the ability to view emplacement areas include the ridgeline between HVO North and Jerrys Plains and rehabilitated landforms in the south-east of HVO North's existing approval boundary, visible in Figure 3.1.

iii Treatments and assessment approach

A detailed assessment of potential visual impacts associated with the Project will be undertaken with reference to the United Kingdom's Landscape Institute of Environmental Management and Assessment (2013), *Guidelines for Landscape and Visual Impact Assessment* (LVIA). The LVIA is referred to in the absence of Australian guidance.

The assessment will determine potential impacts on different users of the surrounding area (including neighbouring landholders and passing motorists) and their visual exposure to Project components. Consideration of improved final landform outcomes and the integration of the rehabilitated area into the surrounding landscape will also be undertaken.

The assessment will include consideration of proposed construction activities, changes to previously assessed and approved operations and potential cumulative visual amenity impacts with neighbouring mining operations. Where required, the outcomes of the assessment will be used to inform the mine design and implementation of mitigation and management measures.

7.2.7 Aboriginal Cultural heritage

i Existing environment

The HVO Complex has existing protocols in place to guide Aboriginal cultural heritage management. These protocols are applied in close consultation with the HVO Cultural Heritage Working Group (CHWG) who have interests in this region and with whom well developed and active formal relationships exist.

The HVO Complex has been subject to extensive Aboriginal cultural heritage assessment in relation to previous approvals and as guided by existing protocols. A review of existing Aboriginal cultural heritage assessments has identified items of cultural significance within the proposed Project area.

ii Proposed changes and potential impacts

Aboriginal cultural heritage impacts are key issues, as demonstrated by previous consultation with the Aboriginal community and regulatory stakeholders.

The proposed HVO North disturbance boundary is inclusive of areas not previously disturbed by mining activities and areas known to include Aboriginal cultural heritage sites. As such impacts on items of Aboriginal cultural heritage are expected to occur as a result of the Project.

A known item of significance proposed to be disturbed by the Project is CM-CD1 (AHIMS #37-2-1877); a north-south linear landform feature located immediately west of the Carrington pit, north of the Hunter River, and south of the current Lemington Road alignment (refer to Figure 7.1). CM-CD1 is afforded protection by the existing HVO North development consent by condition 40, which provides that mining activities in the Carrington West Wing area are not permitted to be carried out with 20 m of the site. Condition 40 also clarifies that this condition does not however prohibit surveys and studies to be undertaken within, or within 20m of, CM-CD1.

To date, investigations of CM-CD1 have been within a small area to the south of the deposit. As such the archaeological content and age of the deposit requires assessment. Additional disturbance required by the Project, including the realignment of transmission lines, Lemington Road and the upgrade of Comleroi Road, may impact items of Aboriginal cultural heritage.

The Project includes minor modification to the existing HVO South disturbance boundary, namely in the area of Lake James and the proposed Cheshunt levee. These areas will be subject of assessment to determine if any impacts to items of Aboriginal cultural heritage are present.

iii Treatments and assessment approach

A detailed assessment of potential impacts on Aboriginal cultural heritage associated with the Project will be undertaken with reference to the following guidelines and policies:

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011);

- *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010);
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010);
- *HVO North Aboriginal Heritage Management Plan* (HVO 2019); and
- *HVO South Aboriginal Cultural Heritage Management Plan* (HVO 2019).

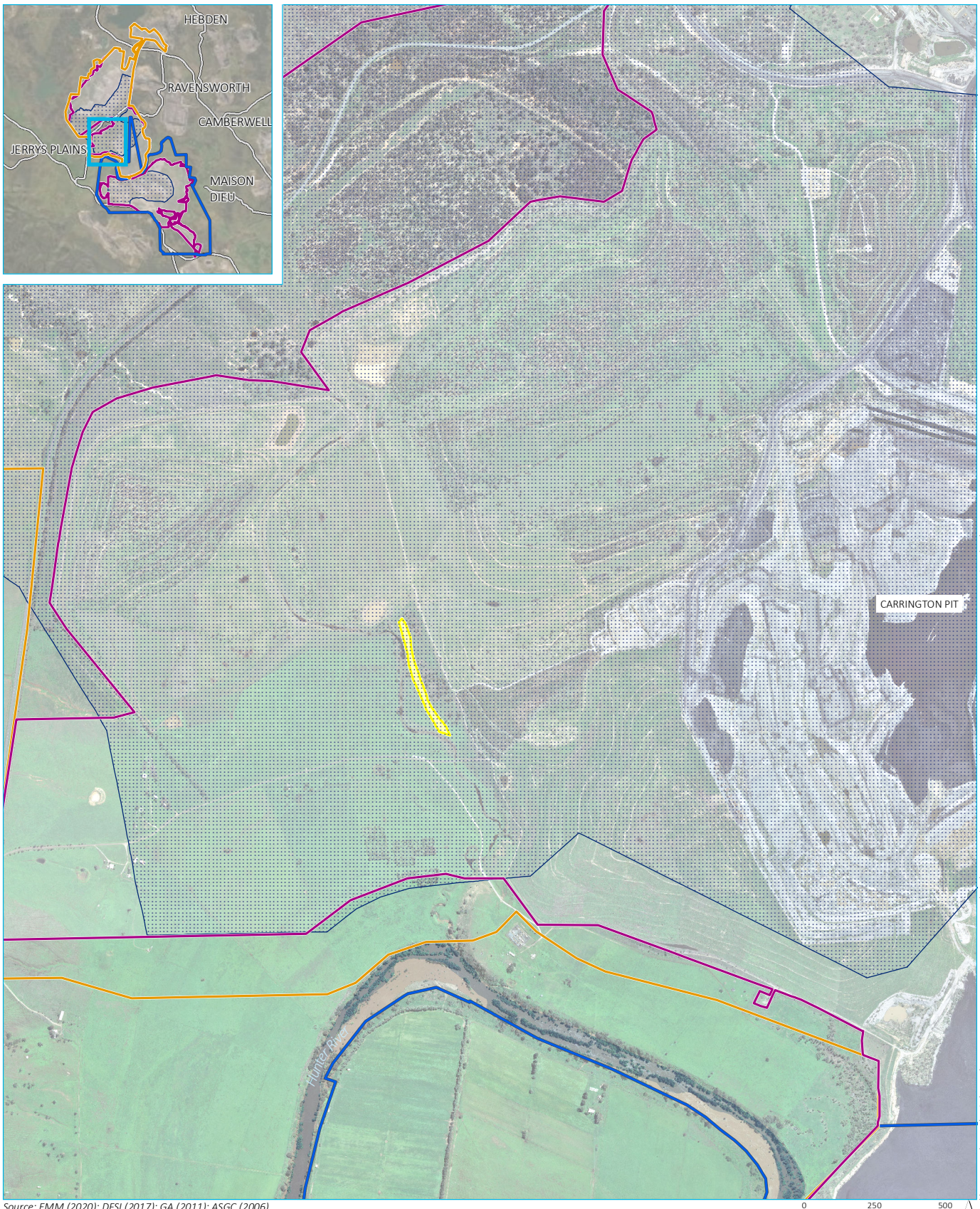
As required by the noted guidelines and policies, consultation and field surveys will be undertaken so that knowledge held by the Aboriginal community is captured and included within the detailed assessment. Consultation will further collate Aboriginal cultural heritage values of the Project area. Whilst determining management and mitigation measures with Registered Aboriginal Parties.

The findings of the detailed assessment will be taken into consideration within the EIS. The assessment will guide the requirements of the Project and principles to ensure potential impacts on Aboriginal cultural heritage are mitigated.

In addition, HVO propose to undertake an extensive investigation of the CM-CD1 deposit to further inform the detailed assessment. The purpose of the investigation will be to recover chronological, paleoenvironmental and cultural materials to inform the significance of CM-CD1. The investigation is proposed to be undertaken via means of mechanical excavation to provide access to the deposit. It is proposed that the Optically-Stimulated Luminesce (OSL) dating technique is utilised to confirm the age of the deposit. Additional archaeological investigations within the vicinity of the deposit will also be undertaken to ensure the extent of cultural material across the deposit has been suitably identified and understood.

Whilst providing invaluable information regarding the nature of CM-CD1, the investigation will also allow greater cultural association between HVO and RAPs, via means of RAP involvement in both the refinement of the investigation methodology and physical survey. The information gained by the proposed investigation will inform the assessment process so that the Project is better informed to minimise the risk of unknown or unexpected significant Aboriginal objects/features being harmed. The methodology of the investigation will be finalised in consultation with RAPs.

Furthermore, HVO will draw on recent experience gained via the completion of Aboriginal Cultural Heritage Assessments for Project including the Glendell Continuation Project, the Bulga Optimisation Project and the Mount Owen Continuation Project.



Source: EMM (2020); DFSI (2017); GA (2011); ASGC (2006)

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KEY

- CM-CD1 (AHIMS #37-2-1877)
- Existing HVO North development consent boundary (DA 450-10-2003)
- Existing HVO South project approval boundary (PA 06-0261)
- Approved disturbance footprint
- Proposed mining area

CM-CD1 location

HVO Continuation Project
Scoping report
Figure 7.1

EMM
creating opportunities

7.2.8 Biodiversity

i Existing environment

Large portions of land within and surrounding the HVO Complex have been subject to historical agricultural land use practices and mining activities, resulting in sizeable tracts of both exotic and native pasture. Scattered patches of native vegetation which remain in the Project area, particularly those in the central area along Lemington Road, provide habitat refuges and movement corridors for fauna in the region.

As discussed in Section 5, the HVO Complex has been subject to extensive biodiversity assessment to support previous approval applications.

A review of BioNet Atlas of NSW Wildlife database and mapping tool (BCD 2020) and results of ecological surveys conducted by Umwelt in 2020 identified the presence of ecological communities, populations and species listed under the BC Act and EPBC Act within the Project area. Communities listed under the EPBC Act are identified in Table 7.1, and entities listed under the BC Act are identified in Table 7.2. No EPBC Act listed species have previously been recorded in the HVO Complex. Additional State and Commonwealth species and communities may be identified as a result of targeted surveys undertaken as part of the Project.

Table 7.1 Commonwealth listed ecological communities known to occur in the Project area

Listed species and ecological communities	Criteria
Central Hunter Valley Eucalypt Forest and Woodland	Critically Endangered Ecological Community
Warkworth Sands Woodland of the Hunter Valley	Critically Endangered Ecological Community
White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered Ecological Community
Striped legless lizard (*Delma impar*)	Vulnerable Species
Large-eared pied bat (*Chalinolobus dwyeri*)	Vulnerable Species
Spotted-tailed quoll (*Dasyurus maculatus maculatus*)	Endangered Species
White-throated needletail (*Hirundapus caudacutus*)	Vulnerable and Migratory Terrestrial Species

Table 7.2 State listed species, populations and ecological communities known to occur in the Project area

Listed species, populations and ecological communities	Criteria
Central Hunter Grey Box-Ironbark Woodland	Endangered Ecological Community
Hunter Floodplain Red Gum Woodland	Endangered Ecological Community
Warkworth Sands Woodland	Endangered Ecological Community
Hunter Valley Footslopes Slaty Gum Woodland	Vulnerable Ecological Community
Eucalyptus camaldulensis (river red gum)	Endangered population
Acacia pendula (weeping myall)	Endangered population
Chthonicola sagittata (speckled warbler)	Vulnerable species

Table 7.2 State listed species, populations and ecological communities known to occur in the Project area

Listed species, populations and ecological communities	Criteria
Circus assimilis (spotted harrier)	Vulnerable species
Haliaeetus leucogaster (white-bellied sea-eagle)	Vulnerable species
Hieraaetus morphnoides (little eagle)	Vulnerable species
Oxyura australis (blue-billed duck)	Vulnerable species
Climacteris picumnus victoriae (brown treecreeper)	Vulnerable species
Stagonopleura guttata (diamond firetail)	Vulnerable species
Daphoenositta chrysoptera (varied sittella)	Vulnerable species
Pomatostomus temporalis temporalis (grey-crowned babbler)	Vulnerable species
Glossopsitta pusilla (little lorikeet)	Vulnerable species
Ninox strenua (powerful owl)	Vulnerable species
Tyto longimembris (eastern grass owl)	Vulnerable species
Phascogale tapoatafa (brush-tailed phascogale)	Vulnerable species
Falsistrellus tasmaniensis (eastern false pipistrelle)	Vulnerable species
Micronomus norfolkensis (eastern coastal free-tailed bat) (syn. *Mormopterus norfolkensis* (eastern freetail-bat))	Vulnerable species
Miniopterus orianae oceanensis (large bent-winged bat) (syn. *Miniopterus schreibersii oceanensis* (eastern bentwing-bat))	Vulnerable species
Saccolaimus flaviventris (yellow-bellied sheathtail-bat)	Vulnerable species
Myotis macropus (southern myotis)	Vulnerable species
Vespadelus troughtoni (eastern cave bat)	Vulnerable species

ii Proposed changes and potential impacts

The Project includes some additional disturbance to that currently permitted under existing approvals, for HVO North. As described in Table 7.1 and 7.2 above, a number of listed communities and species have been recorded in the areas proposed to be disturbed.Proposed Project changes which may impact biodiversity include:

- mining areas outside the approved disturbance footprint, including the separation between West and Mitchell Pits and the Carrington area;
- infrastructure construction and relocation, inclusive of the transmission lines;
- the realignment of Lemington Road and extension of Comleroi Road; and
- potential impacts to GDEs and terrestrial vegetation that may partially or opportunistically use groundwater, through changed groundwater conditions and drawdown.

As identified above, HVO no longer intend to mine the Riverview South East Extension area and South Lemington Pit 1 and 2 areas at HVO South. The approval for these mining areas will not be carried forward as part of the Project. As such previously approved impacts on biodiversity from disturbance of these areas at HVO South will no longer occur.

iii Treatments and assessment approach

The Project has been designed to minimise biodiversity impacts by largely mining previously disturbed areas. A detailed assessment of potential impacts to biodiversity as a result of the Project will be undertaken in accordance with the Biodiversity Assessment Method (BAM).

A biodiversity development assessment report (BDAR) will be prepared and include an assessment of the biodiversity values, the likely biodiversity impacts of the Project, a detailed description of the proposed regime for minimising, managing and reporting on the biodiversity impacts of the Project and a strategy to offset any residual impacts of the Project in accordance with the BC Act and the BAM.

An assessment of GDEs and terrestrial vegetation will also be undertaken to determine potential impacts of the Project. The assessment will consider relevant GDE types, including river baseflow systems, aquifer ecosystems, terrestrial vegetation, and wetlands. The assessment will include the previously identified River Red Gum Community along the Hunter River and other ecological communities which rely on groundwater contributions to base flow within the vicinity of the Project. Results of the assessment and mitigation measures adopted will be documented within the EIS.

7.2.9 Agriculture

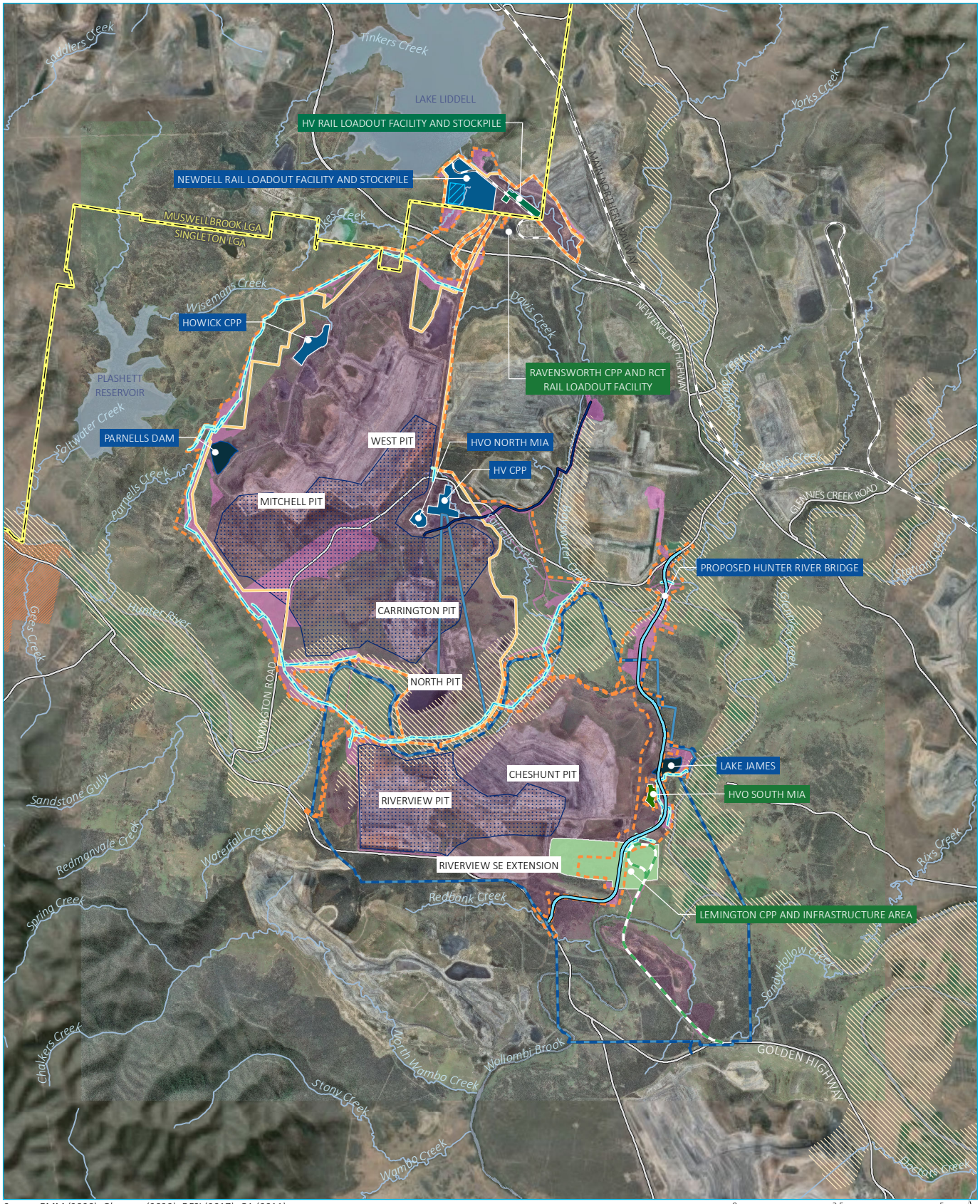
i Existing environment

The Project is in proximity to agricultural activities to the east and west. These agricultural activities include grazing and cropping.

Generally, land owned by HVO not utilised for mining activities is made available for agricultural purposes. This is undertaken via lease agreement with agricultural enterprises owned by the parent companies of the HVJV, namely Colinta Holdings, and local farming businesses. Agricultural activities undertaken on HVO-owned land include low intensity grazing on mine buffer land with cropping activities carried out on alluvial lands proximate to the Hunter River. Low intensity grazing is also carried out on properties neighbouring the operation.

The Project is not within an identified Critical Industry Cluster (CIC). The nearest CIC is west of the Project, on the Golden Highway approximately 2.6 km away, as shown in Figure 7.2.

There is regionally mapped BSAL areas within the Project area, as defined within the *Upper Hunter Strategic Regional Land Use Plan 2012* (UHSRLUP 2012). This regionally mapped BSAL is associated with the alluvial soils of the Hunter River, within the Hunter Soil Landscape as mapped in the *Soil landscapes of the Singleton Map Sheet 1:250,000* (Kovac & Lawrie 1991). The regionally mapped BSAL is partially on previously disturbed land from historical mining activities. As defined below, an assessment will be undertaken to verify the presence or absence of BSAL within the proposed mine disturbance boundary.



Source: EMM (2020); Glencore (2020); DFSI (2017); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 56

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KEY

- Critical industry cluster (equine)
- Regionally mapped biophysical strategic agricultural land (BSAL)
- HVO North proposed development consent boundary
- HVO South proposed development consent boundary
- Existing HVO North development consent boundary (DA 450-10-2003)
- Existing HVO South project approval boundary (PA 06-0261)
- Approved disturbance footprint

Proposed HVO Continuation Project elements

- Lemington Road realignment
- Proposed haul route to Ravensworth
- Proposed powerline relocation
- Proposed mining area
- Dam subject to upgrade
- Coal Preparation Plant/Mining Infrastructure Area to be upgraded
- Proposed product stockpile
- Proposed additional disturbance footprint

Existing HVO elements to be maintained

- South Lemington Rail Loop (approved, not yet constructed)
- Existing mining infrastructure area
- Lemington Coal Preparation Plant (approved, not yet constructed)

Existing environment

- Rail line
- Major road
- Named watercourse
- Named waterbody
- Local government area

Critical Industry Clusters and regionally mapped BSAL

HVO Continuation Project
Scoping report
Figure 7.2

EMM
creating opportunities

ii Proposed changes and potential impacts

As the Project proposes the continuation of the existing operation and minimal additional disturbance, impacts on agriculture are expected to be minimal.

The additional area proposed to be temporarily disturbed by the Project is largely used for low intensity grazing. The majority of this area, relates to the mining of the Carrington and Mitchell and West Pit separation at HVO North. This area is surrounded by the existing HVO North mining operation and has been owned by HVO for several decades. Low intensity grazing activities which occur on land proposed to be impacted by the Project are managed by agricultural enterprises owned by the parent companies of the HVJV. At HVO South there is an overall reduction to the disturbance boundary with the removal of approval mining areas (Riverview South East Extension and South Lemington Pits 1 and 2) and will not impact land utilised for agricultural purposes.

The Project will not result in direct impacts on cropping activities undertaken on the alluvial lands proximate to the Hunter River.

Identified potential impacts as result of the change in land use include:

- loss of cattle processed through local sale yards and processing facilities – This is expected to be a less than negligible impact given that cattle grazed in the area proposed to be disturbed are rotated through a large network of properties both in NSW and Queensland. In addition, the Rehabilitation and Closure Strategy for the Project will identify parcels of previous mined land that will be rehabilitated to meet agricultural purposes; and

- loss of employment opportunities in the agricultural sector – In line with the above, individuals employed to support cattle grazing in the area proposed to be disturbed work across numerous properties, as such, no loss of employment is envisaged.

iii Treatments and assessment approach

To determine and assess potential impacts on agricultural resources HVO will complete an Agricultural Impact Statement (AIS). The AIS will be prepared in accordance with the *Strategic Agricultural Land Use Policy: Guideline for Agricultural Impact Statements* (DPIE 2012). The AIS will determine both direct and indirect impacts of the Project to agricultural resources. Recommendations made within the AIS to mitigate or eliminate impacts on agricultural activities will be documented in the EIS.

Land proposed to be disturbed outside the current approved mining lease areas will be assessed in accordance with the *Interim Protocol for Site Verification and Mapping of BSAL* (OEH 2013) to determine the status of land and determine the presence or absence of BSAL. The EIS will present the relevant land and soil findings, including an SVC as per the requirements of the Mining SEPP as discussed in Section 5.

7.2.10 Mine closure and rehabilitation

i Existing environment

HVO currently undertakes mining and rehabilitation activities in accordance with the HVO North MOP and the HVO South MOP. The MOPs identify the rehabilitation requirements as defined in the relevant HVO consents and previous environmental assessments. HVO strives to construct a final landform which is sympathetic to the receiving environment while minimising impacts on visual receivers in Maison Dieu and Jerrys Plains.

The MOPs ensure rehabilitation outcomes are achieved in order to meet the requirements of the desired final land use or closure criteria, while ensuring a safe and stable landform is established, capable of supporting the post mine land use for generations to come. HVO currently progressively rehabilitates mined areas to achieve a landform supportive of either agricultural grazing or biodiversity outcomes. To date HVO has achieved a number of positive rehabilitation outcomes, including the alluvial land reinstatement project and the successful establishment of rehabilitated woodland in the former West Pit mining area. The alluvial land reinstatement project area is currently utilised by HVO to support intensive cropping. The rehabilitated woodland in the former West Pit mining area provides an ecological corridor from Ravensworth in the east to Jerry Plains in the west.

HVO North, as per existing approvals, currently applies traditional engineering landform design principles in the construction of final landforms. As such, the final landforms represent a bench type structure in which water is drained via contours and rock lined drains. At HVO South, contemporary natural landform design principles are incorporated to final landform design. The natural landform design creates a landform sympathetic to the receiving environment, where water is drained via constructed creek systems. HVO South historically implemented traditional final landform design, and therefore natural landform design is not present across the entirety of the operation. The Project represents the opportunity to achieve this across rehabilitated landforms yet to be constructed.

ii Proposed changes and potential impacts

Increases to the mining disturbance footprint at HVO North and revised mine scheduling at HVO South will result in changes to mine closure and rehabilitation outcomes to that currently approved. Key issues for the assessment include:

- Presence and locations of final voids – The Project proposes two final voids; one at HVO North and one at HVO South. This represents a reduction in the number of final voids at HVO North compared to the three currently approved. At HVO North the final void is proposed to be located further south to that currently approved. The final void at HVO South will be largely in the same location to that currently approved.

- Deferral of mine closure and final rehabilitation – The Project includes the extension of the HVO Complex duration by approximately 25 years until 2050 at HVO South and to 2045, or 15 years, at HVO South. As such rehabilitation outcomes as currently approved will be delayed.

- Disturbing existing rehabilitation – Land previously rehabilitated following mining activities will be disturbed in order to allow the Project to access the deeper seams proposed to be mined delaying biodiversity outcomes.

iii Treatments and assessment approach

A detailed assessment of mine closure and rehabilitation impacts associated with the Project will be undertaken and documented in the EIS. The detailed assessment will be completed considering the proposed changes and potential impacts with reference to the following guidelines and policies, as well as in consideration of the Resources Regulator's operational rehabilitation reforms:

- *ESG3: Mining Operations Plan Guidelines* (NSW DPIE, September 2013);

- *Integrated mine closure: Good Practice Guide, 2nd Edition* (ICMM 2019);

- *Mine closure - Leading practice sustainable development program for the mining industry* (Department of Foreign Affairs and Trade 2016); and

- *Strategic Framework for Mine Closure* (ANZMEC-MCA, 2000).

A Rehabilitation and Closure Strategy will be developed in which rehabilitation outcomes and closure criteria will be defined.

The Rehabilitation and Closure Strategy will include the following, taking into consideration the above guidelines and policies:

- consideration of existing approved landform and rehabilitation commitments;
- an assessment of potential impacts of final voids and identification of mechanism to minimise impacts;
- consideration of potential biodiversity impacts and identification of mechanisms to minimise impacts;
- an assessment of potential final land uses and contemporary mechanisms to achieve identified outcomes;
- development of a natural landform design so that final landforms are sympathetic to the existing landscape;
- erosion modelling to ensure long-term stability of the final landform;
- mechanisms to achieve final land use outcomes, whether this be for agricultural or biodiversity outcomes;
- identify public safety requirements, namely in regard to final voids;
- identify the requirements of progressive rehabilitation; and
- consideration of the disturbance of rehabilitated areas to minimise biodiversity impacts.

The Project provides an opportunity to implement contemporary best practice final landform and rehabilitation techniques to achieve improved closure outcomes.

7.2.11 Built environment

i Private Property and Public Infrastructure

a Existing environment

HVO own the majority of land within the Project area and hold existing land access agreements with neighbouring mining and industrial operations. Land not owned by HVO or neighbouring mining operations includes Crown land parcels and land owned by AGL. Land within the proposed disturbance boundary of the Project is owned by HVO, Ravensworth Operations, Liddell Coal Operations, Ashton Coal or AGL.

Public infrastructure that exists within the Project area is inclusive of Ausgrid's and TransGrid's transmission lines, Lemington and Comleroi roads, Telstra telecommunication lines, Golden and New England Highways and the HVGC.

The Project does not include changes which would directly impact the New England Highway or the HVGC. Potential impacts to the Golden Highway as result of proposed intersection improvements are discussed in Section 7.2.3. Impacts to the HVGC will be reduced given that mining is no longer proposed within the South Lemington Pits 2 mining area, which borders the northern end of HVGC runway. Access to the HVGC will be maintained throughout the Lemington Road realignment construction works.

b Proposed changes and potential impacts

The Project requires the relocation of Ausgrid and AGL transmission lines (transmission infrastructure), Telstra telecommunication lines and some HVO internal transmission lines. Although no Transgrid lines will be relocated, it is noted that some Ausgrid and AGL lines will be relocated within Transgrid easements. The transmission infrastructure is proposed to be relocated south of the Carrington area and along the Project boundary to the west at HVO North, and some realignments east of HVO South due to the realignment of Lemington Road, as displayed in Figure 3.1. Potential impacts relevant to the relocation of the transmission lines may include:

- visual impacts on receivers in proximity of the relocated transmissions lines;
- temporary impact to the amenity of near neighbours as a result of construction activities;
- potential impacts on biodiversity and cultural heritage as a result of additional disturbance; and
- potential impacts on power distribution.

c Treatments and assessment approach

Detailed engineering and construction design will be completed to further define and confirm the transmission infrastructure relocation paths, this will be undertaken by HVO in consultation with Transgrid, Telstra, Ausgrid and AGL. The detailed engineering and construction design will strive for no or minimal disruption to supply experienced by local energy users as a result of the relocation of transmission lines. Potential environmental and social impacts associated with the relocation will be taken into consideration and include:

- assessment of potential visual impacts;
- assessment of potential amenity impacts, predominantly air quality, noise and vibration; and
- assessment of potential biodiversity impacts and cultural heritage as a result of additional disturbance.

The identified assessments will guide the requirements of the Project and principles to ensure potential impacts of the transmission line relocations are mitigated. Assessment findings will be identified within the EIS.

7.2.12 Economic

a Existing environment

HVO is a well-established mining operation currently employing approximately 1,500 FTE and supporting 650 individual suppliers in the Newcastle and Hunter region, with many of them local to the site. Through this employment and reliance on suppliers, HVO supports a significant number of families in the Hunter region. Further support is provided both locally and regionally via royalties and taxes.

The Project provides an opportunity to utilise a State significant resource ensuring ongoing economic benefits to the Hunter region.

b Proposed changes and potential impacts

The Project proposes to produce an additional 400 Mt of ROM coal to that currently approved. As a result, tax and royalty contributions made by HVO will continue for an additional 25 years until 2050 at HVO North and to 2045 at HVO South. Should the Project not proceed the State significant resource would not be utilised, with tax and royalty contributions ending at completion of the existing approval period. The Project will also enable the ongoing employment of the existing workforce and largely rely on a similar level of support from suppliers.

The Project involves construction of new infrastructure to the support the operation. A total of 600 temporary construction jobs will likely be generated during this period, providing further employment opportunities, which was raised as a reason for project support during stakeholder engagement activities undertaken in the scoping phase. Temporary construction jobs may impact the capacity of public services and housing availability in the Hunter region. Impacts as a result of temporary workers will be considered in the Project SIA.

c Treatments and assessment approach

An Economic Impact Assessment will be undertaken to determine economic impacts of the Project. The economic assessment will include both Local Effects Analysis and Cost Benefit Analysis. The assessment will be undertaken in accordance with the *Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals* (DPIE 2015) and the *Technical Notes Supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals* (DPIE 2018).

The assessment will compare the net costs and benefits of the Project where planning approval is given, compared to the costs and benefits under the baseline where approval is not provided.

Findings will be taken into consideration and documented within the EIS.

7.2.13 Historic Heritage

The Project area has been the subject of extensive historic heritage assessments to support previous approval applications.

While well outside the Project disturbance footprint, some listed sites are within the HVO Project area. The Chain of Ponds Inn and Outbuildings, which is listed on the LEP as being of State significance and on the State Heritage Register, is adjacent to the northern edge of the HVO North boundary and adjacent to Liddell Coal Operations. No works related to the Project are proposed at this location. At HVO South, St Phillips Church and the Former Queen Victoria Inn Ruins are listed on the Singleton LEP as being of regional and local significance, respectively, and are within the HVO South approval boundary, on the southern side of Wollombi Brook and well outside the proposed Proejct footprint.

The nearest heritage listed site in the vicinity of the Project area is 'Archerfield and outbuildings', listed on the Singleton LEP as being of regional significance. Archerfield and outbuildings are outside of the Project area boundary east of HVO South.

The Project includes some area of undisturbed land at HVO North with potential to contain previously unidentified items of historic heritage. No additional impacts on items of historic heritage are anticipated at HVO South, as only minor changes to the disturbance footprint in proximity to existing infrastructure are proposed.

A desktop assessment of potential impacts on historic heritage associated with the Project will be undertaken with reference to the following guidelines and policies:

- *Assessing heritage significance* (NSW Heritage Council 2001);
- *Assessing historical importance: A guide to State Heritage Register Criterion A* (NSW Heritage Office 2006);
- *Assessing historical association: A guide to State Heritage Register Criterion B, Heritage Information Series* (NSW Heritage Office 2000);
- *Assessing significance for historical archaeological sites and 'relics'* (NSW Heritage Council 2009);
- *Statements of heritage impact* (NSW Heritage Office 2002);

- *Burra Charter* (Australia International Council on Monuments and Sites 2013); and
- *The Conservation Management Plan* (Kerr, JS 2013).

The findings of the assessment will be taken into consideration within the EIS. The assessment will guide the requirements of the Project and principles to ensure potential historic heritage impacts are mitigated.

7.3 Matters requiring no further assessment

7.3.1 Parking

The Project will provide sufficient parking for operational and construction personal. Parking locations will be defined within the EIS.

7.3.2 Rail network and ports

The Project proposes to continue to transport coal from the site via rail to the Port of Newcastle, to deliver coal to export customers. The Project does not propose any changes to the existing demand on the rail network or the Newcastle Port. As such, no further assessment is proposed to be undertaken within the EIS. Coal will be transported in accordance with existing agreements with rail providers and the Newcastle Port.

7.3.3 Hazards and risks

The Project largely involves the extension of life of the existing operation within the same footprint. Hazards and risks, inclusive of bushfire, associated with the HVO Complex are known and are not envisaged to change as a result of the Project. The EIS will confirm the existing location of hazardous items and note identified risks.

7.3.4 Odour

Odour has not historically been an issue for which management and mitigation measure have had to be engaged during the approximate 70 years of operation of the HVO Complex. The Project proposes to undertake mining activities largely within the existing HVO footprint via the same mining methods to that which are currently utilised. As such, potential odour impacts are not predicted to differ or increase as a result of the Project. Noting this, no further assessment of odour is proposed to be undertaken within the EIS.

7.3.5 Public safety

Potential public safety impacts of the Project are not expected to greatly differ from the existing operations. Project features which may impact public safety include:

- construction activities associated with the Lemington Road realignment and Comleroi Road extension; and
- increased traffic during the construction phase of the Project.

Public safety impacts as they relate to air quality, noise, vibration and visual are expected to be similar to that currently experienced by receivers. These impacts will be taken into consideration in the relevant technical studies and documented in the EIS. Management and mitigation measures proposed in technical studies will be implemented wherever possible to reduce public safety impacts.

8 References

Australia International Council on Monuments and Sites *2013, Burra Charter*

Australian New Zealand Guidelines 2018, *Australian and New Zealand guidelines for fresh and marine water quality*

Barnett et al 2012, *Australian Groundwater Modelling Guidelines*

Department of Agriculture Water and Environment 2019, *National Greenhouse Accounts Factors, National Greenhouse and Energy Reporting System*

IEA (2019), Southeast Asia Energy Outlook 2019, IEA, Paris https://www.iea.org/reports/southeast-asia-energy-outlook-2019

Independent Expert Scientific Committee 2018, *Information guidelines for proponents preparing coal seam gas and large coal mining development proposals, Commonwealth of Australia*

Fisheries NSW 2013, *Policy and Guidelines for Fish Habitat Conservation and Management*

HVO 2019 *HVO North Aboriginal Heritage Management Plan*

HVO 2019, *HVO South Aboriginal Cultural Heritage Management Plan*

Kovac & Lawrie 1991*, Soil landscapes of the Singleton Map Sheet 1:250,000*

Muswellbrook Shire Council 2017, *Muswellbrook Shire Council Community Strategic Plan*

NSW Department of Environment Climate Change and Water 2011, *Road Noise Policy*

NSW DPE 2019, *Engagement in EIA, Guidance for State Significant Projects*

NSW DPIE 2017, *Social impact assessment guideline for State significant mining, petroleum production and extractive industry development*

NSW DPIE 2015*, Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals*

NSW DPIE 2012*, Strategic Agricultural Land Use Policy: Guideline for Agricultural Impact Statements*

NSW DPI Water 2012, *Risk assessment guidelines for groundwater dependent ecosystems*

NSW EPA 2016, *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*

NSW EPA 2017, *NSW Noise Policy for Industry* (NPfI)

NSW Department of Environment Climate Change 2009, *Interim Construction Noise Guideline*

NSW DECCW 2010, *Aboriginal Cultural Heritage Consultation Requirements for Proponents* ();

NSW Government 2012, *Upper Hunter Strategic Regional Land Use Plan*

NSW Government 2016 *Hunter Regional Plan* 2036

NSW Government 2018, *Voluntary Land Mitigation and Acquisition Policy*

NSW OEH 2013, *Interim Protocol for Site Verification and Mapping of BSAL*

NSW OEH 2011, *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*

NSW BCD 2020, *BioNet Atlas of NSW Wildlife database and mapping tool*

NSW DECCW 2010, *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*

NSW Office of Water 2012, *Risk Assessments Guidelines for Groundwater Dependent Ecosystems*

Office of the Chief Economist, *Resources and Energy Quarterly*, March 2020

RTA 2002 *Guide to Traffic Generating Developments*

Singleton Council 2020 *Singleton Local Strategic Planning Statement 2041*

United Kingdom's Landscape Institute of Environmental Management and Assessment (2013), *Guidelines for Landscape and Visual Impact Assessment*

Water Sharing Plan for the Hunter Regulated River Water Source 2016

Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009

9 Glossary

Table 9.1 Project Glossary

Term	Abbreviation	Definition
AGL Energy Limited	AGL	Energy utility company which owns and operates Bayswater and Liddell power stations, directly north of the Project.
Approved disturbance	N/A	An area of land which is approved to be disturbed in accordance with existing development consents.
Average recurrence interval	ARI	The average period between exceedances of a given rainfall total accumulated over a given duration.
Bilateral Agreement	N/A	An agreement between the Commonwealth of Australia and the NSW Government relating to environmental assessment (the assessment bilateral agreement), allows the Commonwealth Minister for the Environment to rely on specified environmental impact assessment processes of the NSW in assessing actions under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).
Biodiversity Assessment Method	BAM	Biodiversity assessment process as outlined under the *Biodiversity Conservation Act 2016*, providing consistent assessment of ecological values.
Biodiversity Development Assessment Report	BDAR	Biodiversity assessment of the Project as defined by the requirements of the BAM.
Biophysical Strategic Agricultural Land	BSAL	High value agricultural land as defined under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP).
Clean water	N/A	Water which has not interacted with mining activities.
CM-CD1 (AHIMS #37-2-1877)	CM-CD1	A north-south linear landform identified as having high significance in previous planning documentation despite little investigation having occurred to date. Located immediately west of the Carrington pit, north of the Hunter River, and south of the current Lemington Road alignment.
Coal processing plant	CPP	Infrastructure utilised to prepare coal for market, involving process such as crushing and washing.
Coal seams	N/A	Coal measures targeted by HVO including but not limited to the Bayswater seam, Vaux seam, Bowfield seam and Barret seam.
Commonwealth Department of Agriculture, Water and the Environment	DAWE	Commonwealth department representing the national interests across agriculture, water and the environment and administer these interests under the EPBC Act.
Critical Industry Cluster	CIC	Concentrations of highly productive industries within a region that are related to each other, contribute to the identity of that region and provide significant employment opportunities as defined within the Mining SEPP.
Crown land	N/A	Land that is owned and managed by the NSW Government.
Development applications	DAs	Applications for approval of the Project, to be lodged with DPIE. Noting HVO North and HVO South operate under separate development consents.
Development Application 450-10-2003	DA 450-10-2003	Existing HVO North development consent (as modified).

Table 9.1 Project Glossary

Term	Abbreviation	Definition
Development consent boundary	N/A	Existing development consent areas for HVO North and South under DA 450-10-2003 and PA 06_0261 respectively.
Dirty water	N/A	Water which has interacted with disturbed areas and may potentially have a higher sediment load then that of the receiving environment. The water has not interacted with exposed coal or utilised in mining activity processes.
Environmental impact statement	EIS	Report and associated studies prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) to support the Project DA under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).
Environment Protection Licence 640	EPL 640	Existing licence granted by the NSW Environmental Protection Authority (EPA) under the NSW *Protection of the Environment (Operations) Act 1997* (PoEO Act) for polluting activities at HVO North and South operations.
Exploration Licence	EL	Title issued under the *NSW Mining Act 1992* permitting coal exploration activities.
Gateway Certificate	N/A	Where the development occurs on land which meets the definition of BSAL the merits of the development are to be assessed by the Gateway Panel. Should it be determined the development is appropriate, the Gateway Certificate is issued to the proponent under the Mining SEPP.
Glencore Coal Assets Australia Pty Limited	Glencore	Company holding interests in the HVO JV.
Greater Ravensworth Area Water and Tailings Scheme	GRAWTS	GRAWTS enables water and tailings to be transferred between mining operations within the Greater Ravensworth locality to optimise water use and management at operations and allows for the efficient management of tailings from CPPs. The mining operations within the GRAWTS network are Ravensworth Operations, Liddell, Integra Underground, Mt Owen and Glendell mines operated by Glencore.
Groundwater Dependent Ecosystems	GDEs	Ecosystems and terrestrial vegetation that may partially or opportunistically use groundwater, through changed groundwater conditions and drawdown or as identified under NSW Water Sharing Plans referenced in the NSW Water Management Act 2000.
Howick Coal Preparation Plant	Howick CPP	Infrastructure at HVO North utilised to prepare coal for market. Formally identified as the West Pit Coal Preparation Plan in DA 450-10-2003.
Hunter River Salinity Trading Scheme	HRSTS	Licensing scheme under the PoEO Act for discharges of saline water in the Hunter River catchment. The scheme is administered by the NSW EPA.
Hunter Valley Coal Preparation Plant	HVCPP	Infrastructure at HVO North utilised to prepare coal for market.
Hunter Valley Gliding Club	HVGC	Local flying association in proximity of HVO South.
Hunter Valley Operations Joint Venture	HVO JV	Joint venture comprising Glencore and Yancoal which own HVO and associated assets as per the following arrangement. 51% interest is held by Coal & Allied Operations Pty Ltd (a wholly owned subsidiary of Yancoal); and 49% interest held by Anotero Pty Ltd (a wholly owned subsidiary of Glencore). HVO JV is the proponent of the Project.
Hunter Valley Load Point	HVLP	Infrastructure at HVO North utilised to prepare coal and load trains for market.
Hunter Valley Operations	HVO	Company providing management services to the HVO JV.

Table 9.1 Project Glossary

Term	Abbreviation	Definition
Hunter Valley Operations - North	HVO North	Inclusive of all activities approved under DA 450-10-2003.
Hunter Valley Operations - South	HVO South	Inclusive of all activities approved under PA 06_0261.
Hunter Valley Operations North and South	HVO Complex	Comprises both HVO North and HVO South operations.
Independent Planning Commission	IPC	Statutory body established under the EP&A Act to act as an independent decision maker on State Significant Development (SSD) projects which attract community interest.
Lemington Coal Preparation Plant	LCPP	Approved but not yet constructed infrastructure proposed at HVO South, to be utilised to prepare coal for market.
Levees	N/A	Levees proposed to be constructed to protect HVO assets including North Void, Mitchell Cheshunt and Riverview Levees.
Life of mine	LOM	Expected period of time in which a mining operation is active.
Low permeability barrier wall	LPBW	Engineered structure to reduce the transmission of water from the receiving environment into mining areas.
Local road network	N/A	Summary term utilised to identify roads in proximity to the Project including the Golden Highway, New England Highway, Lemington Road, Comleroi Road, Archerfield Road, Pikes Gully Road and Liddell Station Roads.
Matters of national environmental significance	MNES	Item/matters listed as significant under the EPBC Act.
Mine Infrastructure Area	MIA	Location of infrastructure required for the operation of the mine including but not limited to workshops, parking facilities, administration building and laydown areas.
Mine-owned land (receptor)	N/A	Land owned by the HVO JV.
Mine water	N/A	Water which has interreacted with exposed coal or utilised in mining activity processes.
Mining areas	N/A	Summary term used to identify the following mining areas across the HVO Complex; West Pit, Carrington Pit, Mitchell Pit, Cheshunt Pit, Riverview Pit, Riverview South East Extension, South Lemington Pit 1 and South Lemington Pit 2.
Mining Lease	ML	Tenement permitting mining activities.
Mining Operations Plan	MOP	Plan approved by NSW Department of Planning, Industry and the Environment (DPIE) confirming proposed mining activities are consistent with consent conditions and demonstrate the maximum recovery of the resource. The MOP also confirms rehabilitation requirements and activities completed.
Neighbouring mining operations	N/A	Surrounding mines include Liddell Coal Operations, Ravensworth Operations (inclusive of Ravensworth West, Ravensworth South and Narama), Mount Thorley Warkworth, the United Wambo Mine Complex, Mount Owen Complex and Ashton Coal.
Newdell Load Point	NLP	Infrastructure at HVO North utilised to prepare coal and load trains for market.
NSW Department of Planning, Industry and Environment	DPIE	NSW Government department responsible for the assessment of SSD projects.

Table 9.1 Project Glossary

Term	Abbreviation	Definition
Other mine owned land	N/A	Land owned by neighbouring mining operations in proximity to HVO.
Pre-feasibility study	PFS	Initial internal investigation carried out by HVO to determine the appropriateness of the Project.
Private land	N/A	Land that is not owned by a public agency or a mining or extractive industry company (or its subsidiary).
Product coal	N/A	Coal prepared and ready for final use.
Project Approval 06_0261	PA 06_0261	Existing HVO South approval (as modified).
Proposed approval boundary	N/A	Boundary which captures all Project related activities.
Proposed disturbance	N/A	An area of land proposed to be disturbed by the Project which is not approved to be disturbed under existing development consents.
Project footprint	N/A	Area encompassing Project related activities, which is inclusive of land proposed and approved to be disturbed.
Proposed Hunter River Bridge	N/A	Bridge proposed to be constructed along the realigned Lemington Road.
Ravensworth Coal Preparation Plant	RCPP	Infrastructure at Ravensworth Operations utilised to prepare coal for market.
Ravensworth Coal Terminal	RCT	Facility at Ravensworth Operations and used sporadically by HVO to stockpile and load coal on to trains for transport.
Realignment of Lemington Road	N/A	Encompasses all activities associated with the realignment of Lemington Road from the existing Lemington Road alignment north of the Hunter River to Comleroi Road to the south of HVO South.
Reasonable	N/A	Relates to the application of judgement in arriving at a decision, taking into account; mitigation benefits, costs versus benefits provided and the nature and extent of the potential improvements.
Registered Aboriginal Parties	RAPs	Aboriginal parties and organisations that have registered an interest in the Project and are to be consulted throughout the approvals process in accordance with the NSW *National Parks and Wildlife Act 1974*.
Receptors	N/A	Houses, dwellings, schools, community centres and or businesses located on private or mine owned land with potential to be exposed to impacts as a result of the Project.
Run of mine	ROM	Coal produced from mining activities and not yet processed.
Secretary's Environmental Assessment Requirements	SEARs	Requirements to be assessed and considered within the EIS as prescribed by NSW Government under the EP&A Act.
Singleton Clay Target Club	SCTC	Local organisation in proximity to HVO South. Operate on HVO JV owned land.
Site Verification Certificate	SVC	Issued under Mining SEPP that certifies that the land on which the proposed development is to be carried out is not BSAL.
Social Impact Assessment	SIA	-
State significant development	SSD	Development deemed to have State significance due to the size, economic value or potential impacts that it may have as defined under the State Environmental Planning Policy (State and Regional Development) 2011 (State and Regional Development SEPP).
Tenements	N/A	Covering MLs and ELs held by HVOJV

Table 9.1 Project Glossary

Term	Abbreviation	Definition
Tailings Storage Facility	TSF	Engineered and constructed structures to store tailings.
HVO Continuation Project	Project	Summary term used to identify all aspects of the proposed activities subject of the development applications and associated EIS.
Transmission lines	N/A	A number of transmission lines proposed to be realigned to avoid interaction with planned activities.
Transport for New South Wales	TfNSW	NSW Government department responsible for the management and upkeep of roads not subject of local council ownership.
Vacant land	N/A	Private or mine owned land which does not contain a house or dwelling.
Water access licences	WALs	Licence issued under the NSW *Water Management Act 2000*, regulations and water sharing plans permitting the extraction and / or utilisation of groundwater and surface water.
Yancoal Australia Ltd	Yancoal	Company holding interests in the HVO JV.

Appendix A

SIA Scoping Report

Social impact assessment
Scoping report

HVO Continuation Project

Prepared for HV Operations Pty Ltd
December 2020

EMM Brisbane
Level 1, 87 Wickham Terrace
Spring Hill QLD 4000

T 07 3648 1200
E info@emmconsulting.com.au

www.emmconsulting.com.au

Social impact assessment
Scoping report

HVO Continuation Project

Report Number

H190408 RP2

Client

HV Operations Pty Ltd

Date

18 December 2020

Version

v3.1 Final

Prepared by

Andrea Kanaris
Associate, Social Impact Assessment National Technical Leader
18 December 2020

Approved by

Nicole Armit
Director
18 December 2020

This report has been prepared in accordance with the brief provided by the client and has relied upon the information collected at the time and under the conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of the client and no responsibility will be taken for its use by other parties. The client may, at its discretion, use the report to inform regulators and the public.

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1 Introduction

1.1 Background

Hunter Valley Operations (HVO) is a multi-pit open cut mining complex, comprising two mine sites separated by the Hunter River; HVO North and HVO South. HVO is approximately 24 kilometres (km) north-west of Singleton in the Hunter Valley of New South Wales (NSW) (refer to Figure 1.1). While the two mine sites are approved under separate development consents, they are operated as one complex with fully integrated environmental management systems. The HVO Complex is illustrated at a local scale in Figure 1.3 of the main Scoping Report.

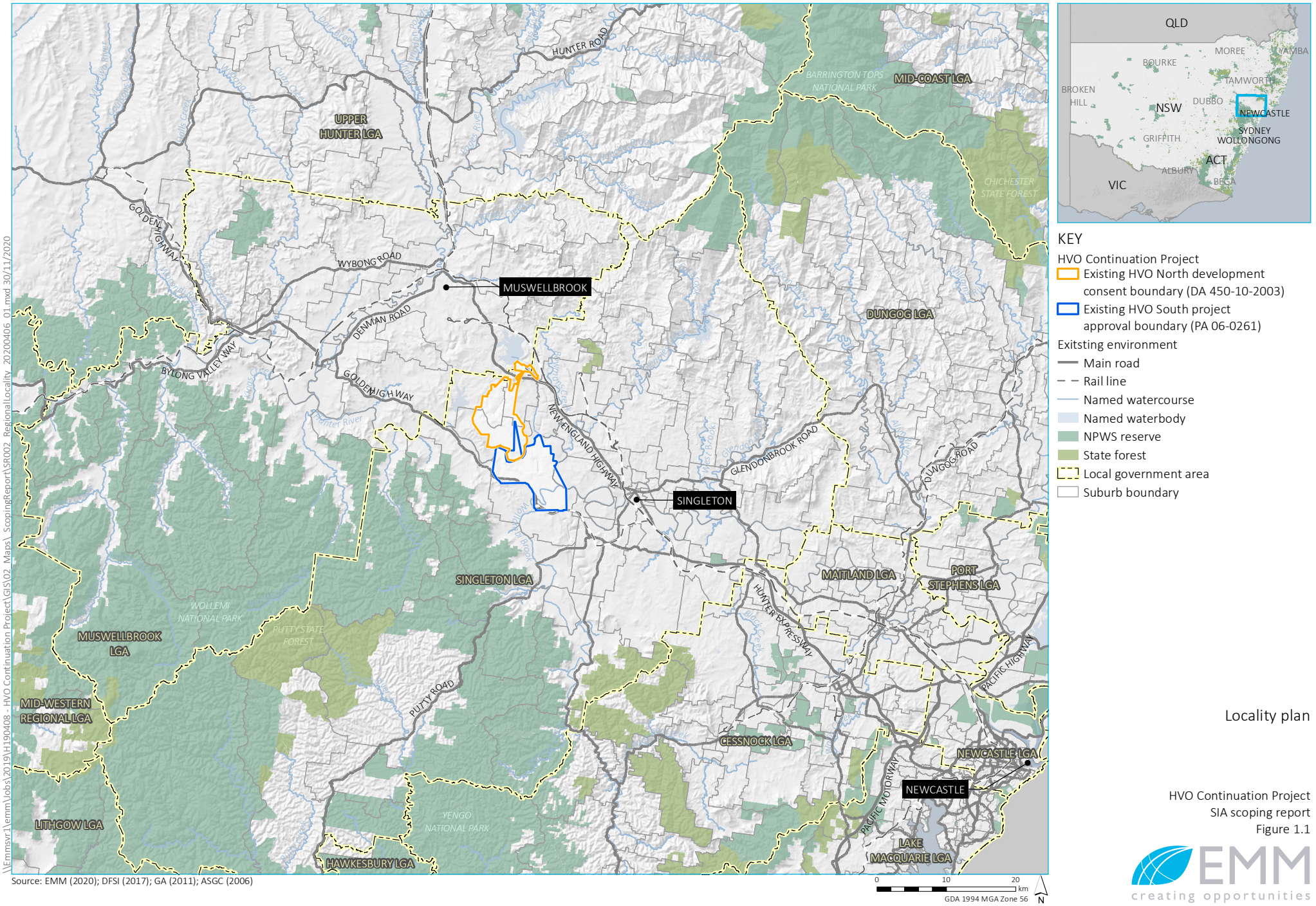
Operations first commenced at HVO approximately 70 years ago, in 1949. Since its inception HVO has been, and continues to be, an important contributor to the Hunter Valley economy, producing high quality thermal and semi-soft coking coal suitable for use in international markets. HVO extracts coal from the Wittingham Coal Measures of the Hunter Coalfield, which is part of the Permian coal basin known as the Sydney basin.

The existing HVO North operation comprises the approved mining areas of West Pit, Mitchell Pit and Carrington Pit, as shown in Figure 1.3 in the main Scoping Report. It operates under development consent DA 450-10-2003 which allows extraction of up to 22 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal until 12 June 2025.

HVO South operates under Project Approval (PA) 06_0261 and comprises the approved mining areas of Riverview Pit and Cheshunt Pit, where mining activities currently take place, and South Lemington Pits 1 and 2. PA 06_0261 allows the extraction of up to 20 Mtpa of ROM coal until 24 March 2030.

Mining across HVO is undertaken using dragline and truck and shovel methods. ROM coal from HVO North and South is currently processed at the Hunter Valley (HV) Coal Preparation Plant (CPP) and/or the Howick CPP (both at HVO North), from which product coal is predominantly transported via overland conveyor to the HV load point (LP) or Newdell LP and via rail to the Port of Newcastle for export.

HVO is an unincorporated Joint Venture (JV) between Yancoal Australia Ltd (Yancoal) (51%) and Glencore Coal Pty Ltd (Glencore) (49%) (HVO JV).



KEY

HVO Continuation Project

- Existing HVO North development consent boundary (DA 450-10-2003)
- Existing HVO South project approval boundary (PA 06-0261)

Exitsting environment

- Main road
- Rail line
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest
- Local government area
- Suburb boundary

Source: EMM (2020); DFSI (2017); GA (2011); ASGC (2006)

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Locality plan

HVO Continuation Project
SIA scoping report
Figure 1.1

EMM
creating opportunities

1.2 Project overview

Significant coal reserves remain across the HVO complex beyond what is currently approved for extraction. HVO has undertaken extensive investigations into a long-term plan for the complex beyond the approved mine life to achieve maximum recovery of the remaining coal resources while balancing social, environmental and economic outcomes. Based on the outcomes of these investigations, HVO will be seeking approval for the HVO Continuation Project (the Project).

Broadly, the Project comprises the continuation of the life of HVO North and HVO South, from the current approved mining completion dates of 2025 and 2030 respectively, to approximately 2050 at HVO North and 2045 at HVO South. The continuation of mining across the HVO complex will optimise resource recovery from the existing operation, predominantly by mining through previously mined areas and to the extent of existing mining tenements and extracting coal from deeper seams at HVO North.

At HVO South an extension to the life of the mine is proposed to facilitate improved mine sequencing outcomes. The Project proposes a reduced mining footprint compared to what is currently approved for extraction under PA 06_0261, with the removal of Riverview South East Extension Area and South Lemington Pits 1 and 2 from the proposed mine plan. The approved shorter rail loop options associated with the Lemington CPP have also been removed from the Project. This reduction in footprint avoids the disturbance of Warkworth Sands Woodland (WSW) listed as a critically endangered ecological community (CEEC) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and an EEC under the NSW *Biodiversity Conservation Act 2016* (BC Act). Notably at HVO South, a reduction in the maximum annual ROM coal extraction rate is proposed, from 20 Mtpa to 18 Mtpa.

A number of infrastructure upgrades and changes will also be required to facilitate the Project (and are included as part of it), including upgrades to the Hunter Valley and Howick Coal Preparation Plants, replacement of the Newdell rail load out facility and construction of a new product stockpile at the facility, relocation of transmission and telecommunication lines and the realignment of part of Lemington Road. The Project conceptual layout is displayed in Figure 3.1 of the main Scoping Report.

The Project will enable the efficient use of existing infrastructure to economically recover an additional 400 Mt of run of mine coal reserves within existing mining tenements and predominately existing approved disturbance footprints across the HVO Complex. It will provide ongoing employment opportunities for the existing workforce of approximately 1,500 full time equivalent workers well beyond the life of the current planning approvals under which the Complex operates, as well as continuing the ongoing contribution to the local, regional and State economies from this well-established mining operation.

To enable the Project, two new State significant development (SSD) consents will be required; one for HVO North and one for HVO South, under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Project will seek to maintain separate development consents for HVO North and South, as is currently the case. The approval pathway is discussed further in Chapter 5 of the main Scoping Report.

The Project area that is the subject of the HVO Continuation Project comprises the development consent boundary for HVO North, to which some changes are proposed, and the existing Project Approval boundary for HVO South, to which some minor changes are also proposed. The Project area is shown in Figure 3.1 of the main Scoping Report.

Further detail on the Project is provided in Chapter 3 of the main Scoping Report.

1.3 Purpose of the social impact assessment scoping report

The purpose of this social impact assessment (SIA) scoping report is to accompany the main Scoping Report that requests and informs the content of the Secretary's Environmental Assessment Requirements (SEARs) for the Project. The SEARs will identify the requirements and level of environmental assessment required to accompany the SSD applications for the Project and associated environmental impact statement (EIS).

This SIA scoping study is an evaluative procedure, and its primary objective is to define the scope of the SIA for the Project by:

- identifying potentially affected people;
- identifying and understanding the area of social influence;
- identifying the potential, negative and positive, social impacts for further investigation; and
- determining the level of assessment required for each potential social impact.

This report has been prepared by EMM Consulting Pty Limited (EMM) on behalf of HVO in accordance with the Social impact assessment guideline for State significant mining, petroleum production and extractive industry development (DPIE 2017).

2 Scoping methodology

2.1 Baseline review

Project information, along with Australian Bureau of Statistic (ABS) demographic and economic data was used to inform the project area of social influence, and to identify potentially affected communities and key stakeholders.

2.2 Identification of area of social influence

The area of social influence was mapped to identify surrounding stakeholders who could potentially be directly or indirectly affected by the Project. This includes identifying landholders, businesses and social services who may have an interest in the Project and who could be impacted.

2.3 Stakeholder engagement activities

A wide range of identified stakeholders were consulted as part of the scoping phase of the Project. COVID-19 safe environment practices were employed during the engagement program, which included the following activities:

- scoping meeting with NSW Department of Planning, Industry and the Environment (DPIE);
- face-to-face interviews (via videoconference/teleconference) with both Muswellbrook and Singleton councils, landholders, and other key stakeholders;
- meeting with the HVO Community Consultative Committee (CCC);
- distribution of information sheets; and
- on-line survey.

Engagement activities were undertaken during September through to November 2020 in Singleton and Muswellbrook local government areas (LGAs) with a range of key stakeholders as summarised in Table 2.1. A detailed breakdown of consultation activities can be found in Section 6 of the Scoping Report.

HVO and EMM representatives met with Singleton and Muswellbrook Council representatives on 16 and 17 September 2020, respectively, to advise of the Project, seek feedback on issues and concerns for consideration, and to provide a briefing on the preparation of the SIA. Project briefings were also provided to the councillors of Singleton and Muswellbrook Councils on 26 and 27 October 2020, respectively.

Additional face-to-face interviews took place between stakeholders listed in Table 2.1 and an EMM representative who provided:

- a Project briefing;
- an overview of the EIS and SIA processes; and
- identified stakeholder concerns regarding the Project.

Table 2.1 Consultation activities undertaken relevant to the SIA

Stakeholder	Location	Date
DPIE		
DPIE Scoping Meeting	Online via Microsoft Teams	15 September 2020 1:00pm-2:00pm
Local council		
Singleton Council (officers)	Boardroom, Singleton Council Chambers	16 September 2020 1:30pm-2:30pm
Muswellbrook Council (officers)	Online via Microsoft Teams	17 September 2020 12:00pm-1:00pm
Singleton Council (Councillors)	Boardroom, Singleton Council Chambers	26 October 2020 5:30pm-6:30pm
Muswellbrook Council (Councillors)	Online via Microsoft Teams	27 October 2020 6:00pm-6:30pm
Additional stakeholder groups		
Singleton Chamber of Commerce	Online via Microsoft Teams	25 September 2020 1:00pm-2:00pm
Hunter Valley Gliding Club	Online via Microsoft Teams	23 September 2020 4:00pm-5:00pm
Singleton Clay Target Club	Online via Microsoft Teams	20 October 2020 3:00pm-4:00pm
Near neighbours x 20		
Landholders and identified near neighbours	Teleconference (phone or online)	September 2020-October 2020
Local community meetings		
Community Consultative Committee	Online via Webex	9 September 2020 1:30pm-3:30pm

Further to the activities outlined above, three community information sessions are scheduled for 26 November, 28 November and 3 December 2020 in Jerrys Plains, Maison Dieu and Long Point, respectively.

A community survey (Attachment A) was also administered, which posed questions to identify:

- awareness of and previous interactions with HVO;
- previous matters raised and satisfaction with HVO response;
- current awareness of the Project; and
- potential impacts and concerns related to the Project.

In addition, hard copies of the information sheet and survey were posted to allow residents without access to the internet to provide feedback and respond to the survey in writing. A total of 103 responses were received, including 18 hard copy responses.

3 Area of social influence

3.1 Identification of the area of social influence

The local area of social influence has been informed by ABS data, site visit, and previous social assessments of HVO. The area of social influence includes the ABS suburbs of Jerrys Plains, Maison Dieu, Camberwell and Long Point, within the LGAs of Singleton and Muswellbrook, being the regional area of social influence (refer to Figure 3.1).

3.2 Geographical

The suburbs of Jerrys Plains, Maison Dieu, Camberwell and Long Point are nearest to the Project area and are likely to be the communities with potential to be directly impacted by the Project. In addition, Singleton and Muswellbrook are the main hubs for community gathering and business activity closest to the Project area and will therefore be included as an impacted community.

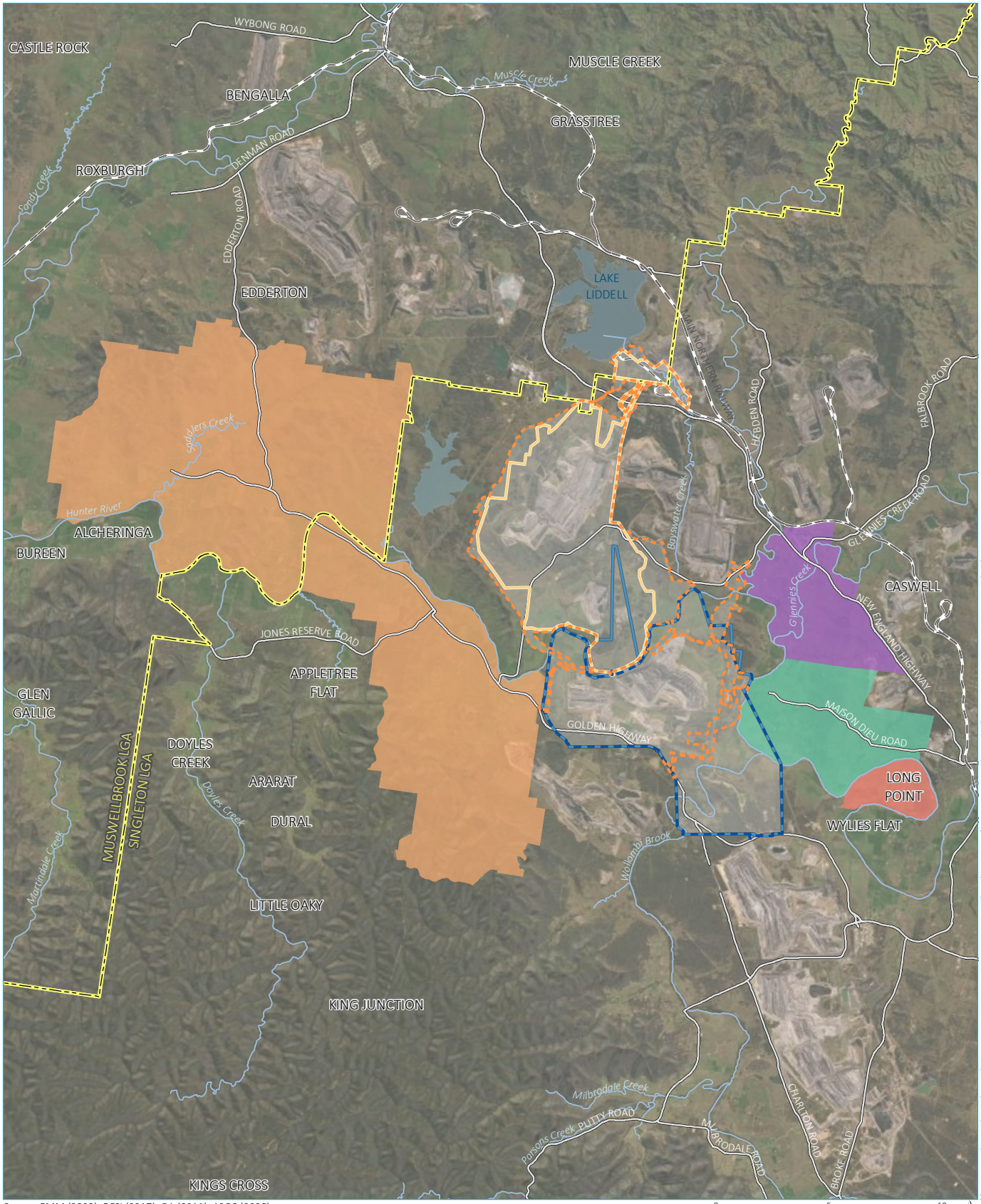
More broadly, the Singleton and Muswellbrook LGAs may also experience some direct and indirect impacts. Indirect impacts may also be felt throughout the Hunter Valley region and Newcastle generally, with these likely to be limited and mostly related to local procurement opportunities and employment.

3.3 Potentially directly affected people

Potentially directly impacted people include:

- residents of Jerrys Plains, Maison Dieu, Camberwell, and Long Point;
- residents of Singleton and Muswellbrook LGA;
- Aboriginal community members;
- landholders and nearby neighbours, including businesses;
- local business community; and
- current employees of the HVO Complex.

The SIA will also include data collected from the ABS geographical categories of Hunter Valley and Newcastle for comparison and to capture the indirect supply chain and employment impacts and benefits.



Source: EMM (2020); DFSI (2017); GA (2011); ASGC (2006)

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KEY

- HVO North proposed development consent boundary
- HVO South proposed development consent boundary
- Existing HVO North development consent boundary (DA 450-10-2003)
- Existing HVO South project approval boundary (PA 06-0261)
- Jerrys Plains SSC
- Mason Dieu SSC
- Camberwell SSC
- Long Point SSC
- Local government area
- Major road
- Rail line
- Named watercourse
- Named waterbody

Area of Social Influence

HVO Continuation Project
SIA scoping report
Figure 3.1

EMM
creating opportunities

Table 3.1 Locations within area of social influence mapped to ABS category

Location	ABS Category	Area of social influence
Jerrys Plains	Jerrys Plains SSC	Local area
Maison Dieu	Maison Dieu SSC	
Camberwell	Camberwell SSC	
Long Point	Long Point SSC	
Singleton	Singleton SSC	
Muswellbrook	Muswellbrook SSC	
Singleton LGA	Singleton LGA	Regional area
Muswellbrook LGA	Muswellbrook LGA	
Hunter Valley	Hunter Valley excluding Newcastle SA4	Broader regional area (for comparison and indirect impacts)
Newcastle	Newcastle SED	

Notes: SSC - State Suburb Code as defined by the Australian Bureau of Statistics

4 Community profile

4.1 Overview

This section provides a brief snapshot of the social conditions of the suburbs and broader region in which the Project will operate. The area of social influence for the Project has been identified as the suburbs of Jerrys Plains, Maison Dieu, Camberwell and Long Point locally, and Singleton and Muswellbrook LGAs regionally, as shown in Figure 3.1.

The demographics for the area of social influence have been mapped to the ABS geographical boundaries (Table 4.1).

Table 4.1 ABS categories within the area of social influence

Area	ABS data set
Jerrys Plains township (local area of social influence)	Jerrys Plains SSC
Maison Dieu township (local area of social influence)	Maison Dieu SSC
Camberwell township (local area of social influence)	Camberwell SSC
Long Point (local area of influence)	Long Point (Singleton – NSW) SSC
Singleton LGA (regional area of social influence)	Singleton LGA
Muswellbrook LGA (regional area of social influence)	Muswellbrook LGA

Notes: SSC – State Suburb Code as defined by the Australian Bureau of Statistics

4.2 Demographic profile

According to the ABS 2016 Census of Population and Housing, Jerrys Plains has a total population of 385 people, Maison Dieu has a population of 181 people, Camberwell has a population of 83 people, and Long Point has a population of 31 people. These comprise a total population of 680 people in the Project's local area of social influence (Table 4.2).

Table 4.2 Population 2016

Area	Population	Male (%)	Female (%)	Median age
Jerrys Plains SSC	385	51.3%	48.7%	35
Maison Dieu SSC	181	52.8%	47.2%	37
Camberwell SSC	83	50.0%	50.0%	37
Long Point SSC	31	69.2%	30.8%	35
Singleton LGA	22,987	50.9%	49.1%	36
Muswellbrook LGA	16,086	51.2%	48.8%	35
NSW	**7,480,228**	**49.3%**	**50.7%**	**38**

Source: ABS 2016, Census of Population and Housing: General Community Profiles

The area of social influence has a slightly lower median age than NSW (38), being 35 in Jerrys Plains, Long Point and Muswellbrook LGA, 36 in Singleton LGA, and 37 in Maison Dieu and Camberwell (ABS 2016). The proportion of males and females within the area of social influence is consistent with NSW except for Long Point which has a larger proportion of males. However, this may be due to its very small population.

Throughout the area of social influence, there is a much smaller proportion of persons aged 65 years and older compared to NSW. However, there is a higher proportion of persons aged 45 to 54, particularly in Jerrys Plains (16.6%) and Camberwell (22.9%). Due to the small populations within the identified suburbs, there exists substantial variation in the age distributions. A breakdown of the aged group distribution is presented in Table 4.3.

Table 4.3 Age group distribution, 2016

Age group	Jerry Plains	Maison Dieu	Camberwell	Long Point	Singleton LGA	Muswellbrook LGA	NSW
0 – 4 years	7.8%	4.4%	4.8%	0.0%	6.7%	7.7%	3.3%
5 – 14 years	14.3%	19.3%	10.8%	0.0%	14.4%	15.0%	12.3%
15 – 19 years	3.9%	12.2%	9.6%	9.7%	7.3%	6.1%	6.0%
20 – 24 years	6.2%	5.0%	3.6%	9.7%	6.4%	6.0%	6.5%
25 – 34 years	17.9%	15.5%	4.8%	0.0%	12.6%	14.1%	14.3%
35 – 44 years	14.5%	14.9%	7.2%	9.7%	13.3%	12.9%	13.4%
45 – 54 years	16.6%	11.0%	22.9%	19.4%	14.5%	14.1%	13.1%
55 – 64 years	13.2%	16.0%	4.8%	9.7%	12.0%	11.2%	11.9%
65 – 74 years	5.7%	8.3%	0.0%	19.4%	7.6%	7.9%	9.1%
75 – 84 years	2.3%	0.0%	0.0%	0.0%	3.7%	3.8%	5.0%
85 years and older	1.8%	0.0%	0.0%	0.0%	1.5%	1.2%	2.2%

Source: Source: ABS 2016, Census of Population and Housing: General Community Profiles

4.2.1 Aboriginal and/or Torres Strait Islander peoples

There is significant variation throughout the area of social influence in the proportion of persons who identify as Aboriginal and/or Torres Strait Islander. A large proportion of the population in Camberwell (20.5%) and Muswellbrook LGA (8.3%) identified as Indigenous compared to NSW (2.9%). In Jerrys Plains, Maison Dieu, and Camberwell there are significantly more Indigenous males compared to females (around 70% male and 30% female). This significant gap is not reflected in the distribution of males and females in Singleton LGA and Muswellbrook LGA, which is consistent with NSW (Table 4.4).

Table 4.4 Summary Indigenous status

Area	Indigenous population	Indigenous population % total	Male (%)	Female (%)	Median age
Jerrys Plains SSC	11	2.9%	71.4%	28.6%	9
Maison Dieu SSC	13	7.2%	75.0%	25.0%	23
Camberwell SSC	17	20.5%	72.2%	27.8%	n.a.
Long Point SSC	0	0.0%	0.0%	0.0%	n.a.
Singleton LGA	1,302	5.7%	50.0%	50.0%	21
Muswellbrook LGA	1,342	8.3%	50.8%	49.2%	20
NSW	216,176	2.9%	49.7%	50.3%	22

Source: ABS 2016, Census of Population and Housing: General Community Profiles

The Indigenous population's smaller median age, which indicates a smaller proportion of the population (both males and females) living beyond 65 years, aligns with the lower life expectancy among Indigenous Australian's nationally.

4.2.2 Employment

The workforce participation rate in Jerrys Plains (67.2%) is higher than the NSW rate (59.2%), while the rate in Maison Dieu is comparable (58.7%) and the rate in Camberwell is much lower (49.2%).

Unemployment is very low in Jerrys Plains (1.5%) and Maison Dieu (3.6%). However, the unemployment rate in Camberwell is much higher (9.7%). Youth unemployment across Jerry Plains, Maison Dieu and Camberwell is nil compared to Singleton (11.7%), Muswellbrook (17.3%) and NSW (16.1%), while the unemployment rate across Singleton LGA (6.1%) is relatively even with NSW. The unemployment and labour force participation rates are presented in Table 4.5.

Table 4.5 Unemployment and labour force participation rates, 2016

Area	Unemployment rate	Youth unemployment rate	Labour force participation rate (15 years and older)
Jerrys Plains SSC	1.5%	0.0%	67.2%
Maison Dieu SSC	3.6%	0.0%	58.7%
Camberwell SSC	9.7%	0.0%	49.2%
Long Point SSC	0.0%	0.0%	56.7%
Singleton LGA	6.1%	11.7%	63.6%
Muswellbrook LGA	8.2%	17.3%	58.9%
NSW	6.3%	13.6%	59.2%

Source: ABS 2016, Census of Population and Housing: General Community Profiles

The most common industry providing employment is mining, which is the top industry of employment in Maison Dieu (21.4%), Camberwell (25.0%), Singleton LGA (23.4%), and Muswellbrook LGA (21.9%) and the second largest in Jerrys Plains (10.1%). The top industry of employment in Jerry Plains is agriculture, forestry, and fishing (45.5%). Other top industries of employment in the local and regional areas of social influence include:

- accommodation and food services;
- administrative and support services;
- retail trade;
- health care; and
- social assistance.

The top industries of employment in the area of social influence are summarised in Table 4.6.

Table 4.6 Top three industries of employment 2016

	Top Industries					
	First		**Second**		**Third**	
Jerrys Plains SSC	Agriculture, Forestry and Fishing	45.5%	Mining	10.1%	Administrative and Support Services	7.1%
Maison Dieu SSC	Mining	21.4%	Agriculture, Forestry and Fishing	15.5%	Accommodation and Food Services	10.7%
Camberwell SSC	Mining	25.0%	Retail Trade			10.7%
			Accommodation and Food Services			10.7%
			Administrative and Support Services			10.7%
Long Point SSC	Mining	33.3%	Agriculture, Forestry and Fishing			20.0%
			Public Administration and Safety			20.0%
			Education and Training			20.0%
Singleton LGA	Mining	23.4%	Health Care and Social Assistance	7.7%	Accommodation and Food Services	7.6%
Muswellbrook LGA	Mining	21.9%	Retail Trade	8.8%	Health Care and Social Assistance	8.2%

Source: ABS 2016, Census of Population and Housing: General Community Profiles

The most common occupations in the area of social influence are technicians and trades workers, machinery operators and drivers, professionals, and labourers.

4.2.3 Local business

In 2018, there were 2,038 registered businesses in Singleton LGA and 1,018 registered businesses in Muswellbrook LGA. Of these, 36.0% of businesses in Singleton LGA and 33.5% of businesses in Muswellbrook LGA employed fewer than 20 people. In addition to this, 61.9% in Singleton LGA and 59.0% in Muswellbrook were non-employing (ABS 2018). Only 2.3% of businesses in Singleton LGA and 2.8% of businesses in Muswellbrook LGA employed more than 20 employees.

The highest percentage of registered businesses in Singleton LGA were in the industries of agriculture, forestry, and fishing (26.6%) and construction (12.6%). Muswellbrook is similar with 29.4% in agriculture, forestry, and fishing and 10.4% in construction.

4.2.4 Vulnerable groups

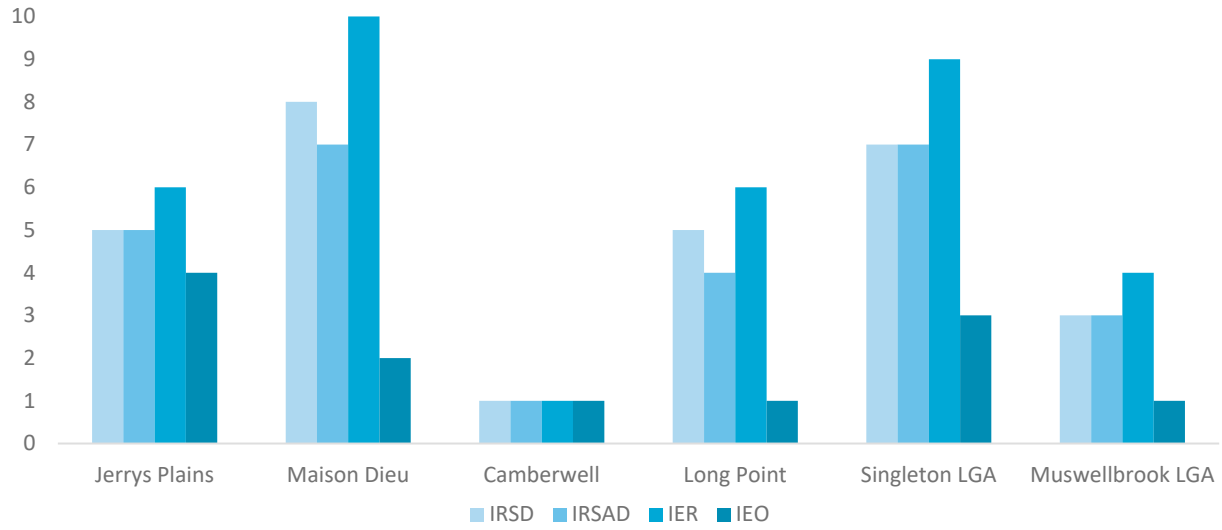
To determine the potential vulnerable groups in the area of social influence (ie the study area), the Socio-Economic Indexes for Areas (SEIFA), rates of homelessness, and persons with a disability is considered throughout the study area.

i Socio-economic Indexes for Areas

The level of disadvantage or advantage in the population is indicated in the SEIFA, which focuses on low-income earners, relatively lower education attainment, high unemployment and dwellings without motor vehicles. SEIFA is a suite of four summary measures created from Census data, including:

- the Index of Relative Socio-Economic Disadvantage (IRSD);
- the Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD);
- the Index of Education and Occupation (IEO); and
- the Index of Economic Resources (IER).

Figure 4.1 demonstrates the rankings of the communities within the study area for each of the four summary measures.



Source: ABS 2016, 2033.0.55.001 – Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA)

Each index is a summary of a different subset of Census variables and focuses on a different aspect of socio-economic advantage and disadvantage. Low rankings are deemed most disadvantaged and high rankings least disadvantaged within a decile ranking system where the lowest 10% of areas are given a decile number of 1 and the highest 10% of areas are given a decile number of 10.

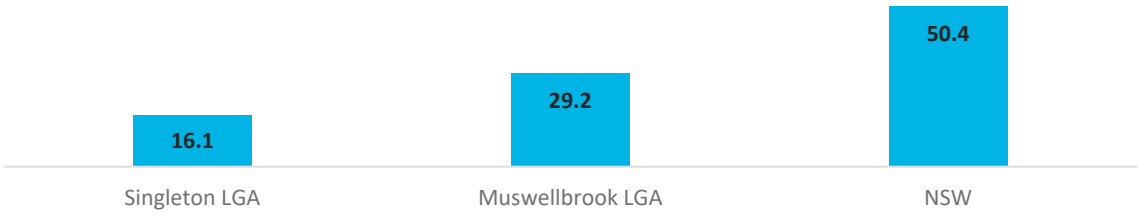
Figure 4.1 SEIFA deciles in the area of social influence, 2016

Throughout the area of social influence, the ranking for the IEO is less than 5, indicating that it is less than the average IEO ranking throughout NSW. This likely means that the study area has fewer people with qualifications or in highly skilled occupations.

According to the 2016 SEIFA, Camberwell experiences the highest levels of disadvantage in the area of social influence, as well as compared to the rest of NSW as all of its indexes rank in the 1st (lowest) decile. The SEIFA also indicates that Muswellbrook LGA experiences higher levels of disadvantage compared to other LGAs of NSW.

ii Homelessness

Rates of homelessness according to the 2016 Census are not available at the SSC level , but are available at the LGA level (Singleton and Muswellbrook). Homelessness rates (per 10,000 persons) in the regional area of social influence and NSW are presented in Figure 4.2.



Source: ABS 2016, 2049.0 – Census of Population and Housing: Estimating Homelessness

Figure 4.2 Rates of homelessness per 10,000 persons, 2016

There is an indication of a small homeless population in Singleton LGA and Muswellbrook LGA, with rates of homelessness of 16.1 and 29.2 homeless persons per 10,000 persons. These rates are much smaller than the rate for NSW (50.4 per 10,000 persons).

iii Disability

There is some variation within the local area of social influence in the proportion of the population living with a disability. In Jerrys Plains and Maison Dieu, 3.4% and 2.8% of persons (respectively) identify as having a need for assistance. This is less than the NSW proportion (5.4%). However, a significantly higher proportion of persons in Camberwell have a need for assistance (9.6%).

4.2.5 Health

Singleton LGA and Muswellbrook LGA are serviced by the NSW Ministry of Health Hunter New England Local Health District (LHD). The life expectancies as of 2017 in Singleton LGA (82.3 years) and Muswellbrook LGA (81.6 years) are slightly lower than the NSW average (83.6 years). From 2016-2018, smoking attributable hospitalisations in Singleton LGA (703.1 persons per 100,000) and Muswellbrook LGA (796.5 persons per 100,000) were greater than NSW rates (646.7 persons per 100,000). Rates of attributable hospitalisations for high body mass, intentional self-harm, and asthma in Singleton LGA and Muswellbrook LGA also exceeded the NSW rates. However, hospitalisation rates attributable to alcohol were less in the study area. The rates of various health indicators per 100,000 people in the regional area of social influence are presented in Table 4.7.

Table 4.7 Health indicators summary, rate per 100,000 persons, 2016-2018

	Singleton LGA	Muswellbrook LGA	NSW
Smoking attributable hospitalisations	703.1	796.5	646.7
High body mass attributable hospitalisations	801.1	783.2	722.0
Alcohol attributable hospitalisations	465.2	489.3	555.6
Intentional self-harm hospitalisations	96.0	132.7	100.0
Asthma hospitalisations	167.0	153.5	146.1

Source: NSW Ministry of Health 2019, *HealthStats NSW*

4.3 Community profile summary

There is some variation in the social conditions within the local area of social influence that includes the townships of Jerrys Plains, Maison Dieu, Camberwell and Long Point. The 2016 ABS data shows that Camberwell township experienced greater levels of disadvantage compared to the neighbouring townships in the local area, regional area, and NSW. Disadvantage in Camberwell township is identified through low levels of employment, high need for assistance and the lowest possible SEIFA score as all its indexes rank in the 1st (lowest) percentile. Camberwell has a significantly high percentage of Aboriginal and/or Torres Strait islander residents at 20.5% of the population. It is relevant to note that Camberwell has a small population of only 83 people of a total 680 people in the local area of social influence. Jerrys Plains and Maison Dieu maintain employment levels that are comparable to NSW and have a significantly lower need for assistance than NSW.

The regional area of social influence including Singleton and Muswellbrook LGAs also shows some variation in social conditions. Employment levels are stronger in Singleton and almost equivalent in Muswellbrook compared to NSW. However, Muswellbrook SEIFA decile scores indicate higher levels of disadvantage than other LGAs in NSW, while Singleton has a relatively low level of disadvantage. The mining industry sector has the highest level of employment in the area of social influence, except for Jerrys Plains township where agriculture is the dominant industry of employment, followed by mining. Within the regional area, 23.4% of people in Singleton and 21.9% of people in Muswellbrook are employed in the mining industry. The next dominant industries of employment in the regional area of social influence are health care & social assistance, retail trade, and accommodation and food services. This data is consistent with the SEIFA Index of Education and Occupation which ranked in the 1st (lowest) percentile in Muswellbrook LGA and in the 3rd (below average) percentile in Singleton LGA.

5 Outcomes of SIA engagement and issue identification

This section summarises the findings of the engagement activities. The consultation had two objectives:

1. provision of information about:
    - the Project;
    - the EIS process; and
    - opportunities for the community/stakeholders to provide feedback on the Project and the EIS.
2. identification of community and stakeholder concerns for the Project.

5.1 Summary of SIA scoping engagement

The identified community and stakeholders identified a range of issues that are summarised in Table 5.1.

Table 5.1 Community stakeholder identified issues

Issues	Singleton SC	Muswellbrook SC	CCC	Landholders & nearby neighbours	Community Survey
Realignment of Lemington Road	✓	✓	✓	✓	✓
Dust, and air quality impacts	✓	✓	✓	✓	✓
Rehabilitation and final landform	✓	✓		✓	✓
Environmental impacts (general)	✓	✓		✓	✓
Water quality		✓		✓	✓
Community well-being		✓		✓	✓
Noise				✓	✓
Visual amenity		✓		✓	
Health impacts				✓	✓
Employment				✓	✓
Vibration				✓	✓
Property values				✓	✓
Water management and monitoring				✓	
Anti-coal mining sentiment					✓

5.1.1 Stakeholder interviews

From stakeholder consultation key issues and potential impacts regarding the Project were identified. Across all forms of engagement, issues concerning dust and air quality were frequently raised. This was most frequently raised as a concern by participating near neighbours and landholders who reported experiencing dust impacts from existing operations in the local area. Those with underlying health conditions also reported concerns that dust and poor air quality further complicates their health. Therefore, concerns were frequently raised on whether or not extended operations would exacerbate existing dust generation levels affecting air quality.

Noise and vibration as a result of blasting from local operations was also recognised as a key issue. Many stakeholders shared concern over the potential for structural damage to their homes should mining continue long term and with other recent mine approvals, as they already experience effects from blasting as well as general discomfort associated with noise. Despite this, landholders and near neighbours were generally supportive towards the Project.

The realignment of Lemington Road and its potential to impact public safety, traffic, travel time and everyday life was frequently mentioned by local residents, particularly those in Maison Dieu. The most frequently raised concern regarding the realignment by residents related to increased travel time within the local area and its impact on emergency service routes.

5.1.2 Community survey

A community survey was distributed to local residents and was made available online to the broader public. A total of 103 responses were received with:

- 50 from local residents;
- 6 from regional area; and
- 46 from interstate or overseas.

An analysis of the 103 responses shows a high anti-coal mining sentiment with 64% of respondents opposed to the Project, 4% neutral and 32% in support. However, when analysing the data by location; ie, respondents residing within the area of social influence versus those outside the area of social influence, support for the Project differed significantly. Of the 50 respondents within the area of social influence, 54% indicated they were supportive of the Project, 6% were neutral and 40% opposed (see Figure 5.1). This corresponds with the consultation with landholders and near neighbours, where most stakeholders were in support of the Project. Therefore, the anti-coal mining sentiment is most evident with respondents who are located outside of the area of social influence.

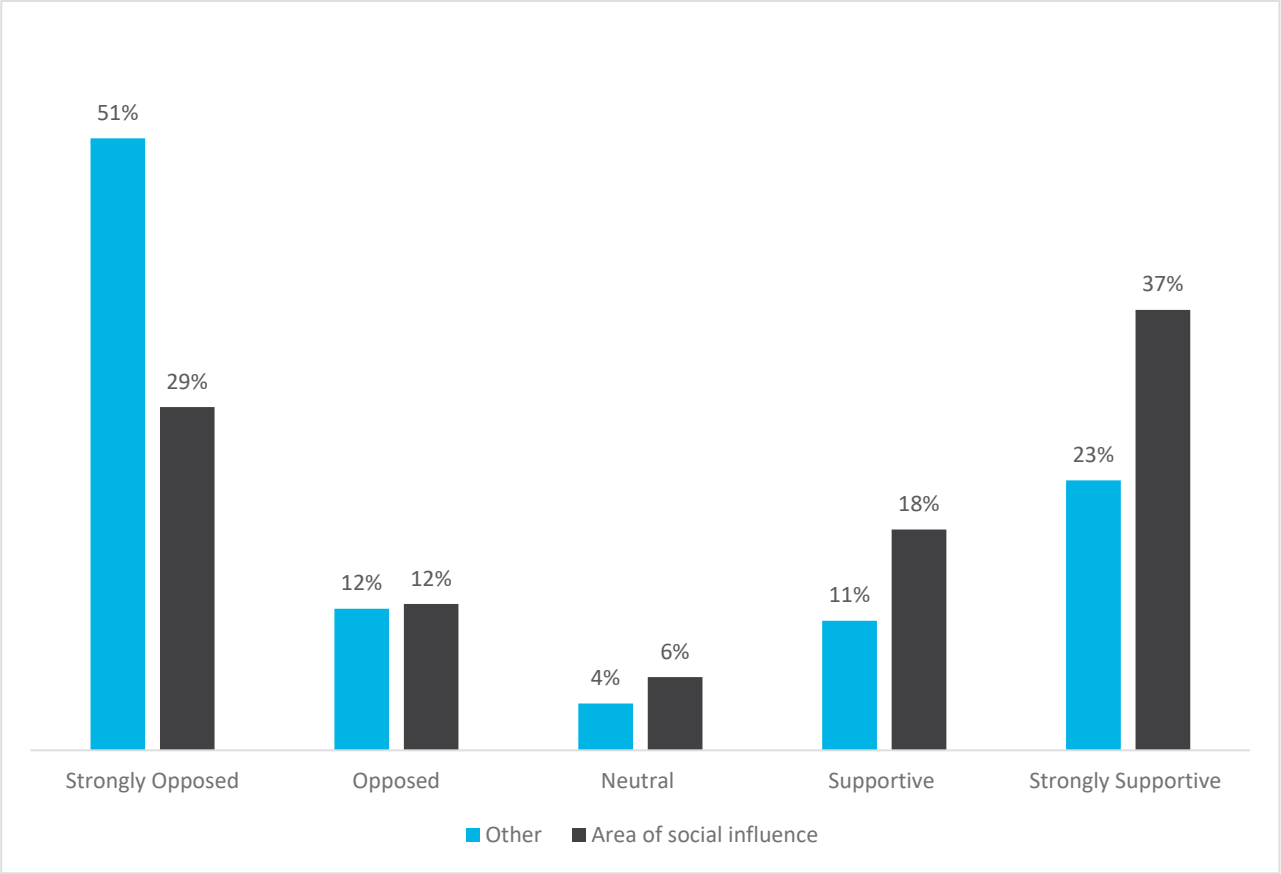


Figure 5.1 On-line Survey – Support for the proposed Project

Respondents to the survey within the local area of social influence identified air quality (40%), cumulative mining impacts (34%), climate change (32%), and land management (32%) as key negative impacts. Respondents also expressed concerns over the air and water quality as well as the health of the Hunter River.

Overall, the key positive impact associated with the Project related to employment opportunities. The majority of the stakeholders felt that continuity of employment is beneficial for the local area and residents. Results from the community survey (Figure 5.2) shows that employment was rated as the most positive impact (42%) by the local community, followed by benefits for small businesses (32%), property prices (18%) and access to social infrastructure (18%). Comments were also made regarding the benefits and general support (through infrastructure, community grants, etc.) that the local community receives from the mining industry, and the potential for the Project to provide continued employment, training opportunities and support for local businesses.

For a summary of the survey results see Attachment B.

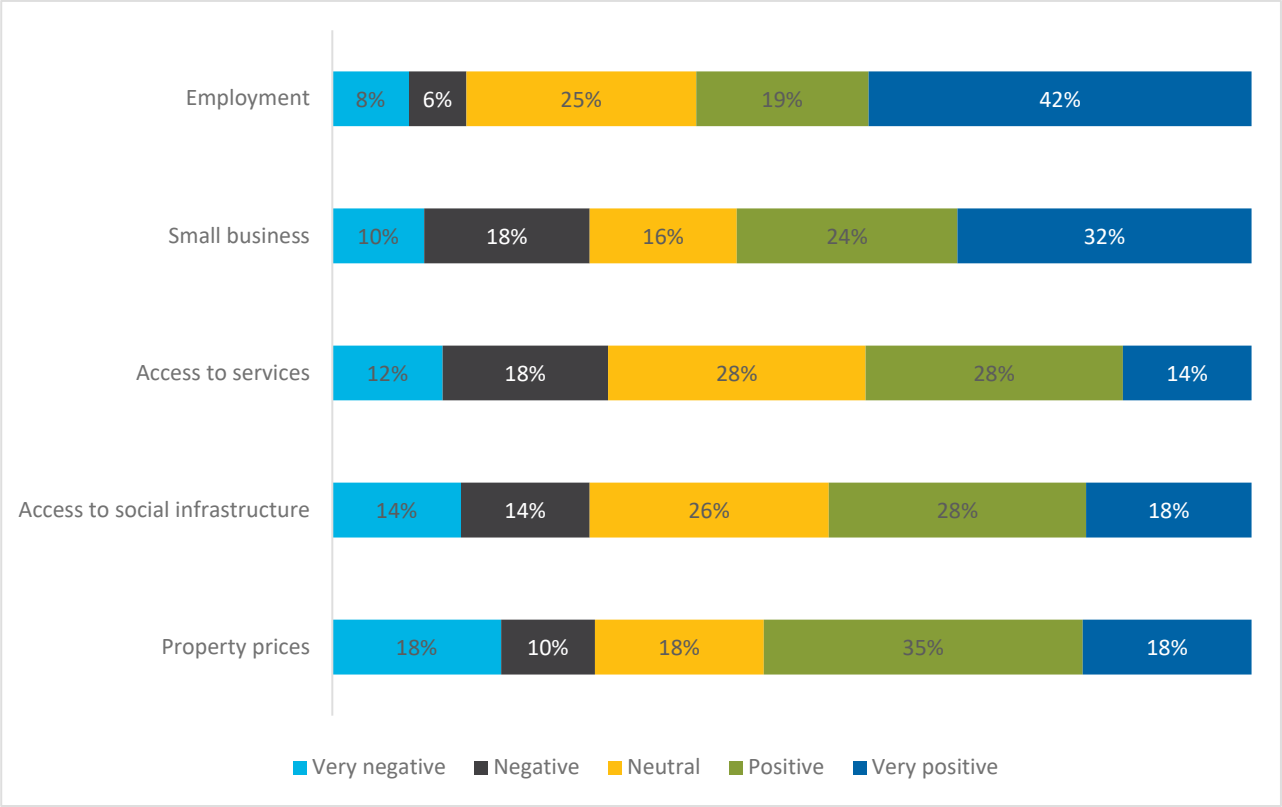


Figure 5.2 On-line Survey – impacts associated with large mining developments

5.2 Previously raised issues at HVO

The issues previously raised by stakeholders in relation to HVO are documented in Table 5.2. It is noted that the issues raised relating specifically to HVO North during previous planning approval processes, where modifications to the operations were sought, have reduced over time, with a total of 61 community raised issues in 2013 and nil in 2016 and 2017 for minor modifications. The reduction in community raised issues may be related the nature of the modifications previously sought and is not necessarily reflective of level of concerns held by the community.

Table 5.2 Previously raised community issues at HVO

Approval number	Issue date	Number of submissions	Issues raised
HVO North			
Modification 1	August 2005	No record of submissions	No record of submissions
Modification 2	June 2006	**6 Total** 1 x Landholder 5 x Agency	dust, noise visual and cumulative impacts loss of residential amenity property values requirement for appropriate groundwater barriers groundwater seepage public road maintenance

Table 5.2 Previously raised community issues at HVO

Approval number	Issue date	Number of submissions	Issues raised
Modification 3	March 2013	**74 Total** 61 x Community 10 x Special interest groups 3 x Agency	permanent destruction of alluvial floodplain and groundwater system resulting in a loss of base flows to the river; environmental integrity of the river systems and interconnectivity of groundwater to surface water; water quality - high salinity and contamination of water; rehabilitation to support cropping and farming activity; flooding; socio-economic impacts to agricultural industry; unacceptable greenhouse gas emissions; air quality from increased dust at Jerrys Plains and surrounds; health impacted from poor air quality; health impacts not adequately assessed; and land use conflicts.
Modification 4	January 2014	**7 Total** 1 x Special interest group 6 x Agency	flood risk; ecological survey methodology; and compensatory actions for threatened biodiversity.
DA 450-10-2003 Modification 5	9 December 2016	**6 Total** Nil x Community 6 x Agency	Aboriginal cultural heritage management; communications tower and power lines; enlargement of Sediment Basin near Bayswater Creek and removal of 0.14 ha of native Swamp Oak vegetation; groundwater interception;
Modification 6	25 January 2017	**4 Total** Nil x Community 4 x Agency	final landform water licencing; water management and monitoring; and sustainable rehabilitation.
Modification 7	28 July 2017	Nil	Nil

Table 5.2 Previously raised community issues at HVO

Approval number	Issue date	Number of submissions	Issues raised
HVO South			
Modification 1	17 December 2009	**4 Total** Nil x Community 4 x Agency	structural integrity of Lake James Dam; surface and groundwater impacts; noise; air quality/dust; terrestrial and aquatic flora and fauna impacts; Aboriginal heritage; visual impacts to surrounding residential; and rehabilitation to include Lake James.
Modification 2	3 February 2012	**14 Total** 12 x Community 2 x Agency	the adequacy of the ecology assessment within the Environmental Assessment including an assessment against offsetting principles and the value of the Goulburn River Biodiversity Area; increased dust; rehabilitation; matters relating to *the Environment Protection and Biodiversity Conservation Act 1999* [EPBC Act]; lack of community consultation; and administrative issues.
Modification 3	31 October 2012	**14 Total** 13 x Community and special interest groups 1 x Agency	reallocation of the Archerfield biodiversity offset area to the Goulburn River offset area related to: the ecological character of the Goulburn River offset area is different to the Archerfield offset area; the Goulburn River offset area is not adequate; and the 'trading' of offset areas is inappropriate.
Modification 4	31 October 2012	**14 Total** 13 x Community and special interest groups 1 x Agency	all submissions either objected to or raised concerns in relation to the reallocation of the Archerfield biodiversity offset area.

Table 5.2 Previously raised community issues at HVO

Approval number	Issue date	Number of submissions	Issues raised
Modification 5	28 February 2018	**45 Total** 32 Individuals 6 x Special interest groups 7 x Agency	increased noise, dust, blasting, visual amenity and health impacts; increased size of the final void and its function as a perpetual groundwater sink; additional groundwater drawdown and potential impacts to groundwater dependent ecosystems; increased mine water discharges into the Hunter River Cumulative impacts to the Hunter region; uncertainty surrounding flow-on public benefits; and increased greenhouse gas emissions.

5.3 Summary

Based on the issues raised previously for HVO as documented above in Table 5.2, and from other similar projects in the coal mining sector, the following potential stakeholder issues relating to the Project have been identified.

HVO-specific concerns:

- property prices and livelihoods, particularly for those businesses in Jerrys Plains;
- noise exceedances and dust especially for landholders and nearby neighbours;
- impacts to visual amenity and the aesthetic value of land, particularly in Maison Dieu and along the realigned Lemington Road, and possibly to the south-west in Jerrys Plains if overburden emplacement areas were to be raised;
- rehabilitation and final landform not optimal with large voids in proximity to the Hunter River, and potential views of overburden emplacement areas; and
- increasing rise in activism and community influence creates a risk to HVO's social licence to operate.

Broader community concerns:

- increasing anti-coal mining sentiment in some parts of the community;
- activism is no longer only local and regional, but from interstate and international communities. These communities are not only geographic in nature but are special interest focused and disbursed;
- special interest groups are more organised and connected than they have ever been due to social media;
- activism has seen projects being held up for considerable lengths of time and costing companies time and money. For example, in 2014, community conflict was estimated to incur costs of roughly US$20 million per week for mining projects valued between US$3 billion and US$5 billion;[1]
- community's ability to have their say in the decision-making systems;
- issues with projects are being referred to in terms of human rights and the right to clean air and water, and aligning global issues to local projects, such as Scope 3 greenhouse gas emissions; and
- fears and aspirations related to a combination of the above potential impacts and how they affect the future of the community.

[1] Franks, D,M. et al., 2014. Conflict translates environmental and social risk into business costs. Available on-line https://www.csrm.uq.edu.au/media/docs/602/Franks_etal_PNAS_full.pdf

While sentiments toward mining generally have shifted since the commencement of the HVO operations there is an indication, as shown in Table 5.2, that HVO is generally accepted by the local community. It is also noted that the anti-mining sentiment is louder from interested groups outside the area of social influence than inside as evidenced in the survey results show in Section 5.1.2.

Overall, the stakeholder engagement found that air quality is a key issue for local stakeholders as they currently experience issues of dust generation as a result of existing operations. Further concerns were raised regarding vibration and noise impacts as well as the realignment of Lemington Road. Despite the results of the on-line survey consisting of a high anti-mining sentiment, it was found that the majority of the participants in the stakeholder interviews support the proposed Project, with comments made regarding how the Project could provide continuity of employment and ongoing support for the local community and economy.

As additional issues are raised, they will be documented in the EIS issues register and managed and monitored accordingly.

6 Proposed SIA scope

This section proposes the scope of the SIA as part of the EIS for the Project.

6.1 Potential social impacts

A preliminary set of potential impacts and benefits of the Project has been identified based on the scoping assessment, including the outcomes of the community survey, community and stakeholder engagement and observations of the local community and Project area. The purpose of identifying potential impacts and benefits at this preliminary stage is to ensure the EIS preparation focusses on:

- the potential social impacts identified by, and of greatest concern, to the community;
- an appropriate range of stakeholders, and that affected groups or individuals are included in the SIA engagement activities.

Potential negative impacts that have been identified requiring further assessment and likelihood of potential positive social impacts is detailed in Table 6.1 below and a full risk assessment is provided in Attachment C.

Table 6.1 Identified potential social impact mapped to matters, positive and negative

Potential social impacts	Matter - negative related to:	Matter - positive related to:
Health and well-being **Way of life** **Fears and aspirations**	Reduction in air quality due to the cumulative and ongoing dust generation affecting air quality. Water quality – dust in tank water. Increased travel times due to realignment of Lemington Road. Vibration due to blasting damaging properties will cause stress.	Ongoing sustainable employment and procurement will reduce stress.
Livelihood **Fears and aspirations**	Reduction in property prices due to ongoing mining, noise and vibration, and dust generation. Rehabilitation and final landform. Visual amenity.	The continued operation of the mine will provide ongoing employment and supply valuable resources. Employment and training. Local economy and businesses. Rehabilitation and final landform.
Surrounding – public safety **Access to and use of infrastructure, services, and facilities** **Fears and aspirations**	Potential for delayed response times for emergency services due to realignment of Lemington Road. Residents of Jerrys Plains would have further to travel to access services due to realignment of Lemington Road. Rehabilitation and final landform.	Bridge height (Lemington Road crossing) lifted to 1 in 10-year flood event will improve access to services during flood events. Continued operations will contribute to maintaining the population and support continuation of social infrastructure such as schools, health services and recreational groups and facilities.
Decision-making systems	Anti-mining sentiment related to climate change	Strong support for the project within the area of social influence

6.2 Proposed methodology

The SIA will be led by a suitably qualified Social Scientist who will adopt the methodology illustrated in Figure 6.1 and will use social science methods and tools for the collection of qualitative and quantitative data.

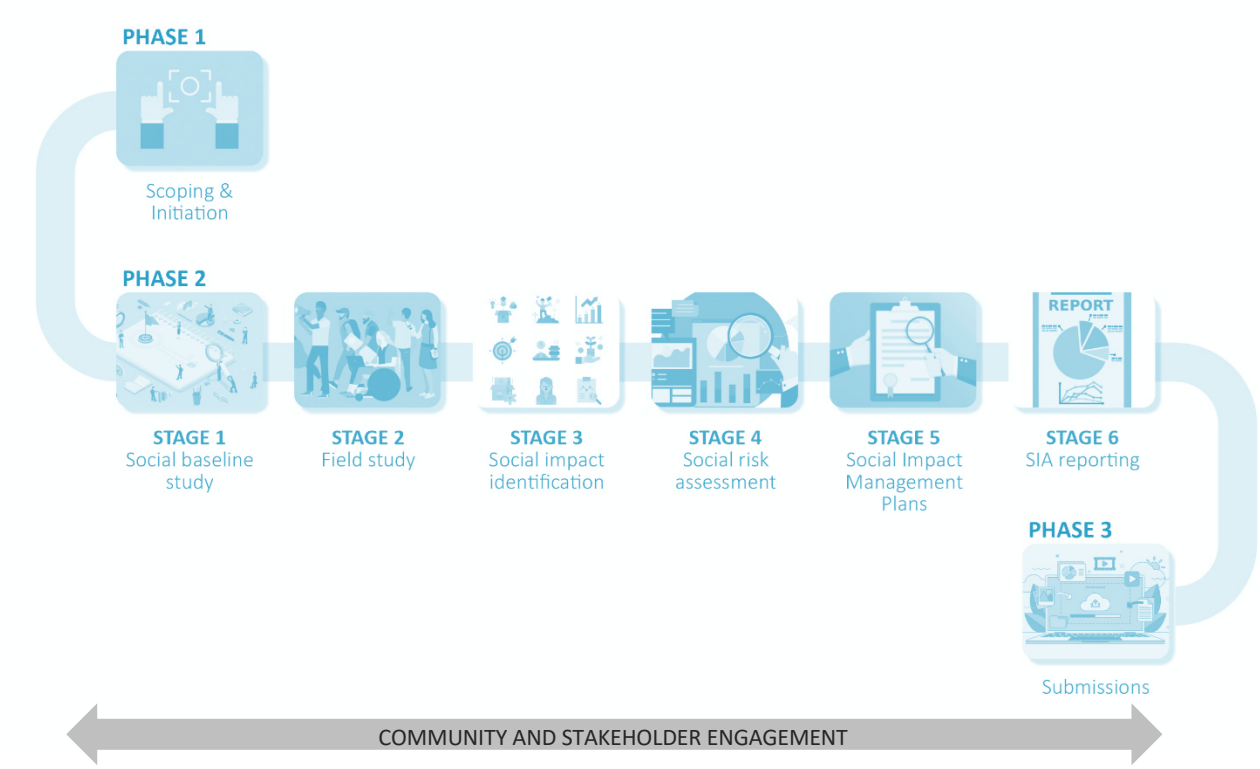


Figure 6.1 SIA Methodology

The identification of social impacts will be informed by community and stakeholder engagement activities and conducted in an integrated manner to ensure consistency, reduce duplication, and allow for management of consultation fatigue. In addition, findings from the technical assessments will be considered to understand the consequences to the community and existing research and previous SIAs will inform the identification of the social impacts.

Potential social impacts and benefits will then be assessed using the risk matrix presented in Table 6.2.

EMM creating opportunities

Risk rating methodology for SIA *

SIA definitions	Positive Consequences (Benefits)				Negative Consequence (Impacts)					SIA definitions
Extent of the benefit (people & geography)	The local, regional and potentially the national economy will benefit significantly. Improvements on social services and/or social cohesion.	The local and regional economy will benefit. Improvements on social services.	The local economy will benefit. Improvements on social services.	Marginal improvements/ contribution to local economy. Marginal improvements/ contribution to social services and/or social cohesion.	No or negligible socioeconomic impact.	Socioeconomic impact that will take small effort to restore and does not threaten livelihood. No exogenous resources are required for the recovery.	Socioeconomic impact will require minimal additional external resources to recover.	Socioeconomic impact will depend on reasonable amount of external resources to recover.	Socioeconomic impact will depend on significant external resources to recover and may not be back to how it was before the impact.	Level of impact
Cumulative duration the benefit is experienced	Benefits will realise in the short term and will be permanent	Benefits will realise in the short to medium term and may or may not be permanent	Benefits will realise in the medium to long term and are not permanent	Benefits will realise in the short term and are not permanent	Short timeframe impact on livelihood or liveability.	Impacts on the livelihood or liveability are limited to the life of the project.	Impacts on livelihood and/or liveability will survive the life of the project.	Impacts on livelihood and liveability could survive long after the life of the project or can be permanent.	Impacts on livelihood and liveability survive long after the life of the project and are permanent.	Cumulative duration the impact is experienced

Note: Sections shaded in grey need to be customised for each discipline, currently these are for SIA.

Likelihood		4 Highly Desirable	3 Desirable	2 Minor	1 Minimal	1 Negligible	2 Marginal	3 Moderate	4 Major	5 Intolerable
Has occurred in the past in this project (or operation) or in similar project OR circumstances could cause it to happen during the project (or operation).	5 Almost certain	Significant (15)	Significant (12)	Moderate (8)	Limited (5)	Low (6)	Medium (8)	High (12)	Unacceptable (16)	Unacceptable (16)
Has occurred in the life of this project (or similar project*) or in the last few years of operations or circumstances could cause it to occur again in the short term.	4 Likely	Significant (14)	Significant (11)	Moderate (7)	Limited (4)	Negligible (4)	Low (7)	Medium (10)	High (14)	Unacceptable (16)
Has occurred at least once in this project or a similar project (or in the history of this operation).	3 Possible	Significant (13)	Significant (10)	Moderate (6)	Limited (3)	Negligible (3)	Low (6)	Medium (9)	High (13)	Unacceptable (16)
Has never occurred in this project (or operation) but has occurred at other similar projects (operations) with similar risk/benefit profile.	2 Unlikely	Significant (12)	Moderate (9)	Limited (5)	Limited (2)	Negligible (2)	Low (6)	Medium (8)	Medium (11)	Unacceptable (16)
Is possible, but has not occurred to date in this project or similar projects.	1 Rare	Significant (11)	Moderate (8)	Limited (4)	Limited (1)	Negligible (1)	Negligible (5)	Low (7)	Medium (10)	High (15)

Maximise benefit ← Aim → Minimise impact

Benefit assessment and enhancement plan

Promote actions and /or design that realises the benefit with limited inputs. Investigate whether changes in the implementation/design can make the benefit 'moderate' or 'significant'	Limited (1-5)
Actively promote actions and/or design that realises the benefit. Investigate whether changes in the implementation/design can make the benefit 'significant'	Moderate (6-9)
Actively promote and prioritise actions and/or design that realises the residual benefit.	Significant (10-15)

Short term __ months/years
Medium term __ months/years
Long term __ month/years

Residual risk assessment and mitigations plan

No major concern - systems and processes managing risks are adequate	Negligible (1-5)	Low (6-7)
Periodic monitoring - improve controls or monitor risk to ensure residual rating does not increase	Medium (8-11)	
Continuous review - confirm adequacy of controls and continued monitoring to maintain or reduce risk	High (12-15)	
Active management - urgent treatment required to allow project to proceed	Unacceptable (16)	

Table 6.2 Impact and benefit risk matrix

Attachment A

Community survey

Hunter Valley Operations Continuation Project Community Survey

Introduction

Hunter Valley Operations (HVO) is a well-established open cut mining complex, where operations commenced approximately 70 years ago. HVO is located north-west of Singleton in the Hunter Valley. HVO consists of two mine sites: HVO North and HVO South. While the two mine sites are approved under separate development consents, they are operated as one site, known as the HVO Complex with fully integrated operational and environmental management systems.

HVO is a Joint Venture (HVO JV) between Yancoal Australia Ltd and Glencore. Glencore is providing operational and support services to the HVO JV.

HVO Existing Operations

HVO has approval to mine up to 22 million tonnes per annum of coal from HVO North and 20 million tonnes per annum of coal from HVO South. Existing approvals allow for mining activities to occur up to 2025 at HVO North and to 2030 at HVO South. Mining at the HVO Complex is undertaken using dragline and truck and shovel mining methods. Coal is currently processed at the Hunter Valley and Howick Coal Preparations Plants, with product coal predominantly transported via rail to the Port of Newcastle.

What is the Project?

The HVO Continuation Project aims to recover further coal resources within the mining tenements at HVO while balancing social, environmental, and economic outcomes.

Since the HVO JV took ownership of the mine they have been reviewing and optimising mine designs for the recovery of coal resources that are economically viable. These early reviews included pre-feasibility studies, mine planning, exploration and preliminary environmental assessments.

As a result of these reviews, opportunities were identified to extend the life of the mine at HVO North from 2025 to 2050 and from 2030 to 2045 at HVO South, providing ongoing employment to HVO's workforce of around 1,500 people and other economic benefits through the payment of royalties, Council contributions, community sponsorships and use of local businesses/services.

The HVO Continuation Project at HVO North will primarily involve recovery of coal from deeper seams in previously mined areas. The optimised mine design for HVO North also provides an opportunity to incorporate contemporary natural landform design elements into the final landform and reduce the number of approved final voids.

At HVO South, changes to the life of mine are proposed to facilitate improved mine sequencing. In rationalising the mine design for HVO South, the Project is also proposing to surrender some mining areas that are approved but yet-to-be disturbed. As a result, the overall approved mining extent at HVO South will be reduced.

Some changes to existing infrastructure will also be required to facilitate the HVO Continuation Project, such as the realignment of power and telecommunication lines and the realignment of a section of Lemington Road. Improvements to existing ancillary mine infrastructure will also be made inclusive of upgrades to mine infrastructure areas, coal preparations plants and rail load out facilities.

For more information visit the HVO Continuation Project website.

Purpose

EMM Consulting Pty Ltd has been engaged by the HVO JV to prepare an Environmental Impact Statement (EIS) for the Project, including assisting with the Community Engagement Program and Social Impact Assessment. The survey identifies the potential social impacts and community concerns about the Project for further investigation during the EIS. The results will inform the scoping report to ensure that community concerns are addressed in the EIS.

1. Have you had any previous communications with the Hunter Valley Operations?

- [ ] Yes
- [ ] No

2. If yes, what was the topic of discussion?

3. How would you rate your awareness of the proposed HVO Continuation Project?

Very poor	Poor	Fair	Good	Very good
○	○	○	○	○

4. How do you feel about the proposed HVO Continuation Project?

Strongly Opposed	Opposed	Neutral	Supportive	Strongly supportive
○	○	○	○	○

Why do you feel this way?

5. Below is a list of potential impacts (positive and negative) that are commonly associated with large mining projects.
Consider each potential impact and rate the **potential impact** of the proposed HVO Continuation Project on the local community.

	Very negative	Negative	Neutral	Positive	Very positive
Aboriginal cultural heritage	○	○	○	○	○
Access to housing	○	○	○	○	○
Access to services	○	○	○	○	○
Access to social infrastructure	○	○	○	○	○
Agriculture	○	○	○	○	○
Air quality	○	○	○	○	○
Climate change	○	○	○	○	○
Cumulative mining impacts	○	○	○	○	○
Ecology	○	○	○	○	○
Employment	○	○	○	○	○
Groundwater	○	○	○	○	○
Health	○	○	○	○	○
Hunter River	○	○	○	○	○
Land management	○	○	○	○	○
Noise	○	○	○	○	○
Rehabilitation	○	○	○	○	○
Property prices	○	○	○	○	○
Small business	○	○	○	○	○
Traffic	○	○	○	○	○
Vibration	○	○	○	○	○
Visual amenity	○	○	○	○	○

Any other potential impacts not listed above

6. Do you have any other comments?

7. What is your **suburb**?

8. Which of the following **age brackets** do you fall into?

- ◯ Under 15
- ◯ 15 - 64
- ◯ 65+

9. Which of the following do you **identify** as?
Please select all that apply to you.

- ☐ Male
- ☐ Female
- ☐ Other
- ☐ Aboriginal
- ☐ Torres Strait Islander
- ☐ I speak a language other than English at home
- ☐ I have a disability and/or special need

10. Which of the following best describes you?
Please select all that apply to you

- ☐ Business owner
- ☐ Landholder
- ☐ HVO Employee/Contractor
- ☐ Local resident

Attachment B

Community survey results

Hunter Valley Operations Continuation Project Community Survey

Wednesday, December 16, 2020

Powered by SurveyMonkey

105

Total Responses

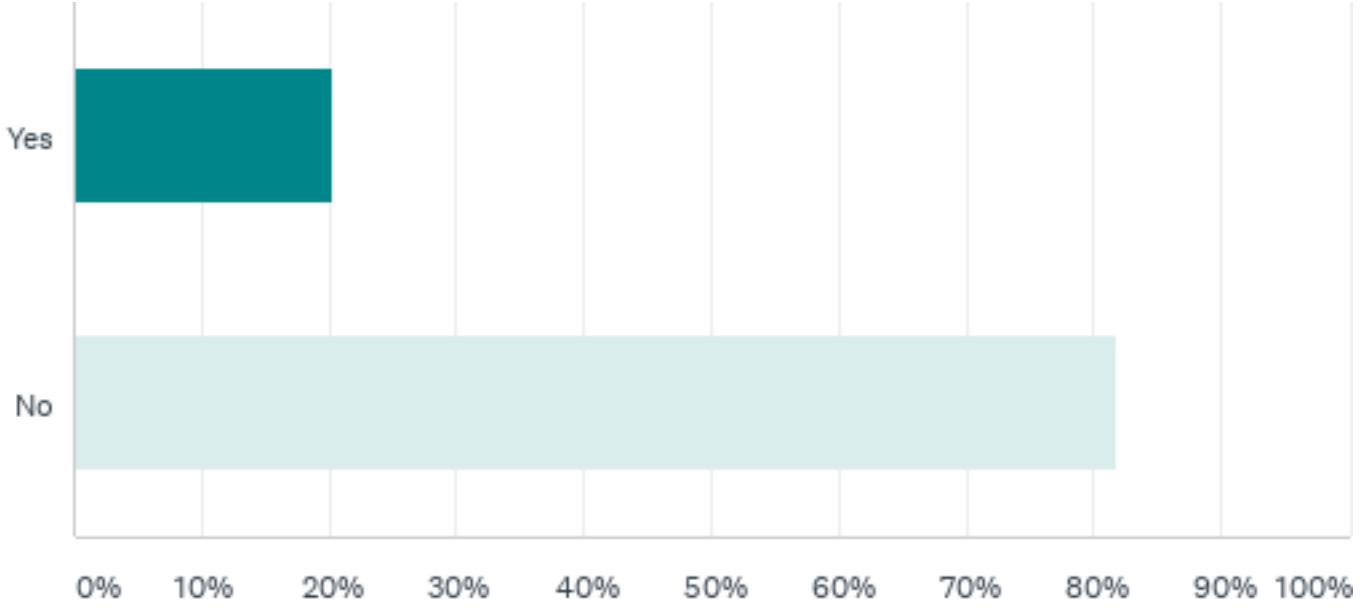
Date Created: Thursday, February 20, 2020

Complete Responses: 105

Powered by SurveyMonkey

Q1: Have you had any previous communications with the Hunter Valley Operations?

Answered: 104 Skipped: 1



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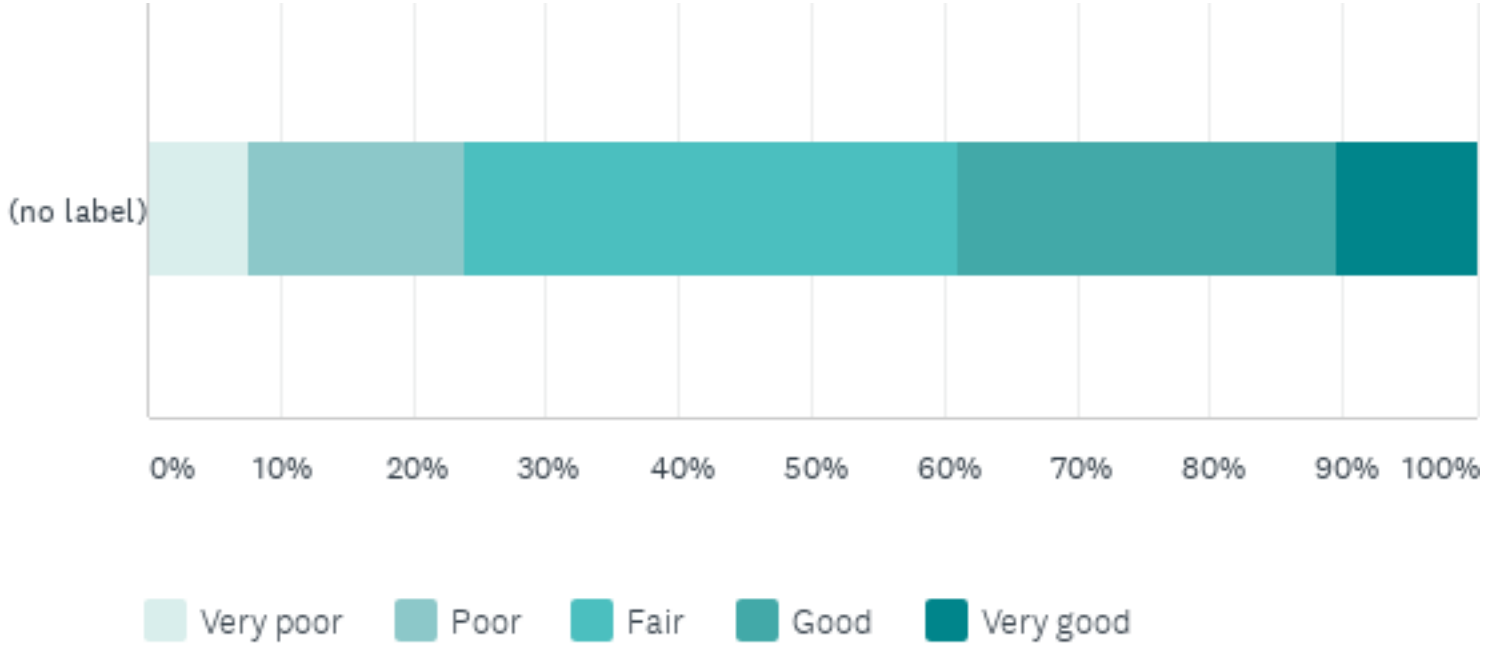
Q3: How would you rate your awareness of the proposed HVO Continuation Project?

Answered: 105 Skipped: 0



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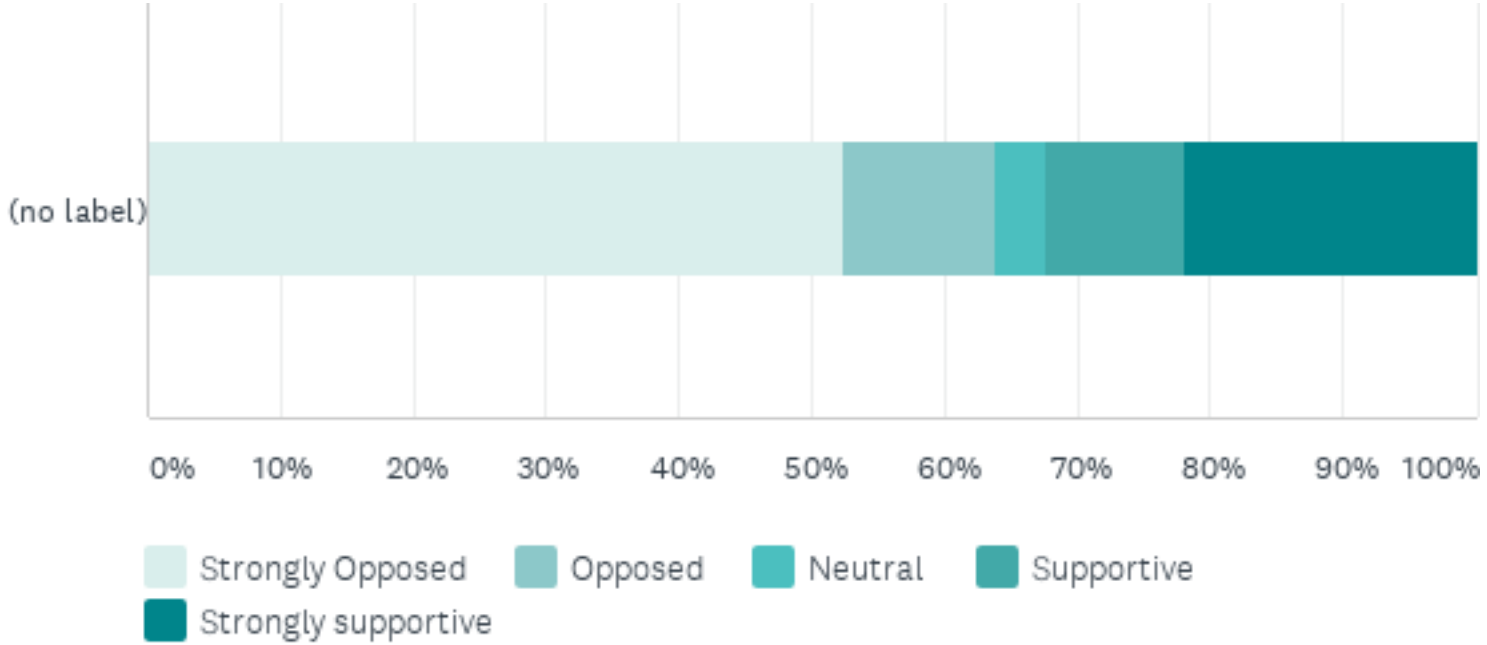
Q4: How do you feel about the proposed HVO Continuation Project?

Answered: 105 Skipped: 0



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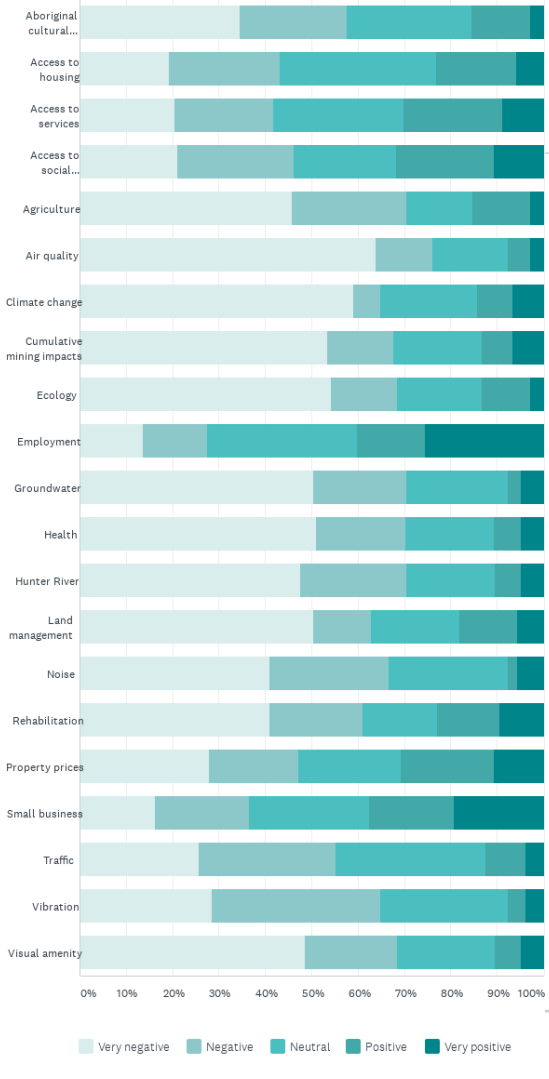
Q5: Below is a list of potential impacts (positive and negative) that are commonly associated with large mining projects. Consider each potential impact and rate the potential impact of the proposed HVO Continuation Project on the local community.

Answered: 105 Skipped: 0



	VERY NEGATIVE	NEGATIVE	NEUTRAL	POSITIVE	VERY POSITIVE	TOTAL	WEIGHTED AVERAGE
Aboriginal cultural heritage	34.62% 36	23.08% 24	26.92% 28	12.50% 13	2.88% 3	104	2.26
Access to housing	19.23% 20	24.04% 25	33.65% 35	17.31% 18	5.77% 6	104	2.66
Access to services	20.39% 21	21.36% 22	28.16% 29	21.36% 22	8.74% 9	103	2.77
Access to social infrastructure	21.15% 22	25.00% 26	22.12% 23	21.15% 22	10.58% 11	104	2.75
Agriculture	45.71% 48	24.76% 26	14.29% 15	12.38% 13	2.86% 3	105	2.02
Air quality	63.81% 67	12.38% 13	16.19% 17	4.76% 5	2.86% 3	105	1.70
Climate change	59.05% 62	5.71% 6	20.95% 22	7.62% 8	6.67% 7	105	1.97
Cumulative mining impacts	53.33% 56	14.29% 15	19.05% 20	6.67% 7	6.67% 7	105	1.99
Ecology	54.29% 57	14.29% 15	18.10% 19	10.48% 11	2.86% 3	105	1.93
Employment	13.73% 14	13.73% 14	32.35% 33	14.71% 15	25.49% 26	102	3.25
Groundwater	50.48% 53	20.00% 21	21.90% 23	2.86% 3	4.76% 5	105	1.91
Health	50.96% 53	19.23% 20	19.23% 20	5.77% 6	4.81% 5	104	1.94
Hunter River	47.62% 50	22.86% 24	19.05% 20	5.71% 6	4.76% 5	105	1.97
Land management	50.48% 53	12.38% 13	19.05% 20	12.38% 13	5.71% 6	105	2.10
Noise	40.95% 43	25.71% 27	25.71% 27	1.90% 2	5.71% 6	105	2.06
Rehabilitation	40.95% 43	20.00% 21	16.19% 17	13.33% 14	9.52% 10	105	2.30
Property prices	27.88% 29	19.23% 20	22.12% 23	20.19% 21	10.58% 11	104	2.66
Small business	16.35% 17	20.19% 21	25.96% 27	18.27% 19	19.23% 20	104	3.04
Traffic	25.71% 27	29.52% 31	32.38% 34	8.57% 9	3.81% 4	105	2.35
Vibration	28.57% 30	36.19% 38	27.62% 29	3.81% 4	3.81% 4	105	2.18
Visual amenity	48.57% 51	20.00% 21	20.95% 22	5.71% 6	4.76% 5	105	1.98

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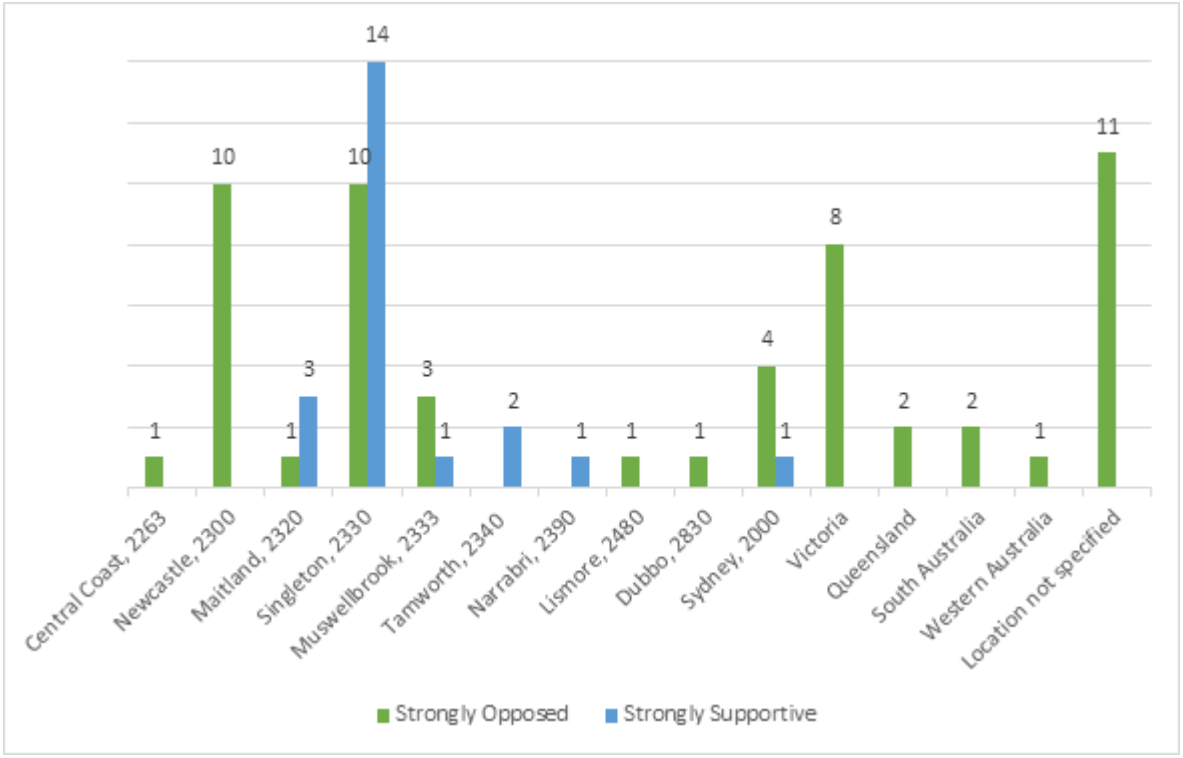
Q6: Do you have any other comments?

Answered: 43 Skipped: 62

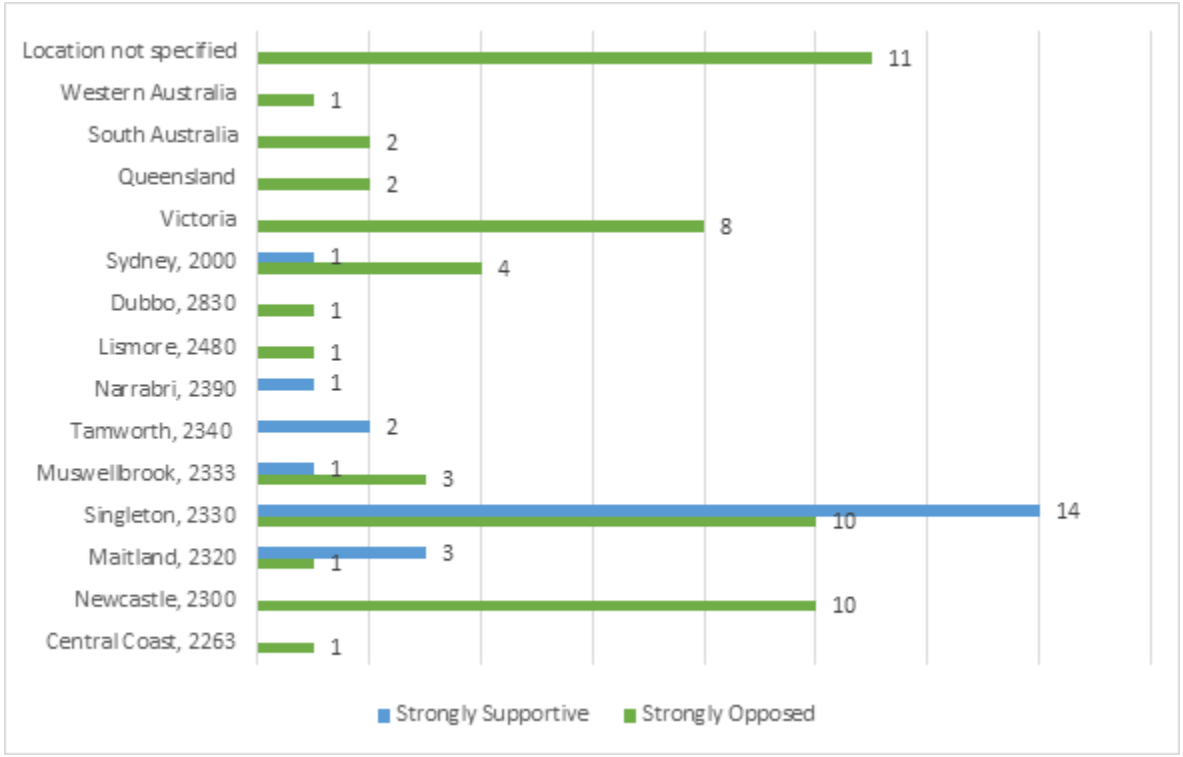
Q8: What is your suburb?

Answered: 92 Skipped: 13



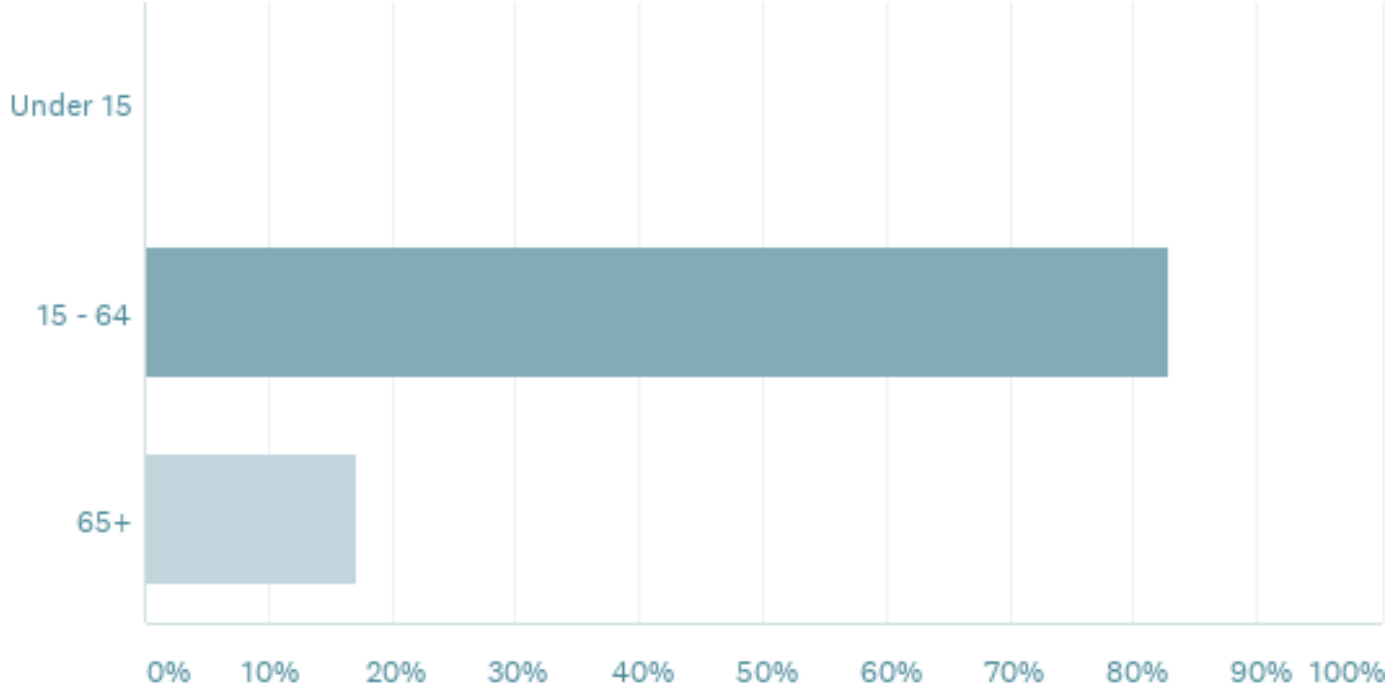
Level of support by location

Answered: 92 Skipped: 13



Q8: Which of the following age brackets do you fall into?

Answered: 105 Skipped: 0



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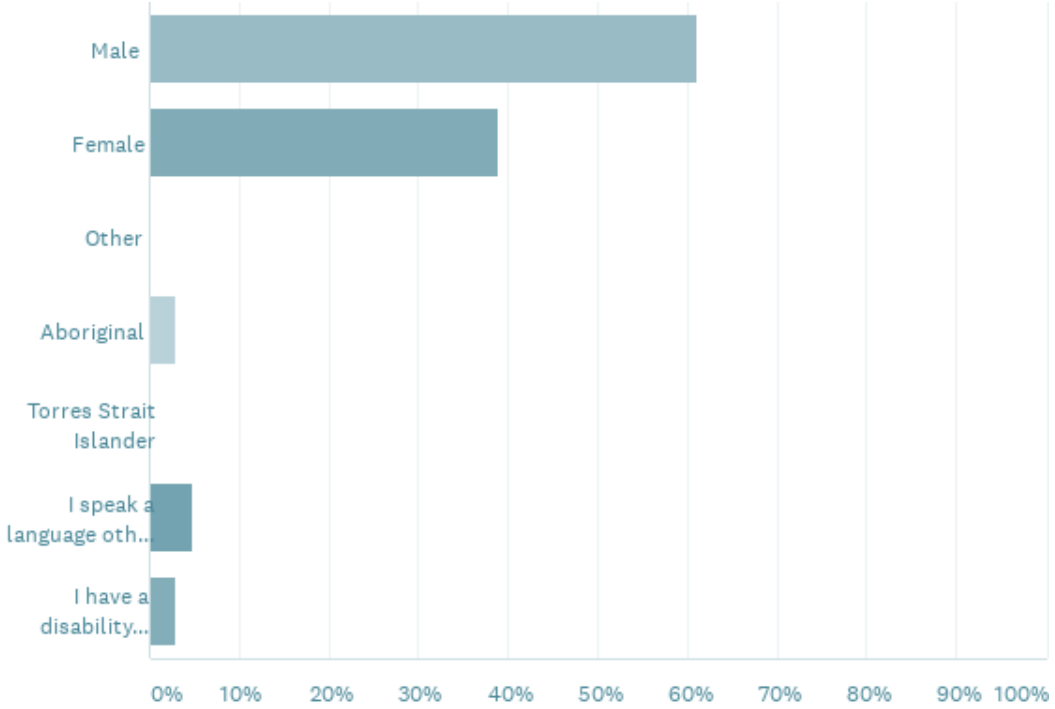
Q9: Which of the following do you identify as? Please select all that apply to you.

Answered: 103 Skipped: 2



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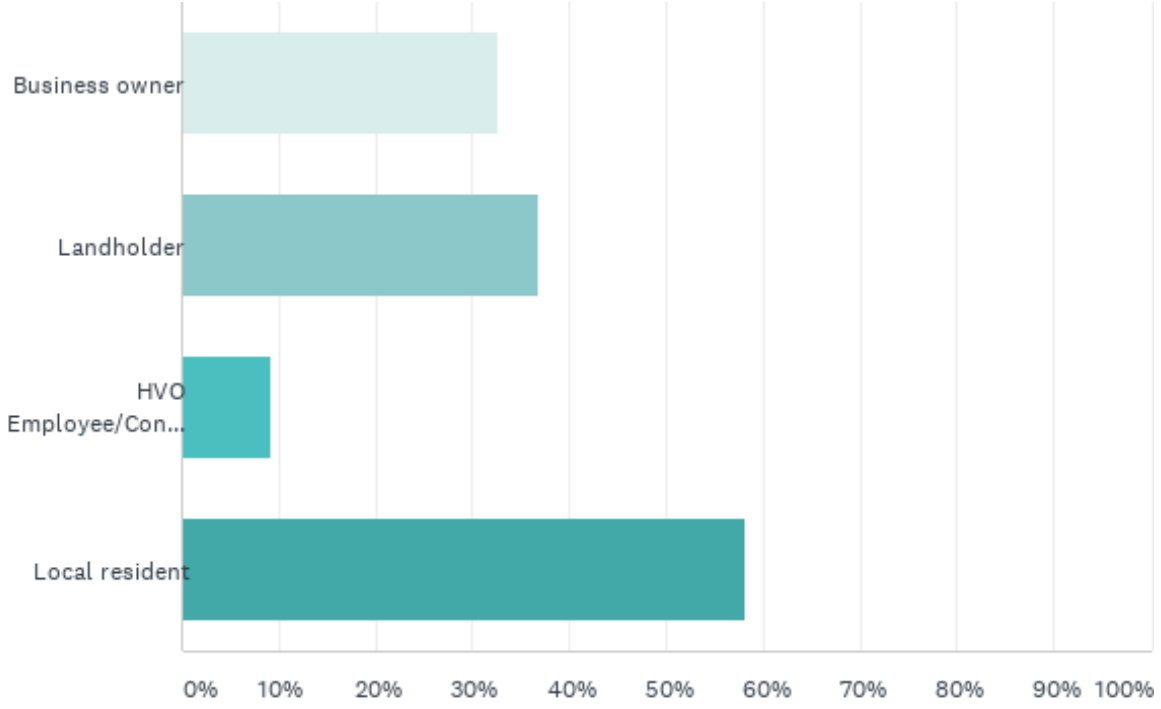
Q10: Which of the following best describes you? Please select all that apply to you

Answered: 98 Skipped: 7



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Attachment C

Scoping risk assessment

C.1 Scoping risk assessment

Table C.1 Likely social impacts of the HVO Continuation Project

Matter/Issue	Potentially affected parties	Positive/ Negative	Extent	Duration	Severity	Sensitivity	Evidence
Health and well-being							
Reduction in air quality due to the cumulative and ongoing dust generation affecting air quality.	Residents	Negative	Singleton LGA Muswellbrook LGA	Operations	Dependent on the management strategy and measures developed	High sensitivity due to cumulative impacts and recent drought conditions	Community Survey, community and stakeholder interviews, and submissions to previous modifications to HVO
Water quality – dust in tank water.	Residents	Negative	Singleton LGA Muswellbrook LGA	Operations	Dependent on the management strategy and measures developed	High sensitivity due to cumulative impacts and recent drought conditions	Community survey, community and stakeholder interviews, and submissions to previous modifications to HVO
Vibration due to blasting damaging properties will cause stress.	Residents	Negative	Local area	Operations	Dependent on the management strategy and measures developed	Dependent on proximity to site	Community Survey, community and stakeholder interviews
Ongoing sustainable employment and procurement will reduce stress.	Workforce	Positive	Regional	Operations	Dependent on continued operations	High sensitivity to current workforce	Community Survey, community and stakeholder interviews, and professional judgement
Access to and use of infrastructure, services, and facilities							
Increased travel times due to realignment of Lemington Road	Residents	Negative	Local area	Operations Post Closure	Dependent on the location of the resident	High sensitive due to frequency of road use	Community Survey, community and stakeholder interviews
Bridge height (Lemington Road crossing) lifted to 1 in 10-year flood event will improve access to services during flood events.	Residents	Positive	Singleton LGA Muswellbrook LGA	Operations Post Closure	Dependent on the management strategy and measures developed	Dependent on proximity to, and use of Lemington Road	Community and stakeholder interviews, professional judgement

Table C.1 Likely social impacts of the HVO Continuation Project

Matter/Issue	Potentially affected parties	Positive/ Negative	Extent	Duration	Severity	Sensitivity	Evidence
Livelihood							
The continued operation of the mine will provide ongoing employment and supply valuable resources.	Workforce Businesses	Positive	Regional	Operations	Dependent on continued operations	High sensitivity to current workforce and businesses supplying to the project	Community Survey, community and stakeholder interviews, and professional judgement
Employment and training	Residents	Positive	Regional	Operations	Dependent on continued operations	Unknown – to be researched as part of the SIA for the Project EIS	Community Survey, professional judgement
Rehabilitation and final landform -rehabilitation to support cropping and farming activity	Residents	Positive	Singleton LGA Muswellbrook LGA	Post Closure	Dependent on the management strategy and measures developed	Unknown – to be researched as part of the SIA for the Project EIS	Community Survey, community and stakeholder interviews, and submissions to previous modifications to HVO
Reduction in property prices due to ongoing mining, noise and vibration, and dust generation	Residents	Negative	Local area	Operations	Dependent on the location of the resident and the management strategy and measures developed	Dependent on proximity to site	Community Survey, community and stakeholder interviews
Rehabilitation and final landform	Residents	Negative/Positive	Singleton LGA Muswellbrook LGA	Operations Post Closure	Dependent on the management strategy and measures developed	Dependent on proximity to site	Community Survey, community and stakeholder interviews, and submissions to previous modifications to HVO
Surroundings and public safety							
Potential for delayed response times for emergency services due to realignment of Lemington Road.	Residents	Negative	Singleton LGA Muswellbrook LGA	Operations Post Closure	Dependent on the management strategy and measures developed	High sensitivity due to risk to public safety	Community and stakeholder interviews, professional judgement

Table C.1 Likely social impacts of the HVO Continuation Project

Matter/Issue	Potentially affected parties	Positive/ Negative	Extent	Duration	Severity	Sensitivity	Evidence
Rehabilitation and final landform	Residents	Negative/Positive	Local area	Operations Post Closure	Dependent on the management strategy and measures developed	Dependent on proximity to site	Community Survey, community and stakeholder interviews, and submissions to previous modifications to HVO
Decision-making systems							
Anti-mining sentiment related to climate change	Residents	Negative	State-wide	Ongoing	Dependent on individual perspectives and the management strategy and measures developed	Unknown – to be researched as part of the SIA for the Project EIS.	Community survey, professional judgement
Way of life							
Continued operations will contribute to maintaining the population and support continuation of social infrastructure such as schools, health services and recreational groups and facilities.	Residents	Positive	Singleton LGA Muswellbrook LGA	Operations	Dependent on continued operations	Unknown – to be researched as part of the SIA for the Project EIS.	Professional judgement
Fears and aspirations							
Strong support for the project within the area of social influence	Residents	Positive	Singleton LGA Muswellbrook LGA	Operations	Unknown – to be researched as part of the SIA for the Project EIS.	Unknown – to be researched as part of the SIA for the Project EIS.	Professional judgement
Fears related to a combination of the above potential impacts and how they affect the future of the community.	Residents	Negative	Singleton LGA Muswellbrook LGA	Operations	Unknown – to be researched as part of the SIA for the Project EIS.	Unknown – to be researched as part of the SIA for the Project EIS.	Professional judgement

HUNTER VALLEY OPERATIONS

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