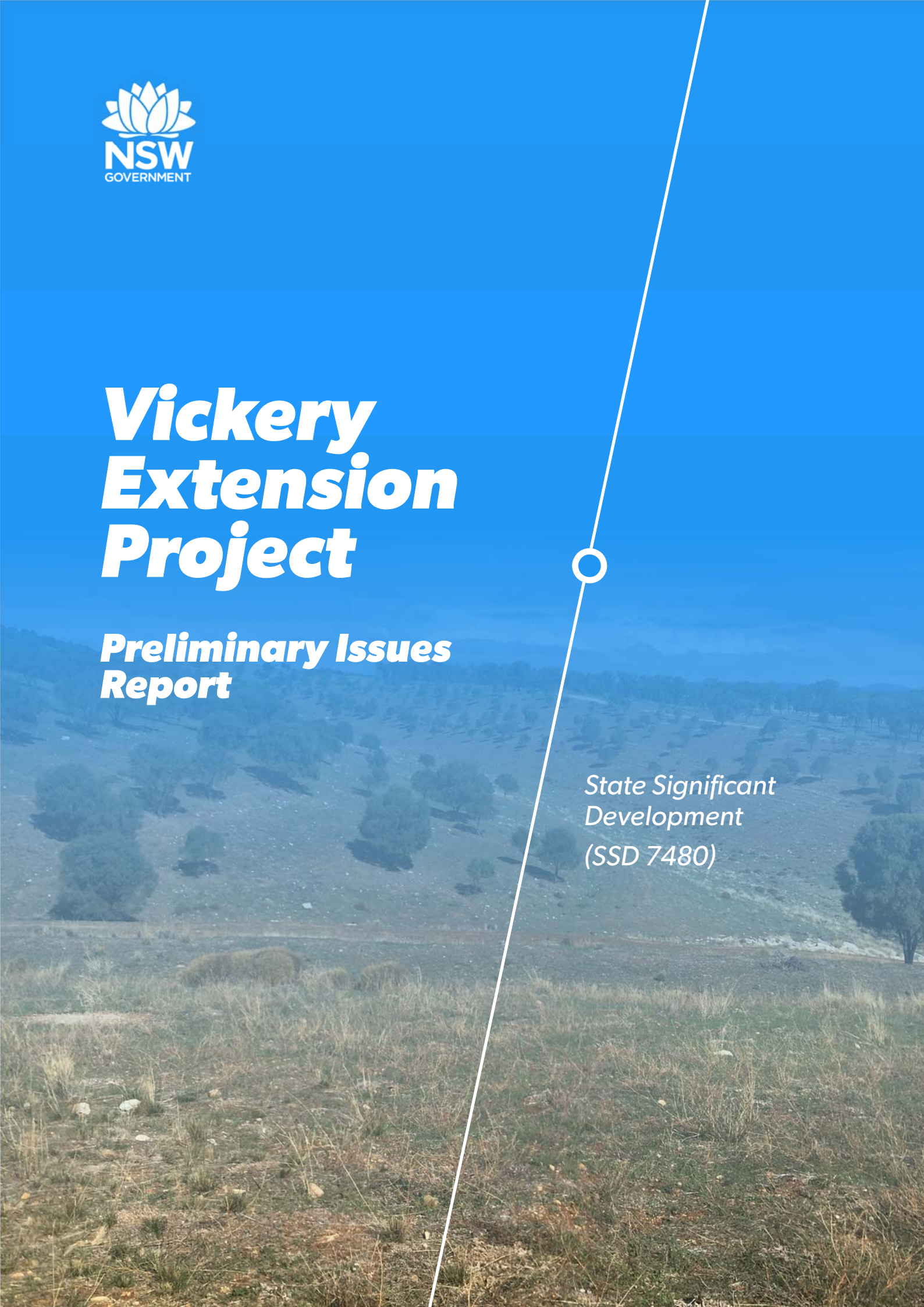
NSW GOVERNMENT

Vickery Extension Project

Preliminary Issues Report

State Significant Development (SSD 7480)



November 2018

Cover photo: Blue Vale Pit located on the Vickery Extension Project site

Source: Department of Planning and Environment.

Executive Summary

Vickery Coal Pty Ltd, a subsidiary of Whitehaven Coal Pty Ltd (Whitehaven) owns the Vickery Coal Mine, located approximately 25 kilometres north of Gunnedah within the Gunnedah and Narrabri local government areas (LGAs).

The mine site has been subject to historic underground and open cut coal mining activities, and also has an existing approval for an open cut mine granted by the Minister for Planning in 2014.

The approved project – known as the Vickery Coal Project (the Approved Project) – is yet to be developed, but involves extraction of 135 million tonnes of coal over a 30 year period, at a rate of up to 4.5 million tonnes of run-of-mine (ROM) coal a year (Mtpa). Extracted coal is approved to be hauled by trucks on public roads to Whitehaven's existing coal handling and preparation plant (CHPP) near Gunnedah, where it would be processed and loaded onto trains for transport to the Port of Newcastle. The Whitehaven CHPP also accepts and processes coal from some of Whitehaven's other mines in the region, including the Tarrawonga and Rocglen mines.

Whitehaven is now proposing to expand the Approved Project, and to develop a CHPP and train load out facility at the mine site itself. It would also develop a rail spur across the Namoi River floodplain to connect the load out facility to the main Werris Creek to Mungindi Railway line. The project – known as the Vickery Extension Project – would increase total coal extraction from 135 to 179 million tonnes, and increase the extraction rate from 4.5 up to 10 Mtpa coal over a 25 year period (rather than 30 years). The new CHPP would also receive and process coal from other Whitehaven mines including the Tarrawonga and Rocglen mines and would enable the cessation of road transport of coal to the Whitehaven CHPP.

The proposal is classified as a 'State Significant Development' under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), as it is development for the purpose of coal mining and mining-related works. The NSW Independent Planning Commission (the Commission) is the consent authority for the proposal as there were more than 25 objections to the project.

The project seeks to incorporate and extend the mining and ancillary activities of the Approved Project. The key incremental changes (see Figure E1) include:

- extracting an additional 44 Mt of coal by extending the footprint of the open cut mine to the north and south of the approved footprint;
- increasing the extraction rate of ROM coal from 4.5 to 10 million Mtpa, with an average extraction of 7.2 Mtpa, allowing for more efficient extraction of the coal reserves;
- constructing and operating a CHPP, train load out facility, rail loop and rail spur line at the project site;
- constructing and operating a water supply borefield and pipeline; and
- changing the final landform by removing the eastern overburden emplacement area (which is now proposed to be used as a secondary infrastructure area), increasing the size of the approved western overburden emplacement area (the Western OEA) and retaining one pit lake void (rather than two).

The project, incorporating the Approved Project components, has a capital investment value of approximately $607 million, and would generate up to 450 full time operational jobs at the mine, compared to a peak of 250 operational jobs for the Approved Project. It is also predicted to generate $1.2 billion in (net present value) economic benefits to NSW, compared to $709 million for the Approved Project, an incremental increase of around $500 million.

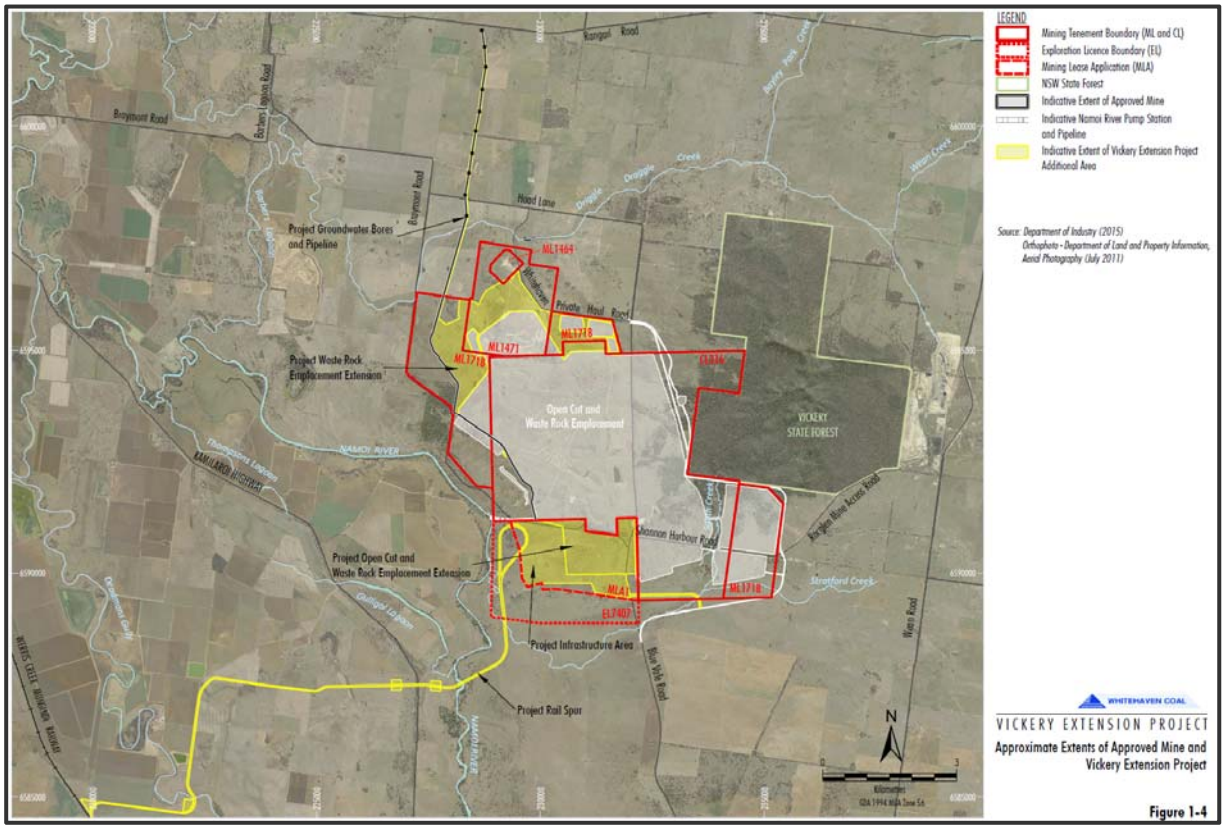


Figure E1 | Vickery Extension Project –Changes to Approved Project

Engagement

The Department exhibited the Environmental Impact Statement (EIS) for the project from 13 September to 25 October 2018. Prior to the exhibition period, the Department met with landholders, community groups and the Vickery Coal Mine Community Consultative Committee (CCC) about the project.

The Department held a community information session in Boggabri on 26 September 2018 to inform the community about the planning assessment process and to hear their concerns about the project. The information session was attended by around 70 community members. The Department and key government agencies also inspected the site on 26 September 2018.

During the exhibition of the EIS, the Department also visited properties around the site and met with surrounding landowners to gain an appreciation of the potential impacts associated with the project and to further understand the concerns of individual landowners.

A key concern raised by the landholders near the project was the potential flood impacts of the rail spur line. The Department and a flood expert engaged by the Department visited landholders and members of the Boggabri Farming and Community Group to hear directly about flooding impacts and first-hand knowledge of the impacts of previous flood events.

The Department received 560 public submissions: 20 from special interest groups and 540 from the general public. 345 (62 %) submissions were in support of the project, citing mainly its employment and economic benefits and 201 (36 %) submissions objected to the project, with the key issues including flooding, groundwater and surface water quality impacts, amenity impacts associated with noise, dust, blasting and lighting, greenhouse gas emissions, impacts on agricultural land, and social impacts on local farmers and the Boggabri community.

The Department also received advice from 14 government authorities. None of the government authorities object to the project, although most raised issues and/or made recommendations.

The Department has also engaged a number of independent experts to review key aspects of the project, including:

- Flooding – Erin Askew of WMA Water;
- Groundwater – Hugh Middlemiss of Hydrogeologic;
- Surface Water – Martin Giles of BMT; and
- Economics – Gavan Dwyer of Marsden Jacobs Associates.

The Department and the Commonwealth Department of the Environment and Energy (DoEE) jointly also requested the Commonwealth Independent Expert Scientific Committee on Coal Seam Gas and Large Mining Development (IESC) to provide advice on the project.

Key Issues

On 6 September 2018, the Minister for Planning requested the Commission to conduct an initial public hearing into the Vickery Extension Project, as soon as practicable after the public exhibition period. The Minister asked that the Commission considers the EIS, submissions and any relevant expert advice and other information, and to prepare a report that (amongst other things) identifies the key issues requiring detailed consideration by the Department in evaluating the merits of the project.

The Department has undertaken a preliminary review of the development application, EIS and submissions and considered agency and expert advice. Some of the key issues from this preliminary review include:

- the rail spur – including its impacts on the Namoi River floodplain with regard to flooding and other water-related impacts, amenity-related impacts on receivers near the spur line, agricultural impacts, and further consideration of alternatives such as the 'northern corridor' option;
- water resources – including further clarification/ details of the flood modelling, groundwater sensitivity assessment and exchange between the Namoi River/ groundwater, and the impacts and management of discharges from sediment dams;
- amenity impacts – including clarification of noise and air emission assumptions used in modelling to support the predicted impacts;
- biodiversity impacts – including further clarification on biodiversity offset liability, credit calculations for rehabilitation and preparation of a Koala Plan of Management;
- final landform and land use – including further assessment of the final void configuration and the trade-off between biodiversity conservation and agricultural land use in the rehabilitated landscape; and
- social impacts – including impacts on the local farming community and cumulative imappacts and benefits of mining in the on the broader community in the region.

The Department acknowledges that there is a range of additional concerns raised in public submissions including on Aboriginal and Historic heritage associated with the site, greenhouse gas emissions, traffic and transport along with support for the project, with submitters identifying the positive social, employment and economic benefits of mining to the broader regional economy.

Assessment

Each of these matters will be considered as part of the project's assessment of the project. The next steps in the assessment process are as follows.

Following the initial public hearing by the Commission, the Department will undertake a comprehensive assessment of the merits of the project in accordance with mandatory statutory requirements under the EP&A Act and relevant NSW Government policy and guidelines and the matters raised in meetings, hearings and submissions as identified above.

The Department will also undertake an assessment of the project's impacts on Matters of National Environmental Significance (MNES) on behalf of the Commonwealth, in accordance with the Assessment Bilateral Agreement between the Commonwealth and NSW governments.

The Department's experts and Government agencies will also continue to provide advice to the Department during the assessment of the project. This will include review of any additional information/clarification provided by Whitehaven on issues raised by the experts, and where relevant provide advice on any findings and recommendations of the Commission following the public hearing(s).

NSW Government agencies have an important role in the assessment process due to their subsequent regulatory oversight if the project were approved. The Environment Protection Authority (EPA) regulates noise, air emissions and water pollution through an Environment Protection Licence (EPL); the Department of Industry regulates water take through Water Sharing Plan rules and the provisions of the *Water Management Act 2000);* and the Resources Regulator/Division of Resources and Geoscience have roles in ensuring rehabilitation objectives are met under the provisions of the *Mining Act 1992.* These are key areas of concern to the community and the Department will continue to work closely with government agencies during the assessment of the project.

An important consideration in the assessment of the project is that the impacts of the Approved Project have already been assessed and an approval granted, with the development consent imposing conditions to manage, mitigate and offset these impacts. The Approved Project will not be reassessed, but the impacts of the modification will, including cumulative impacts. Whitehaven proposes to surrender the Vickery Coal Project project approval if the Vickery Extension Project is approved. This means that the mine would be regulated under a single consolidated development consent.

Importantly, Section 4.63 of the EP&A Act (voluntary surrender of development consent) provides that if a development consent is surrendered as a condition of a new development consent and the new consent includes continuation of the approved development then the consent authority is not required to re-assess the impact of the continued development, in this case the Approved Project.

The cumulative impacts will not only consider the consolidated project but other mining projects in the area, all of which will be assessed. Whitehaven has assessed the cumulative impacts of the project in its EIS, for example the groundwater modelling was undertaken on the extended open cut pit area, drawdown impacts from the closest mining operations and the proposed project borefield. The cumulative impacts of the project will be carefully considered by the Department in its detailed assessment and the Department's experts will be required to provide independent advice on these matters.

Next Steps

All of these issues raised in submissions, as well as the issues identified in the Commission's public hearing report, will be considered in the Department's detailed assessment of the project. This detailed assessment will be completed following receipt of the Commission's public hearing report and additional information from Whitehaven responding to the issues raised in submissions, agency advice and the public hearing.

The Department will continue to undertake targeted consultation with landowners and key stakeholders prior to finalising its detailed assessment report, and make its experts available through the assessment process.

Once the Department has completed its detailed assessment of the project, the development application will be referred back to the Commission for final determination. The Commission will undertake further consultation prior to making its final determination of the project, in accordance with its *Guidelines for a Public Hearing Held in Multiple Stages.*

Contents

1. Background

Vickery Coal Pty Ltd, a subsidiary of Whitehaven Coal Pty Ltd (Whitehaven) owns the Vickery Coal Project. The closest urban settlement to the project mining area is the township of Boggabri, located on the Kamilaroi Highway approximately 13 kilometres to the north-west of the site. Gunnedah is located approximately 25 kilometres to the south of the site (see **Figure 1**). The project mining area is located within the Gunnedah and Narrabri local government areas (LGAs).

The area has also been subject to historic underground and open cut coal mining activities from the mid 1980's to the late 1990s including the Canyon Coal Mine currently in closure phase, leaving 5 rehabilitated voids within the landscape on the site.

In September 2014, the Minister for Planning (by delegate) approved the Vickery Coal Project (the Approved Project) as a State Significant Development (SSD-5000) under the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Approved Project permits the extraction of 135 million tonnes of coal over a 30-year period, at a rate of up to 4.5 million tonnes of run-of-mine (ROM) coal a year. The Approved Project involves re-disturbance of rehabilitated mine land and mining deeper coal seams left untouched by historical underground and open cut mining.

Figure 2 shows the Approved Project layout and historic rehabilitated mining features within the existing landscape. Section 3 provides further background to the history of mining in the area.

Extracted coal is approved to be transported by road for processing at Whitehaven's existing coal handing and processing plant (CHPP) near Gunnedah, prior to being railed to Newcastle for export via a train load-out facility at the CHPP. The CHPP operates under a separate development consent (DA 79_2002) and is currently approved to operate until October 2022. The Gunnedah CHPP also receives coal by road transport from three other operating Whitehaven Coal Mines – Tarrawonga, Rocglen and Sunnyside Coal Mines.

Associated development at the Approved Project includes a mine infrastructure area, access roads, mobile crushers, an overpass of the Kamilaroi Highway to enter the Gunnedah CHPP and other ancillary infrastructure. The project also includes realignment of local roads around the mine site.

Whitehaven has not commenced the Approved Project.

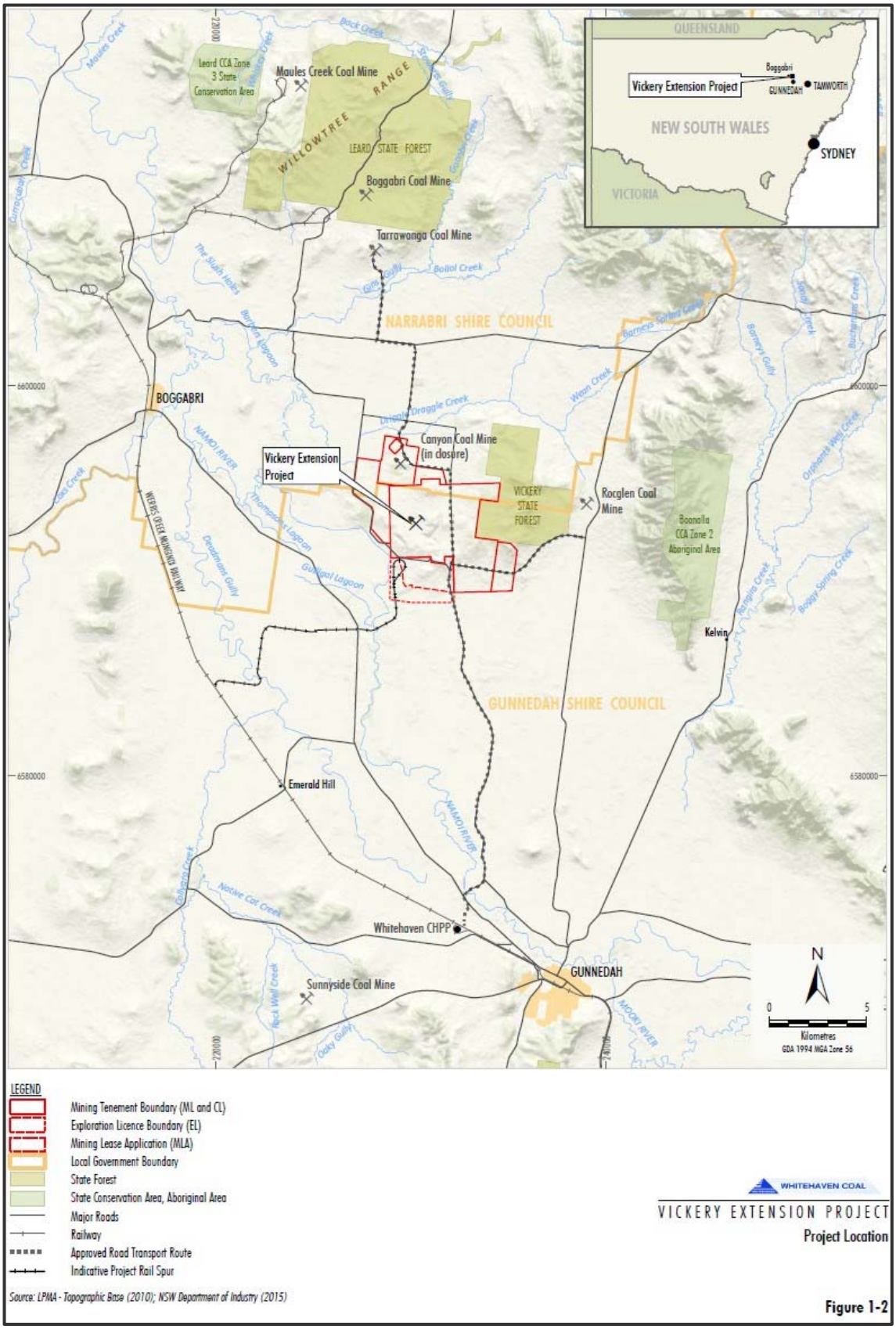


Figure 1 | Regional Context

Figure 2 | Historic and Approved Mining Layout

2. Project Details

Whitehaven is proposing an extension of the mining and ancillary activities associated with the Approved Project. The expanded project, known as the Vickery Extension Project, is shown in **Figure 3**. The key changes include:

- extracting an additional 44 Mt of coal by extending the footprint of the open cut mine to the north and south of the approved footprint;
- increasing the extraction rate of ROM coal from 4.5 to 10 Mtpa, with an average extraction of 7.2 Mtpa, allowing for more efficient extraction of the coal reserves;
- constructing and operating a CHPP, train load out facility, rail loop and rail spur line at the project site;
- constructing and operating a water supply borefield and pipeline; and
- changing the final landform by removing the eastern overburden emplacement area (which is now proposed to be used as a secondary infrastructure area), increasing the size of the approved western overburden emplacement area (the Western OEA) and retaining one pit lake void (rather than two).

A fundamental change proposed to the Approved Project is to construct the CHPP and rail load out facility at the project site and make this the central hub to receive coal from other Whitehaven mines. Whitehaven is proposing to continue to use the already approved transport route to the Gunnedah CHPP at its approved rate until the Vickery Extension Project CHPP, rail load-out facility and rail spur line reach "full operational capacity."

It is proposed that the Vickery Extension Project CHPP and rail load out facility would be able to:

- stockpile and process a total of 13 Mtpa of ROM coal from the project and other Whitehaven mining operations;
- produce up to 11.5 Mtpa of metallurgical and thermal coal products; and
- transport up to 11.5 Mtpa of product coal from the rail load facility, the rail spur line and via the public rail network to Newcastle for export markets.

The proposed change would remove coal haul trucks from public roads.

Whitehaven is also proposing to surrender the Vickery Coal Project and Canyon Coal Mine project approvals if the Vickery Extension Project is approved. This is an important consideration in the assessment of the project, as Section 4.63 of the EP&A Act (Voluntary surrender of development consent) provides that if a development consent is surrendered as a condition of a new development consent and the new consent includes continuation of development that was authorised, then the consent authority:

- is not required to re-assess the likely impact of the continued development to the extent that it could have been carried out but for the surrender of the consent;
- is not required to re-determine whether to authorise that continued development under the new development consent (or the manner in which it is to be carried out); and
- may modify the manner in which that continued development is to be carried out for the purpose of the consolidation of the development consents applying to the land concerned.

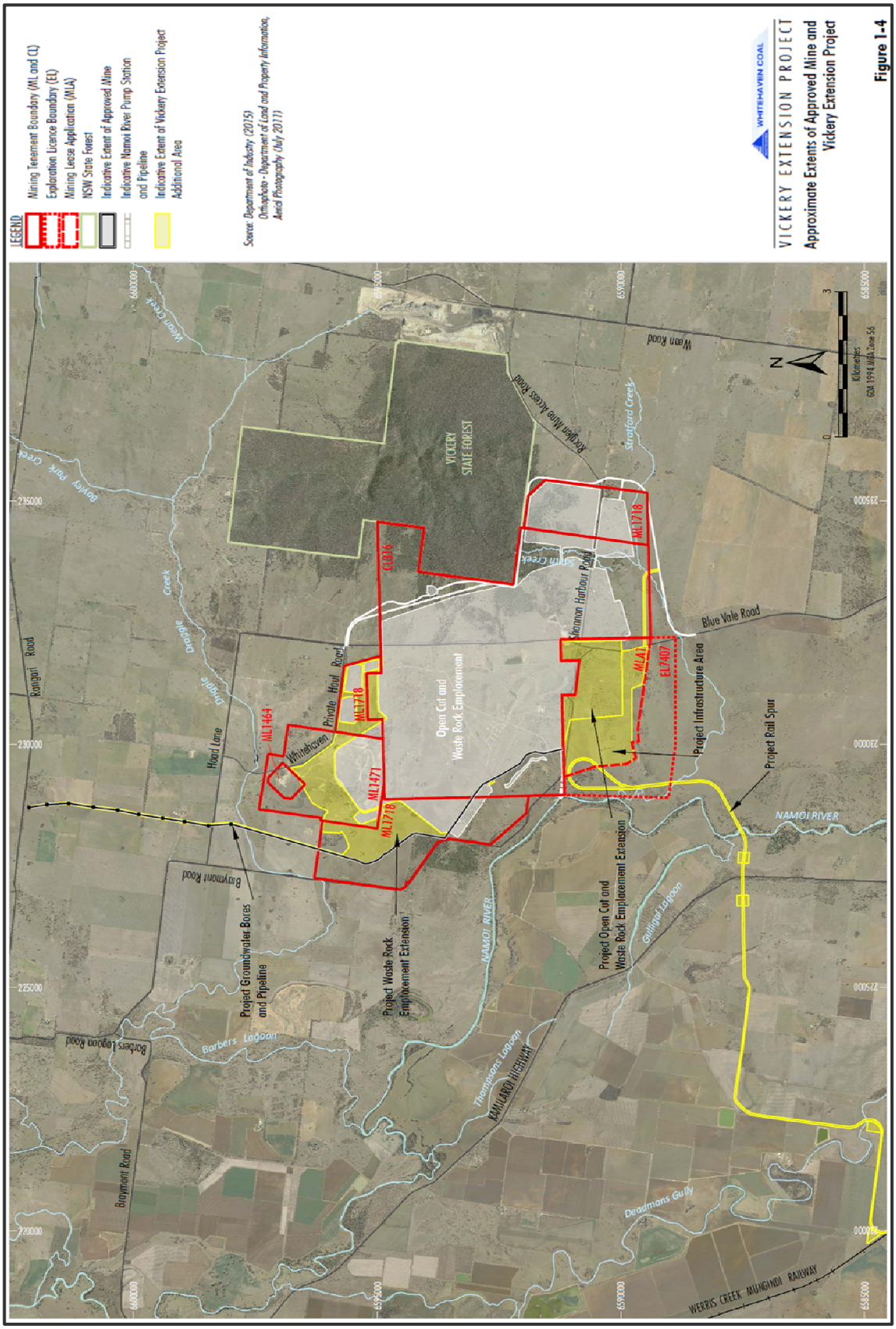


Figure 3 | Additional Project Components

The cumulative impacts will not only consider the consolidated project but other mining projects in the area, all of which will be assessed. Whitehaven has assessed the cumulative impacts of the project in its EIS, for example the groundwater modelling was undertaken on the extended open cut pit area, drawdown impacts from the closest mining operations and the proposed project borefield. The cumulative impacts of the project will be carefully considered by the Department in its detailed assessment and the Department's experts will be required to provide independent advice on these matters.

If the Vickery Extension Project is approved, the mining operations on the site would be regulated under a single consolidated development consent.

The coal resource on the site is of relatively high quality and would be processed to produce both metallurgical coal (semi-soft coking coal and Pulverised Coal Injection (PCI) coal) for use in the steel making industry, and thermal coal for use in power generation. Approximately two thirds of the resource comprise PCI and semi-soft coking coal, and one third comprises thermal coal.

The proposed project is detailed further in **Table 1** and depicted in **Figures 4** and **5**. Approved activities are also inluded for comparison purposes. The proposal is described in detail in the EIS for the development (see **Appendix A**).

Table 1 | Main Components of the Project

Project Component	Approved Project	Vickery Extension Project
ROM Coal Production Rate	• Up to 4.5 Mtpa	• Average rate of 7.2 Mtpa over 25 years, with a peak production rate of up to 10 Mtpa
Project Life	• Approximately 30 years	• 26 years (one year of construction and 25 years of mining operations)
Mining and Reserves	• Extraction of approximately 135 million tonnes of ROM coal from 7 coal seams within the Maules Creek Formation	• Extraction of approximately 179 million tonnes of ROM coal from 8 coal seams within the Maules Creek Formation
Processing	• On-site coal crushing and screening facilities • ROM coal transported from the mine to the Whitehaven CHPP near Gunnedah for processing	• On-site stockpiling and processing of 13 Mtpa of ROM coal from the mine and other Whitehaven mining operations • Production of up to 11.5 Mtpa of product coal from the CHPP
Coal Transport	• ROM coal transported by truck along the approved road transport route from the mine to the Whitehaven CHPP near Gunnedah at a cumulative rate not exceeding 3.5 Mtpa, or 4.5 Mtpa with construction of a overpass on the Kamilaroi Highway. • Product coal transported by rail from Gunnedah CHPP to market (Note: the cumulative transport rate includes transport of ROM coal from Rocglen and Tarrawonga Coal Mines).	• Up to 11.5 Mtpa of product coal to be transport to market by rail via the project rail spur to the Werris Creek Mungindi Railway approximately 6 km north of Emerald Hill • ROM coal to be delivered by truck to Whitehaven's CHPP near Gunnedah for processing and despatch via rail not exceeding the Approved Mine cumulative rate, until the project CHPP, train load out facility and rail spur reach full operational capacity
Waste Management	• Production of 1,269 million bank cubic metres (Mbcm) • Overburden emplacment in the Eastern and Western Emplacements and within the open cut void footprint	• Production of approximately 1,830 Mbcm of waste rock (44% increase in waste rock volume) • Overburden emplacment in the Western Emplacement and within the open cut void footprint

Project Component	Approved Project	Vickery Extension Project
	• Co-disposal of reject material from the CHPP within the waste rock emplacement areas	• Co-disposal of reject material from the CHPP within the waste rock emplacement areas
Roadworks	• Construction of a section of private haul road and overpass of the Kamilaroi Highway; • Realignment of Blue Vale Road, Shannon Harbour Road, Hoad Lane and Braymont Road.	• Construction of a section of private haul road and overpass of the Kamilaroi Highway; • Realignment of Blue Vale Road • Closure of southern section of Braymon Road and Shannon Harbour Road
Employment	• Up to 60 construction workers • Up to 250 operational workers with an average of 213 full time equivalent (FTE) workers over the project life.	• Up to 500 construction workers, with 90% of the workforce expected to reside in the approved Boggabri Accommodation Camp (currently operated by Civeo) • Up to 450 operational workers with an average of 344 FTE workers over the project life.
Capital Value	• Approximately $461 million	• Approximately $607 million
Hours of Operation	• Mining operations and transportation 24 hours a day, seven days a week • Road transport of ROM coal would occur between 6:00 am and 9:15 pm Mondays to Fridays, and 7:00 am to 5:15 pm on Saturdays	• Mining operations and train loading and rail transport on the project rail spur 24 hours per day, seven days per week • Road transport of ROM coal would occur between 6:00 am and 9:15 pm Mondays to Fridays, and 7:00 am to 5:15 pm on Saturdays
Rehabilitation	• Progressive rehabilitation of waste rock emplacement and surface disturbance areas • Final landform to include three final voids (the existing Blue Vale void and the Northern and Southern voids)	• Progressive rehabilitation of waste rock emplacement and surface disturbance areas • Final landform to include two final voids (the existing Blue Vale void and the open cut void)
Disturbance Area, Vegetation clearing and biodiversity offsets	• Project disturbance area of 2,242 ha including 1,748 ha of native vegetation comprising: - 464 ha of native woodland; and - 1,284 ha of derived native grassland • 2,063 of land-based offsets • 1,360 ha rehabilitation of Approved Mine footprint to native vegetation	• An additional disturbance area of 776 ha including 580 ha of native vegetation comprising: - 78 ha of native woodland; and - 502 ha of derived native grassland • Additional offset areas to include combination of the following, in accordance with the *Framework for Biodiversity Assessment*: – 482 ha mine rehabilitation to woodland in extension disturbance area; – 523 ha additional mine rehabilitation to woodland within the Approved Project footprint; – use of available credits on identified land based offset areas in the area (offset areas 6-8 Mount Somner property), Whitehaven's existing biobank site and/or biobanking public register; – supplementary measures; and/ or – contributing to the Biodiversity Conservation Fund.

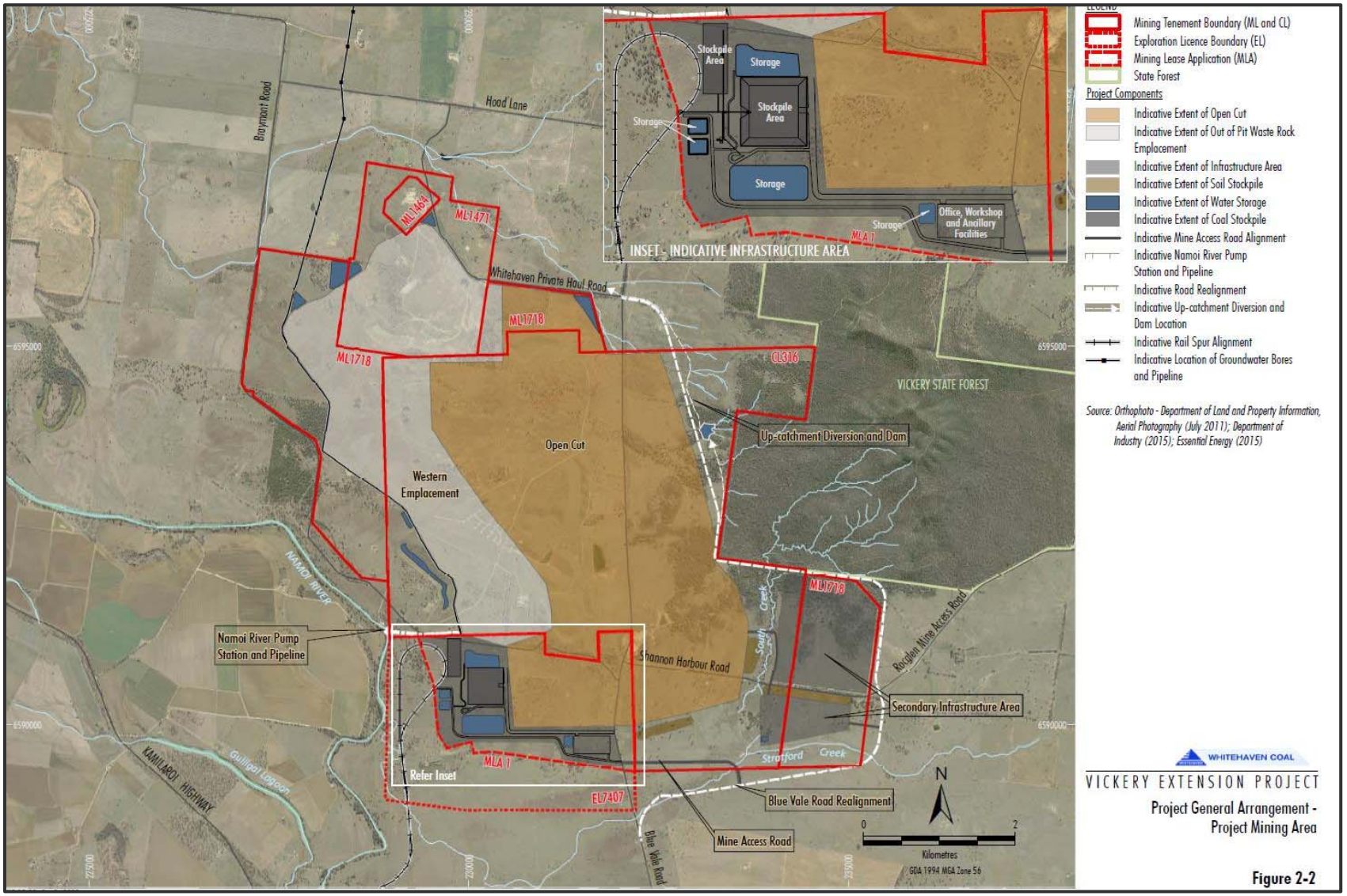


Figure 4 | Project Mining and Infrastructure Area

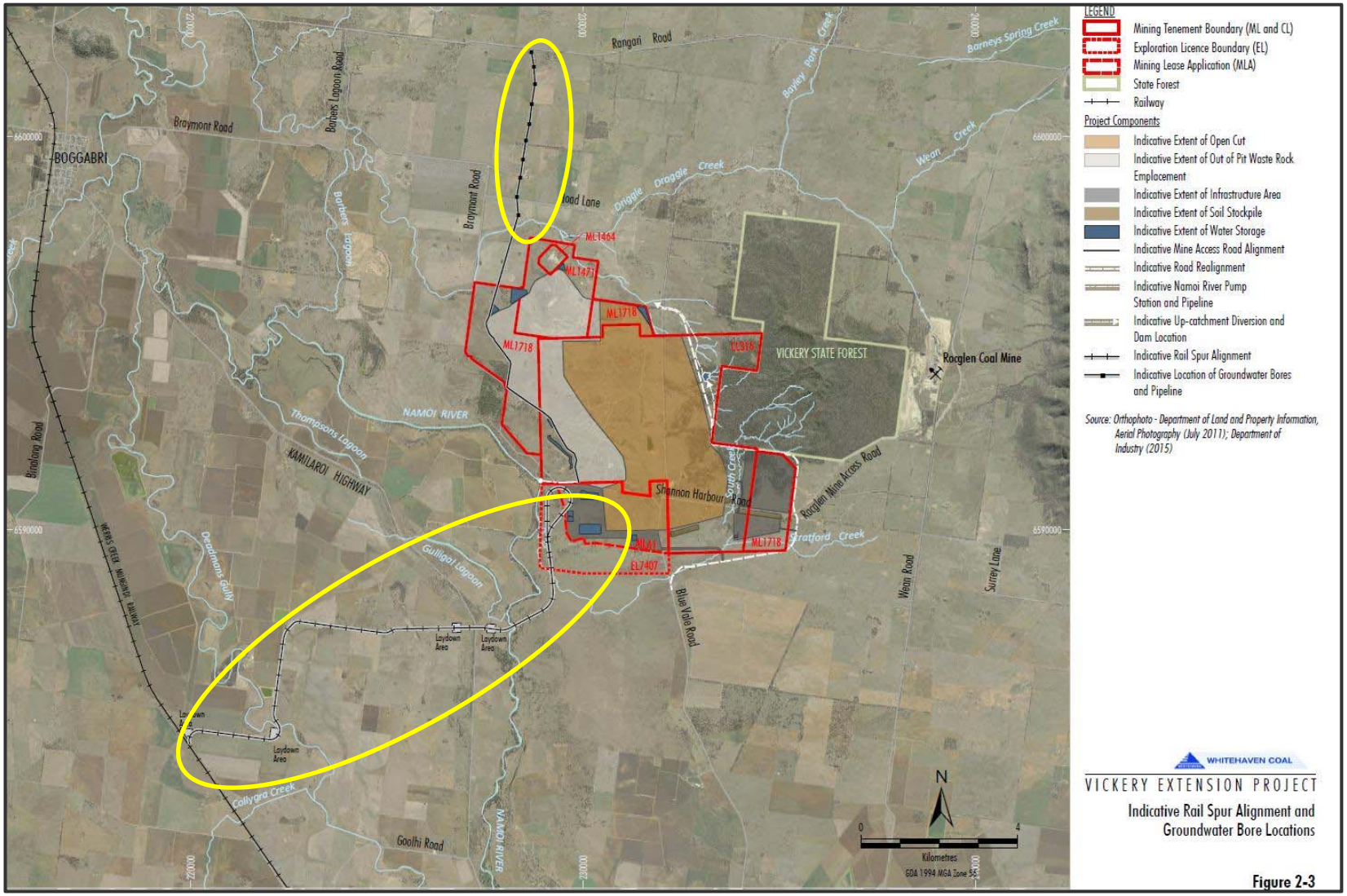


Figure 5 | Project Rail Spur Line and Borefield

3. Strategic Context

3.1 Gunnedah Coalfield

There has been a long history of coal exploration and mining in the Gunnedah region including, around the project area and near the town of Boggabri.

In October 1986, the then Minister for Planning and Environment approved the former Vickery Coal Mine[1] within the project area. The mine was operated by a subsidiary of Rio Tinto and commenced with a small underground operation which operated from 1986 until 1991. From 1991 to 1998, 4 million tonnes of coal were extracted from 3 additional open cut mining areas. In May 1998, mining was suspended, and the site subsequently rehabilitated to allow agricultural (grazing) land use on the site.

Between 2000 and 2009, Whitehaven operated the former Canyon open cut coal mine in the northern part of the project mining area (to the north of the former Vickery mine). The mine (including the final voids) has also since been rehabilitated to allow agricultural (grazing) land use. The mining activities at the Vickery and Canyon mines have left 5 relatively small voids within the landscape on the site, which has also been rehabilitated to allow grazing.

Coalworks Limited undertook exploration in the exploration lease area to the south of the Approved Project (EL 7407 – see **Figures 4** and **5**) and proposed to develop the Vickery South Project. Whitehaven acquired this EL in 2012 and the Vickery Extension Project, if approved, would allow mining of additional coal resources within this area.

As shown in **Figure 1**, a number of operating coal mines are located in the vicinity of the mine, including the:

- Maules Creek open cut mine, operated by Whitehaven, approximately 20 kilometres to the north;
- Boggabri open cut mine, operated by Idemitsu, approximately 15 kilometres to the north;
- Tarrawonga open cut mine, operated by Whitehaven, approximately 10 kilometres to the north; and
- Rocglen open cut mine, operated by Whitehaven, approximately 5 kilometres to the east.

Currently there are two main coal transport routes from mines in the area.

The Maules Creek and Boggabri coal mines are located within and adjoining the Leard State Forest and operate a shared rail spur line that crosses the Namoi River north of Boggabri. Coal is transported by rail to the public rail network north of Boggabri, and together, these two mines have approval to transport up to 22.4 Mtpa by rail to Newcastle.

The Tarrawonga and Rocglen mines transport coal by road to the Gunnedah CHPP via an approved haulage route for processing and rail load out to Newcastle. Up to 3 million tonnes of ROM coal is approved to be processed at the CHPP each year, and the train load-out facility is approved to handle up to 4.1 million tonnes of product coal a year (including loading of CHPP-bypass coal). The Approved Project involves the construction of an overpass of the Kamilaroi Highway, to avoid the need for coal haulage trucks to cross the highway to access the CHPP. The overpass is required to be operational prior to cumulative haulage of coal exceeding 3.5 million tonnes a year[2].

[1] Formerly known as the Namoi Valley Coal Project.

[2] This was the maximum approved coal haulage volume on the transport route prior to the approval of the Vickery Coal Project. With the agreement of the Roads and Maritime Servicecs and Gunnedah Shire Council, the Department has approved short term cumulative haulage from Rocglen and Tarrawonga mines of up to 4 Mtpa for calendar years 2017 and 2018 without construction of the overpass.

3.2 Agriculture and Water Resources

Land use in the project mining area is predominantly agricultural grazing, with some small scale dryland cropping on areas of higher fertility. The eastern part of the project rail spur also traverses land predominately used for grazing, while the western part along the Namoi River floodplain traverses land with good quality alluvial soils predominately used for higher value irrigated cropping. The project rail spur has been located adjacent to property boundaries in this area to reduce impacts on cropping areas (see **Figure 6**).

The site drains to the Namoi River, via its tributaries including Driggle Draggle Creek and Stratford Creek, both of which are ephemeral watercourses. There are several key aquifer systems in the vicinity of the site including highly productive aquifers associated with the Upper Namoi Alluvium of the Namoi River and its tributaries, and also a less productive porous hard rock groundwater system within the Maules Creek Formation. The project open cut mining area is located wholly within the hard rock system.

While the project area is currently used for agriculture, the land within the project mining area is mostly of Class 4 Agricultural Suitability (1,875 hectares (ha)), although there are some areas of better quality Class 2 land (148 ha) and Class 3 land (774 ha).

The project mining area, including the project borefield, is located on land wholly owned by Whitehaven, apart from some local roads and Crown land (see **Figure 6**). The eastern part of the project rail spur is located on Whitehaven-owned land, while the western part is located on privately-owned land. Whitehaven has entered into agreements with the relevant landowners to allow the proposed project rail spur to be constructed and operated on these properties. The project rail spur would also cross the Kamilaroi Highway and a parcel of Crown land.

Whitehaven also owns a large amount of the land in the wider area, particularly to the north, east and south of the proposal. The nearest privately-owned properties are located to the south-west of the project mining area, on higher value agricultural land adjacent to the Namoi River. The closest residences are located on the 'Mirrabinda' property (Property 127), with the closest located approximately 1.6 kilometres from the project mining area (Property 127c). The Mirrabinda property has voluntary acquisition rights due to noise impacts associated with the Approved Project.

A number of privately-owned residences are located in the vicinity of the project rail spur, with the closest two located approximately 500 metres (Property 144b) and 750 metres (Property 144a) from the rail line.

3.3 Biodiversity

Due to biodiversity impacts from mining, extensive areas to the east of the Namoi River have been set aside for biodiversity offsets in the region (see **Figure 7** below). The offset placement and conceptual approach has had a focused on avoiding highly productive agricultural land in the region and on improving habitat connectivity between existing areas of remnant native woodland located in conservation reserves along the Nandewar Range to the east of the site and west towards the Namoi River.

In addition, there are requirements in coal mining approvals for rehabilitation of disturbance areas back to native vegetation, including the three mines operating in the Leard State Forest to the north of the project site.

Vickery State Forest is located immediately to the east of the site and covers an area of approximately 1,942 ha. The forest would not be directly disturbed by the project.

The Rocglen Coal Mine is located between the Vickery State Forest and the Nandewar Range and the project approval includes rehabilitation objectives to establish native vegetation corridors to provide east/ west linkages. There are extensive existing offsets managed by Whitehaven adjoining the Boonalla Community Conservation Area Zone 2 Aboriginal Area to the east of the Rocglen Coal Mine.

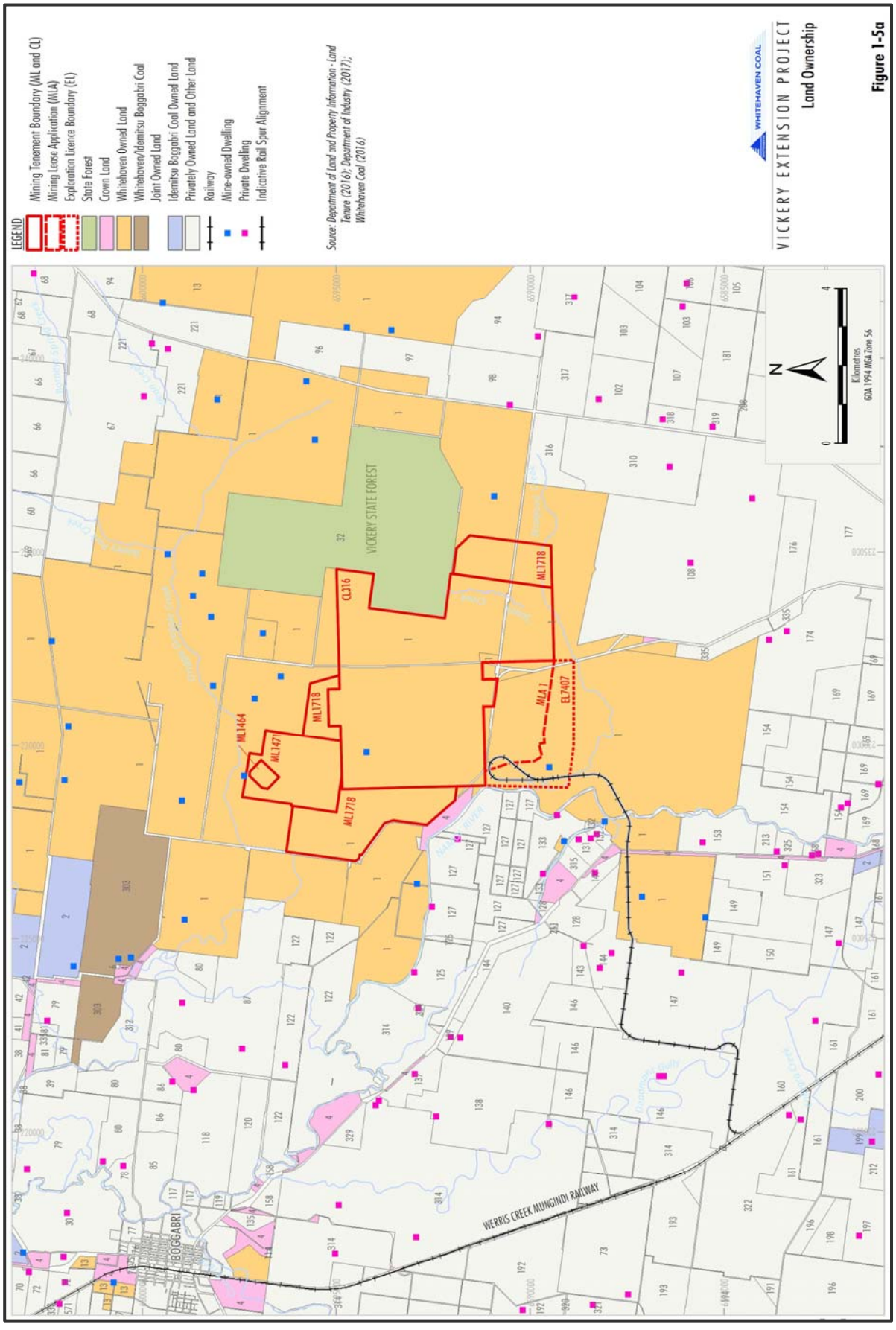


Figure 6 | Land Ownership Plan

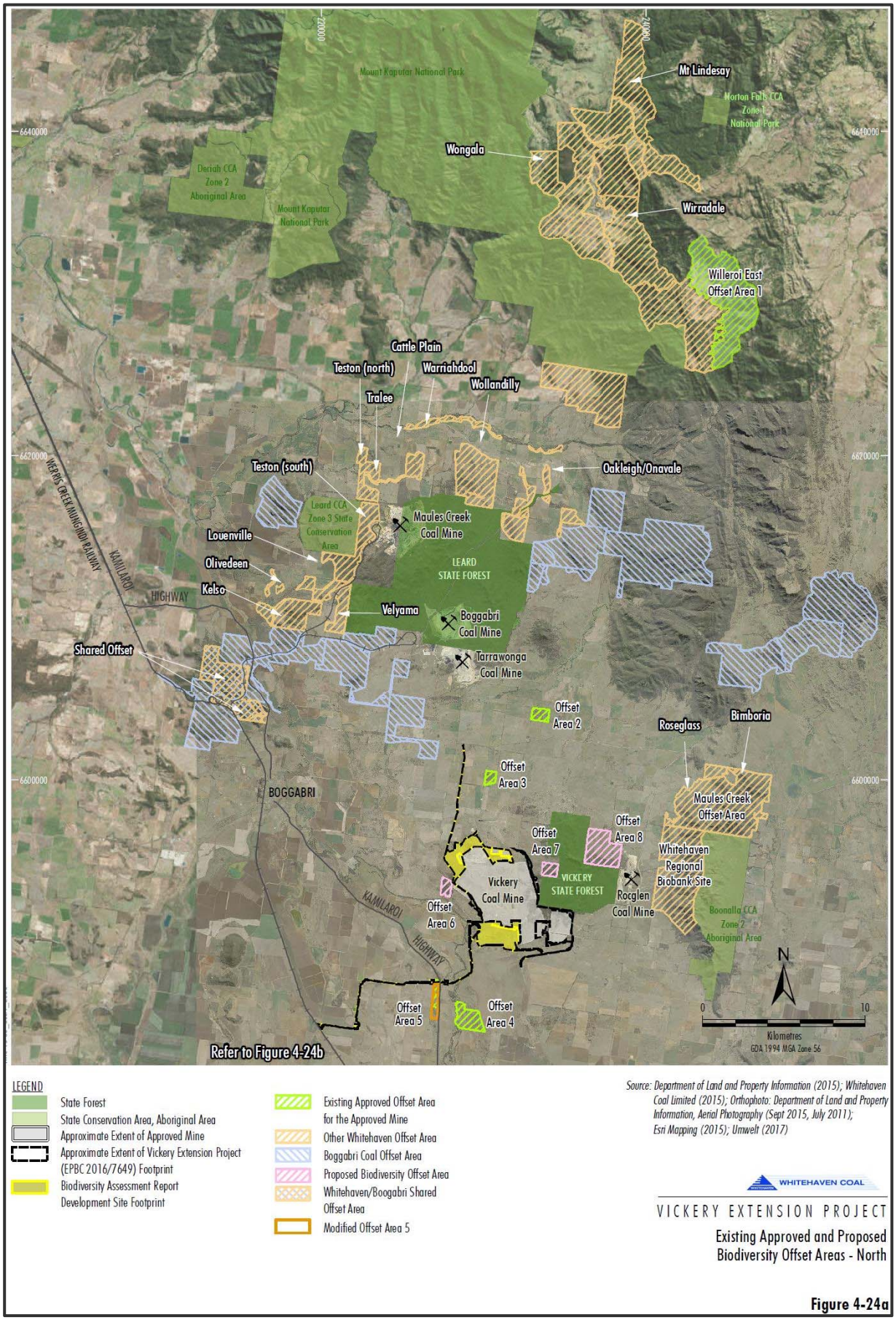


Figure 7 | Biodiversity offsets around the project area

4. Statutory Context

4.1 State Significant Development

The proposed development is classified as State Significant Development under Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as it is development for the purpose of coal mining and mining related works, which are specified in clause 5 of schedule 1 to *State Environmental Planning Policy (State and Regional Development) 2011* (the SSD SEPP).

In accordance with Section 4.5(a) of the EP&A Act and clause 8A of the SSD SEPP, the Independent Planning Commission (the Commission) is the consent authority for the development application, because there were more than 25 public submissions that objected to the project.

4.2 Permissibility

The project site is located in the Gunnedah and Narrabri local government areas (LGAs).

The portion of the site within the Gunnedah LGA, including the project rail spur and most of the project mining area, is zoned RU1 (Primary Production) under the *Gunnedah Local Environmental Plan 2012* (Gunnedah LEP).

The portion of the site within the Narrabri LGA, including the project borefield and the balance of the project mining area, is zoned RU1 (Primary Production) under the *Narrabri Local Environmental Plan 2012* (Narrabri LEP).

Open cut mining and railways are permissible with consent in these zones.

4.3 Environmental Planning Instruments

Under Section 4.15 of the EP&A Act the consent authority is required to consider amongst other things the provisions of relevant environmental planning instruments (EPIs), including any exhibited draft EPIs, development control plans (DCPs)[3] or planning agreements.

The EIS includes consideration of a number of relevant instruments, including:

- SEPP No.33 – Hazardous and Offensive Development;
- SEPP No.44 – Koala Habitat Protection;
- SEPP No.55 – Remediation of Land;
- SEPP (State and Regional Development) 2011;
- SEPP (Infrastructure) 2007 (the Infrastructure SEPP);
- SEPP (Mining, Petroleum Production and Extractive Industries) 2007 (the Mining SEPP);
- Gunnedah LEP 2012; and
- Narrabri LEP 2012.

Whitehaven's assessment concludes that the proposed development is able to be undertaken in a manner that is generally consistent with these instruments.

The Department will consider these instruments as part of its detailed assessment of the project.

[3] SEPP (State and Regional Development) 2011 provides that DCPs do not apply to State Significant Development

4.4 Integrated and Other NSW Approvals

Under Section 4.41 of the EP&A Act, a number of approvals are integrated into the State Significant Development assessment process and consequently are not required to be separately obtained for the proposal. These include:

- various approvals relating to heritage required under the *National Parks and Wildlife Act 1974* and the *Heritage Act 1997*; and
- certain water approvals under the *Water Management Act 2000*.

Under Section 4.42 of the EP&A Act, a number of other approvals are required, but must be substantially consistent with any development consent for the project. These include:

- a mining lease under the *Mining Act 1992*;
- an Environment Protection Licence (EPL) under the *Protection of the Environment Operations Act 1997*; and
- consents under Section 138 of the *Roads Act 1993* for the re-alignment of public roads and intersection upgrades.

Whitehaven would also require other approvals for the project which are not integrated into the State Significant Development assessment process, including:

- approval under the *Crown Lands Act 1989* for any works on Crown land;
- approvals under the *Roads Act 1993* from Gunnedah and/or Narrabri Shire Councils to permanently close roads in the project area;
- notification under the *Work Health and Safety (Mines) Act 2013* for high risk activities, including emplacement of reject materials;
- approval for prescribed dams under the *Dams Safety Act 1978*; and
- certain water licences under the *Water Act 1912* and the *Water Management Act 2000*.

4.5 Gateway Assessment

Under Clause 50A of the EP&A Regulation, mining and petroleum related development on strategic agricultural land is required to undergo a 'Gateway' assessment prior to submission of a development application. The Gateway assessment is an independent, upfront scientific assessment of the impact of applicable mining and coal seam gas proposals on strategic agricultural land and its associated water resources.

Strategic agricultural land includes:

- Biophysical strategic agricultural land (BSAL) – land that has the best quality soil and water resources and is capable of sustaining high levels of productivity; and
- Critical Industry Cluster (CIC) land – a concentration of significant agricultural industries potentially impacted by coal seam gas or mining development.

The proposed mining extension area covered by existing or proposed mining lease applications is not located on mapped BSAL or CIC land, and the Department issued a Site Verification Certificate (SVC) on 8 February 2016 verifying that the MLA associated with the project (MLA 1) is not located on Biophysical Strategic Agricultural Land.

Consequently, a Gateway Certificate was not required for the proposed development.

4.6 Commonwealth Approvals

Whitehaven also needs to obtain an approval from the Commonwealth Minister for the Environment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), because the project is a 'controlled action' under the EPBC Act due to its potential impacts on listed threatened species and communities (Sections 18 and 18A) and a water resource (Sections 24D and 24E).

The assessment process under the EP&A Act has been accredited under a bilateral agreement with the Commonwealth Government. This means that the NSW Government is undertaking the assessment on behalf of the Commonwealth and must assess matters of national environmental significance (MNES). Nevertheless, it is important to recognise that the Commonwealth Minister maintains an independent approval role for the project and is expected to undertake this determination following the NSW determination.

4.7 NSW Independent Planning Commission

On 6 September 2018, the Minister for Planning requested the Commission conduct an initial public hearing into the Vickery Extension Project, as soon as practicable after the public exhibition of the EIS for the project.

The Minister asked that the Commission consider the EIS, submissions on the project, and any relevant expert advice and other information. The Minister also asked that the Commission publish a report on the hearings findings including, amongst other things, identification of the key issues requiring detailed consideration by the Department in evaluating the merits of the project.

Following receipt of the Commission's public hearing report, the Department will complete its detailed assessment of the project, before referring the development application back to the Commission for final determination. The Commission will undertake further public consultation prior to making its determination in accoradance with its *Guidelines for a Public Hearing Held in Multiple Stages.*

5. Engagement

5.1 Department's Engagement

The Department publicly exhibited the EIS from 13 September 2018 until 25 October 2018 (42 days) and advertised the exhibition in the:

- Gunnedah Namoi Valley Independent;
- Narrabri North West Courier;
- The Land;
- Tamworth Daily Leader;
- Sydney Morning Herald; and
- Daily Telegraph.

The Department also notified Narrabri Shire Council and Gunnedah Shire Council, relevant government agencies, and landowners adjoining the project boundary.

The Department held a community information session in Boggabri on 26 September 2018 to inform the community about the planning assessment process and to hear their concerns about the project. The information session was attended by around 70 community members. The Department and key government agencies also inspected the site on 26 September 2018.

The Department also visited properties around the site and met with surrounding landowners to gain an appreciation of the potential impacts associated with the project and to further understand the concerns of individual landowners.

A key concern raised by the landholders near the project was the potential flood impacts of the rail spur line. The Department visited landholders and members of the Boggabri Farming and Community Group with its flood expert (Erin Askew from WMA Water – see Section 6 below) to hear directly about flooding impacts and first-hand knowledge of the impacts of previous flood events.

5.2 Submissions

During the exhibition period of the EIS, the Department received a total of 560 submissions, including:

- 20 from special interest groups; and
- 540 from the general public (including individuals and businesses).

The Department also received advice from 14 government agencies.

This compares to 23 public submissions received for the Approved Project, showing the change in the level of public interest about the project, and coal mining more broadly and changes to the strategic context of coal mining in the Gunnedah Basin.

A summary of the submitters is provided in Table 2 below, and a full copy of all submissions and advice is provided in **Appendix B.**

Table 2 | Summary of government advice and special group submissions

Submitters	Total	Object	Support	Comment
Government Agenices	**14**	**0**	**0**	**14**
Environment Protection Authority (EPA)				
Department of Industry (DoI) - Lands and Water				
Office of Environment and Heritage (OEH)				
Heritage Council of NSW				
Division of Resources and Geoscience (DRG)				
Resources Regulator (RR)				
NSW Health				
Australian National University (Siding Spring Observatory)				
Australian Rail Track Corporation (ARTC)				
Roads and Maritime Services (RMS)				
Rural Fire Service (RFS)				
Liverpool Plains Shire Council (LPSC)				
Gunnedah Shire Council (GSC)				
Narrabri Shire Council (NSC)				
Special Interest Groups (SIGs)	**20**	**17**	**1**	**2**
Gunnedah & District Chamber of Commerce				
NSW Farmers Association				
Dorothea Mackellar Memorial Society				
Cotton Australia				
Lock the Gate Alliance				
Sustainable Living Armidale				
National Parks Association - Armidale Branch[1]				
Red Chief Local Aboriginal Land Council				
New England Greens Armidale Tamworth				
Boggabri Farming and Community Group				
Boggabri Business & Community Asscn				
People for the Plains				
Wando Conservation and Cultural Centre Inc				
Maules Creek Branch of the Country Womens Association of NSW				
Maules Creek Community Council Inc				
Leard Forest Research Node				
Namoi Water				
Upper Mooki Landcare Inc				
Emerald Hill Progress Association				
CountryMinded				
Community	**540**	**184**	**344**	**12**
TOTAL Communty and SIGs (No. / %)	**560**	**201 (36%)**	**345 (62%)**	**14 (2%)**

- Note – the National Parks Association – Armidale Branch lodged 2 separate submissions, however it is identified as one submission for the purposes of the summary table.

213 submissions were received from residents or businesses in the Narrabri, Boggabri and Gunnedah post codes. 23 of these were from people residing within 10 km of the project site. These are summarised in **Table 3**.

Table 3 | Summary of submissions from residents near the project

Distance from Project	Total	Object	Support	Comment
< 2 km from the project rail spur	15	14	0	1
2 – 5 km from the project mining area	11*	11	0	0
5 – 10 km from the project mining area	9+	6	2	1
Narrabri, Boggabri and Gunnedah post codes (number/%)	213	62 (29%)	142 (67%)	9 (4%)

* 8 of these (all objecting) are also located within 2 km of the project rail spur

+ 4 of these (three objecting, one commenting) are also located within 2 km of the project rail spur

The Department notes that while most submitters living closer to the proposed mine extension object to the development, there is a higher level of support in the regional area (particularly the towns of Narrabri and Gunnedah).

5.3 Key Issues – Public Authorities

None of the public authorities object to the project. However, most authorities raised issues about the potential impacts of the project, and/or made recommendations as to how these impacts should be avoided or minimised. Key issues raised by public authorities are summarised below.

Water Resources

- DRG and EPA requested additional consideration and justification for the final void, to maintain long term groundwater and surface water quality.
- EPA requested additional consideration of potential impacts associated with discharges from sediment basins, risks associated with reusing mine water, design standards for mine water storages, investigation of alternative final void solutions that minimise long term salinity build-up and the mine water balance.
- OEH raised concerns about flood flow distribution and both OEH and DoI Lands and Water requested further consideration of flood erosion risks associated with increased flood flow velocity.
- DoI Lands and Water sought clarification on water entitlements and further assessment of borefield water take.

Amenity Issues

- EPA sought further clarification and justification and assumptions used in the air and noise modelling, related to the air emission factors and noise sound power levels used in the assessment.

Biodiversity and Heritage

- OEH requested further clarification on assumptions used in the Biodiversity Assessment Report, including assumptions used for identifying koala habitat and species credit requirements and the need to develop a Koala Plan of Management (KPoM).
- OEH also identified further review biodiversity credits in the offset areas and that the Biodiversity Offset Strategy would likely need to be updated following this review.
- OEH recommended further consultation be undertaken with Registered Aboriginal Parties (RAPs) on the scar tree assessment and recommended the proposed Cultural Heritage Management Plan include requirements for further test and salvage excavation and analysis of the axe grinding groove site.

Final Landform and Landuse

- DRG recommended that an independent review of the final landform, and final void design be undertaken.
- DoI recommended that the rehabilitation objectives should aim to maximise the area of land suitable for future agricultural land use.

A detailed summary of issues raised by the individual agencies is provided in **Appendix C1.**

Gunnedah Shire Council (GSC), Narrabri Shire Council (NSC) and ***Liverpool Plains Shire Council (LPSC)*** provided detailed submissions raising a wide range of issues and recommendations including:

- flooding and water resources;
- agricultural impacts;
- road infrastructure and transport;
- amenity and health issues associated with noise and blasting, air quality and visual impacts;
- social and economics;
- biodiversity and heritage impacts;
- statutory planning issues; and
- final void and rehabilitation.

A detailed summary of the issues raised by GSC, NSC and LPSC is provided in **Appendix C2.**

5.4 Key Issues – Community and Special Interest Groups

The majority of submissions (62%) supported the project. The reasons cited include that the project would:

- provide employment and training opportunities, particularly for young people and Aboriginal people in the region;
- generate royalites, tax and export revenues;
- diversify industry in regional Australia;
- provide social benefits such as sponshorship of community events;
- produce high quality low pollutant coal; and
- contribute to the production of reliable, cheap power.

Objecting submissions (36%) raised a range of issues related to:

- flooding, groundwater and surface water impacts;
- impacts on agriculture land, including use of land for biodiversity offsets;
- amenity impacts, including noise, lighting and air quality, including impacts on Siding Spring Observatory;
- social and health impacts;
- transport impacts;
- Aboriginal and historic heritage, including maintaining access to the "Kurrembede" property;
- cumulative impacts from all mining in the area;
- greenhouse gas emissions and reliance on fossil fuels;
- impacts on property values; and
- arrangements for Voluntary Planning Agreement (VPA) funding.

A summary of the issues raised by the community and special interest groups is provided in **Appendix C3.**

5.5 Independent Expert Scientific Committee Advice

In September 2018, the Department and the Commonwealth Department of the Environment and Energy jointly requested the Commonwealth Independent Expert Scientific Committee on Coal Seam Gas and Large Mining Development (IESC) provide advice on the Vickery Extension Project. The IESC has provided its advice to the Department and DoEE (see **Appendix D**).

The IESC noted that the water-related studies in the EIS have been completed to a high standard, and that Whitehaven should be commended for these studies and for obtaining a number of peer reviews of these studies. However, the IESC identified a number of areas where it considers additional work is required, including:

- further groundwater sensitivity modelling to examine a greater range in hydraulic parameters;
- risk analysis and mapping of potential impacts to groundwater dependent ecosystems, and further consideration of potential local impacts on the 'Lowland Darling River Aquatic Ecological Community';
- further consideration of how groundwater drawdown may affect surface water-groundwater exchange in the Namoi River; and
- further geochemical analysis using a range of environmental conditions (especially a range of pH levels), and further consideration of surface water monitoring.

6. Preliminary Issues Review

The Department has undertaken a preliminary review of the development application, EIS and submissions for the project. It has also engaged a number of independent experts to review key aspects of the project, including:

- Flooding – Erin Askew of WMA Water (see **Appendix E1**);
- Groundwater – Hugh Middlemiss of Hydrogeologic (see **Appendix E2**);
- Surface Water – Martin Giles of BMT (see **Appendix E3**); and
- Economics – Gavan Dwyer of Marsden Jacobs Associates (see **Appendix E4**).

Based on its preliminary review, the Department has identified a number of key issues that will require further consideration during the detailed assessment of the project. These issues are outlined below.

Following the initial public hearing by the Commission, the Department will undertake a comprehensive assessment of the merits of the project in accordance with mandatory statutory requirements under the EP&A Act and relevant NSW Government policy and guidelines and the matters raised in meetings, hearings and submissions as identified above.

The Department will also undertake an assessment of the project's impacts on Matters of National Environmental Significance (MNES) on behalf of the Commonwealth, in accordance with the Assessment Bilateral Agreement between the Commonwealth and NSW governments.

6.1 Project Rail Spur

A key difference between the approved project and the proposed development is the introduction of the project rail spur. The rail spur, together with the on-site CHPP and train load out facility, would enable the cessation of road haulage of coal from the mine (and other Whitehaven mines including the Tarrawonga and Rocglen mines) to the Whitehaven CHPP near Gunnedah.

This would remove coal haulage on public roads, and coal processing close to Gunnedah. However, it would also have its own impacts, as raised in a number of submissions. These include:

- flooding impacts on the Namoi River floodplain (see **Figure 8**), including changes to flood levels, velocities and flow redistribution;
- other water related impacts (such as erosion) associated with building the project rail spur across a number of watercourses, including the Namoi River, Stratford Creek and Deadmans Gully;
- amenity impacts (including noise, dust and visual impacts) for residents near the project rail spur; and
- land use related impacts, particularly potential impacts on agricultural land uses located on the good quality soils of the Namoi River floodplain.

With regard to flooding, Whitehaven's modelling indicates that the project rail spur would increase flood levels by up to 0.3m within Whitehaven-owned land (for the 1% AEP), with negligible increases (up to 1cm) at the nearest privately-owned dwellings. The project rail spur structure would alter flood velocities by up to 20% under the structure itself, but by less than 0.1m/s on privately-owned land.

The Department's independent flooding expert, Erin Askew of WMA Water, has reviewed Whitehaven's flood assessment (see **Appendix E1**), and considers that the assessment has been undertaken generally in accordance with best practice and the draft *Floodplain Management Plan for the Upper Namoi Valley* (draft FMP).

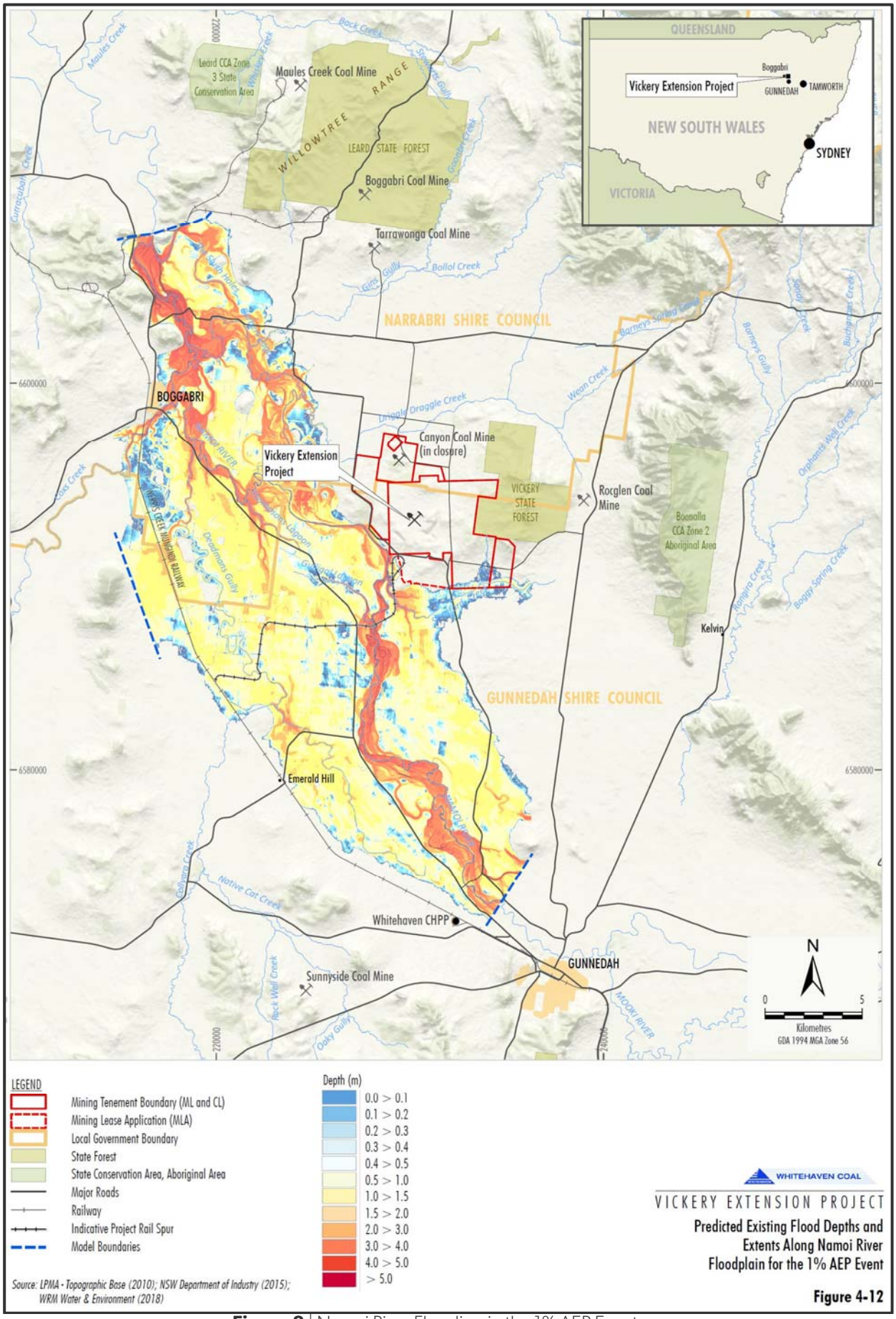


Figure 8 | Namoi River Flooding in the 1% AEP Event

However, Ms Askew considers that some aspects of the assessment are not adequately documented and/or addressed, and has recommended additional information be provided on a number of matters to confirm and clarify the conclusions. This includes further detail on components of the project rail spur and associated culverts, bridges and embankments, and the method applied within the flood model to assess these components. In this regard, the spur is proposed to be constructed largely on a viaduct structure to reduce impacts. However, little detail on this structure is provided in the EIS, including details of where embankments and culverts might be required.

Ms Askew also recommended further discussion to confirm the consistency of the project with the draft FMP criteria, including flow redistribution on individual properties, which is a key issue for adjacent landholders.

With regard to amenity impacts, the EIS indicates that the operation of the project rail spur would comply with the applicable air quality and noise criteria at all sensitive receivers, but result in some moderate visual impacts for receivers in the vicinity of the rail spur.

An average of five (10 movements) and maximum of eight (16 movements) loaded trains were considered in the project rail spur noise assessment, with a peak of three loaded trains (6 movements) during the more sensitive night time period.

While noise from the project rail spur is predicted to comply with the applicable noise criteria under the *NSW Rail Infrastructure Noise Guideline*, there are a number of residences that are located in the vicinity of the rail spur. This includes 7 residences within 1 kilometre of the spur, with the closest[4] approximately 500 metres from the line. Whilst compliance is predicted, these receivers have the potential to be affected to some extent by noise and/or visual impacts associated with rail activities, including rail noise during the sensitive night time period, particularly given the change in land use from the existing quiet rural setting.

Some submitters have suggested that Whitehaven should avoid building the rail spur on the floodplain altogether, and instead extend the rail line north to the existing spur servicing the Maules Creek and Boggabri mines (see **Figure 1**).

The EIS includes consideration of this 'northern rail corridor' option (see Section 6.1.8 of the EIS). Whilst the northern option would be marginally cheaper to build than the proposed rail spur (by some $40 million), Whitehaven has not considered this option further for a number of reasons, including:

- the northern option would cause congestion on the common section of the Maules Creek and Boggabri rail spur, which would require considerable rail infrastructure upgrades including a new passing loop on the Werris Creek to Mungindi Railway line;
- the northern option would require disturbance of an existing biodiversity offset area for the Boggabri mine;
- the northern option would result in increased train movements through the town of Boggabri, causing increased amenity and traffic impacts on its residents; and
- the northern option would result in an increased travel distance of about 30 kilometres from the mine to the Port of Newcastle, with resultant economic and environmental impacts.

The economic assessment indicates that the proposed rail spur alignment would deliver a significant economic advantage of more than $150 million, compared to the northern option.

The Department also notes that Whitehaven does not own all the land required to connect into the alignment of the existing northern crossing of the Namoi River, which presents a further impediment to progressing this option. This includes land associated with the Boggabri Coal Mine which is owned by three joint venture partners, including Idemitsu Australia Resources. Notwithstanding the above, the Department believes that the benefits and costs/impacts of the project rail spur should be considered further in detail in the assessment of the project.

[4] Residence 144b

6.2 Water Resources

In addition to the water related impacts associated with the project rail spur and the final landform as outlined above, the project has the potential to affect water resources, including groundwater drawdown and use, surface water management and flooding associated with the project mining area and project borefield.

Groundwater

Key groundwater resources in the area include:

- highly productive shallow alluvial groundwater (Upper Namoi Groundwater Source); and
- less productive deeper groundwater within porous hard rocks of the Maules Creek Formation (Gunnedah-Oxley Basin Groundwater Source).

The project mining area is primarily within the porous hard rock system, with the proposed open cut located wholly outside the alluvial system (see **Figure 9**). No high priority groundwater dependent ecosystems or stygofauna are identified in the relevant water sharing plans (WSPs).

The EIS includes a groundwater assessment by HydroSimulations and a peer review by Frans Kalf of Kalf & Associates. The EIS predicts average annual groundwater inflows into the open cut pit of 0.93 ML/day with a maximum inflow of about 1.42 ML/day from the poorer quality porous rock aquifer, with no direct flows from the highly productive alluvial water source. Incidental losses from the alluvium to the hard rock system are predicted to be less than 0.1 ML/day.

In comparison, the Approved Project predicted average groundwater inflows of approximately 1.2 ML/day (with a maximum of 1.9 ML/day). Incidental losses from the alluvium to the hard rock system were predicted to be approximately 0.15 ML/day in the area south of the open cut and approximately 0.11 ML/day in the area to the north. In this regard, drawdown from the proposed project is predicted to be less than that predicted for the Approved Project.

The proposed project is predicted to result in groundwater drawdown of less than 1 metre beyond the mining areas and surrounding alluvium. The project is predicted to comply with the minimal impact considerations of the NSW *Aquifer Interference Policy*, with no significant impacts predicted on any privately-owned groundwater bores.

Whitehaven holds sufficient entitlements to account for its predicted take of water during mining and post mining. The project includes a borefield of up to 10 bores, which would extract alluvial groundwater in accordance with Whitehaven's existing entitlements. DoI has recommended that Whitehaven confirms that it holds sufficient entitlements to account for its water take from the combined operations of its mines in the region.

The Department's independent groundwater expert reviewer believes that the groundwater assessment is fit for purpose for assessment and informing management strategies and licensing (see **Appendix E1**). However, while some sensitivity and uncertainty scenarios have been conducted, Mr Middlemiss believes that additional sensitivity assessment is warranted to align with best practice.

Although he acknowledges that the risk context is fairly low given the nature of the site (including the low permeability of the Maules Creek Formation and the low dewatering rates), Mr Middlemiss believes that additional qualitative and/or quantitative assessment should be undertaken to confirm the predicted impacts. The IESC also recommended additional sensitivity assessment of key hydraulic parameters to inform the assessment and potential for changes in surface and groundwater interactions.

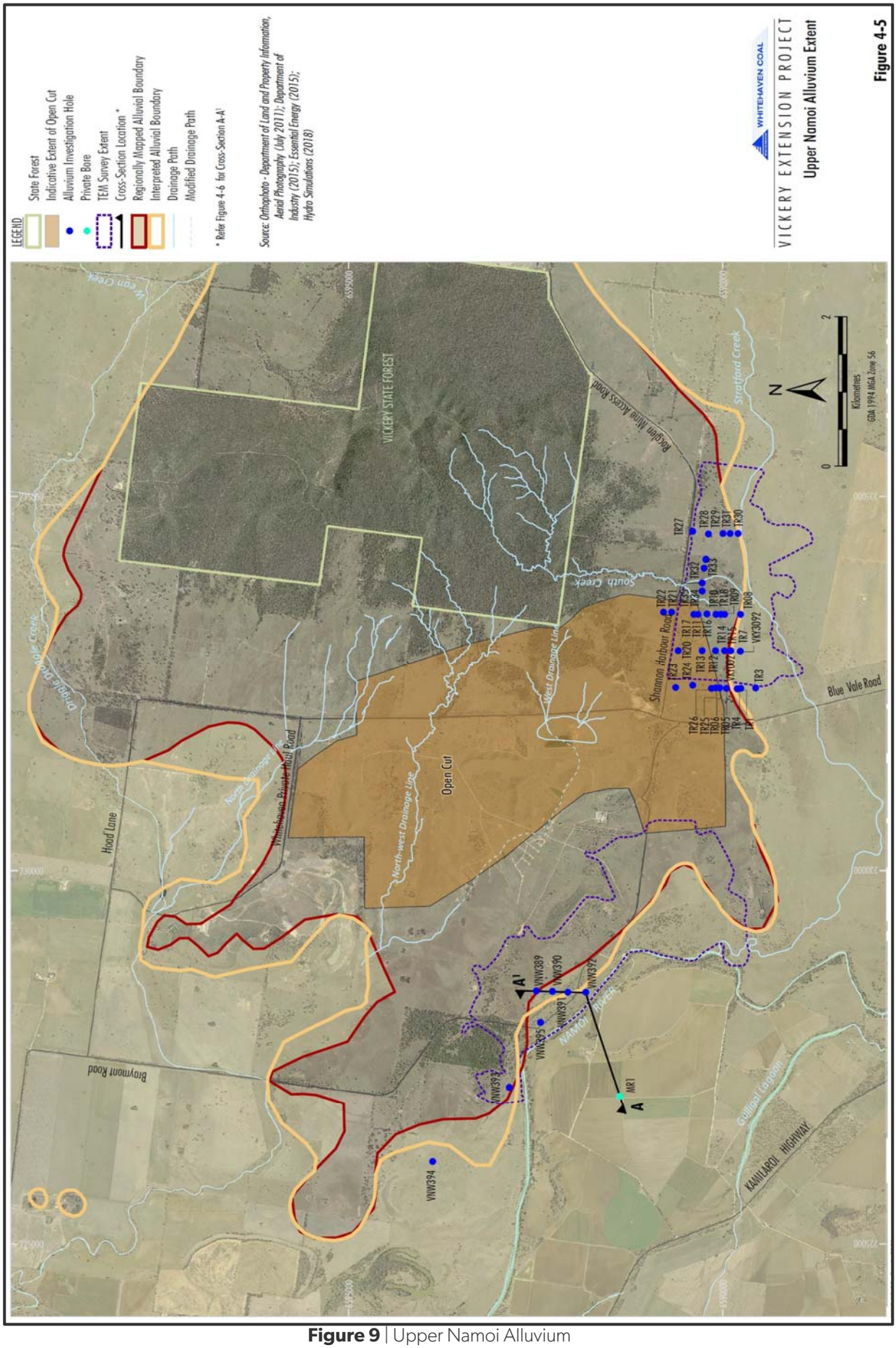


Figure 9 | Upper Namoi Alluvium

Surface Water and Flooding

The project is located within the Namoi River catchment, with the mining area located within the local catchments of Driggle Draggle and Stratford Creek (see **Figure 10**).

The EIS includes a surface water assessment undertaken by Advisian, as well as a flood assessment undertaken by WRM Water & Environment. It also includes a peer review of the surface water assessment undertaken by Professor Tom MacMahon of Melbourne University.

The surface water assessment indicates that impacts (surface water quantity and quality) would be similar to the existing approved project, with extraction of surface water from the Namoi River consistent with the approved project and/or entitlements already held by Whitehaven.

With regard to flooding, the EIS indicates that the mining area is located outside the flood-affected area (including the Probable Maximum Flood, or PMF) for the Namoi River, but that a part of the secondary infrastructure area and the south-east corner of the open cut pit is within the extent of local flooding from Stratford Creek. Bunds of between 0.3m to 1.6m are proposed in this area to prevent flood inundation from events up to the PMF.

The independent surface water reviewer, Martin Giles, considers that the methodology adopted for the surface water modelling is appropriate, and can be used to consider the water balance of the mine and the likelihood of discharges occurring from the mine to receiving downstream watercourses.

However, Mr Giles considers that additional consideration is required in relation to existing water quality for a wider range of analytes (including heavy metals), and the potential for discharge from the mine's sediment basins (and final void) to adversely impact on local water quality. Similar issues regarding sediment basin discharge were raised in a number of submissions including those from the EPA, IESC, Gunnedah and Narrabri Councils.

The Department notes that the water management system for the mine would be managed in a similar manner to the Approved Project and other contemporary open cut mines. In simplified terms, the water management system would include two key elements, namely a:

- mine water system – which would collect runoff from open cut areas, infrastructure areas and other areas that may come into contact with coal or other contaminants. This water would be contained on site in storages and/or in the pit, and would be reused on-site, with nil discharge off-site under any circumstances; and
- disturbed runoff water system – which would collect and treat runoff from emplacement areas and rehabilitation areas in a series of sediment basins, prior to on-site use or discharge to the receiving environment in accordancance with the water quality requirements specified in the mine's EPL.

The issues raised by the agencies and independent expert are likely able to be managed through additional consideration of the disturbed runoff water system, and the sizing of the project's sediment basins. Nonetheless, the Department agrees that additional consideration is warranted to address the matters raised by Mr Giles and relevant government authorities.

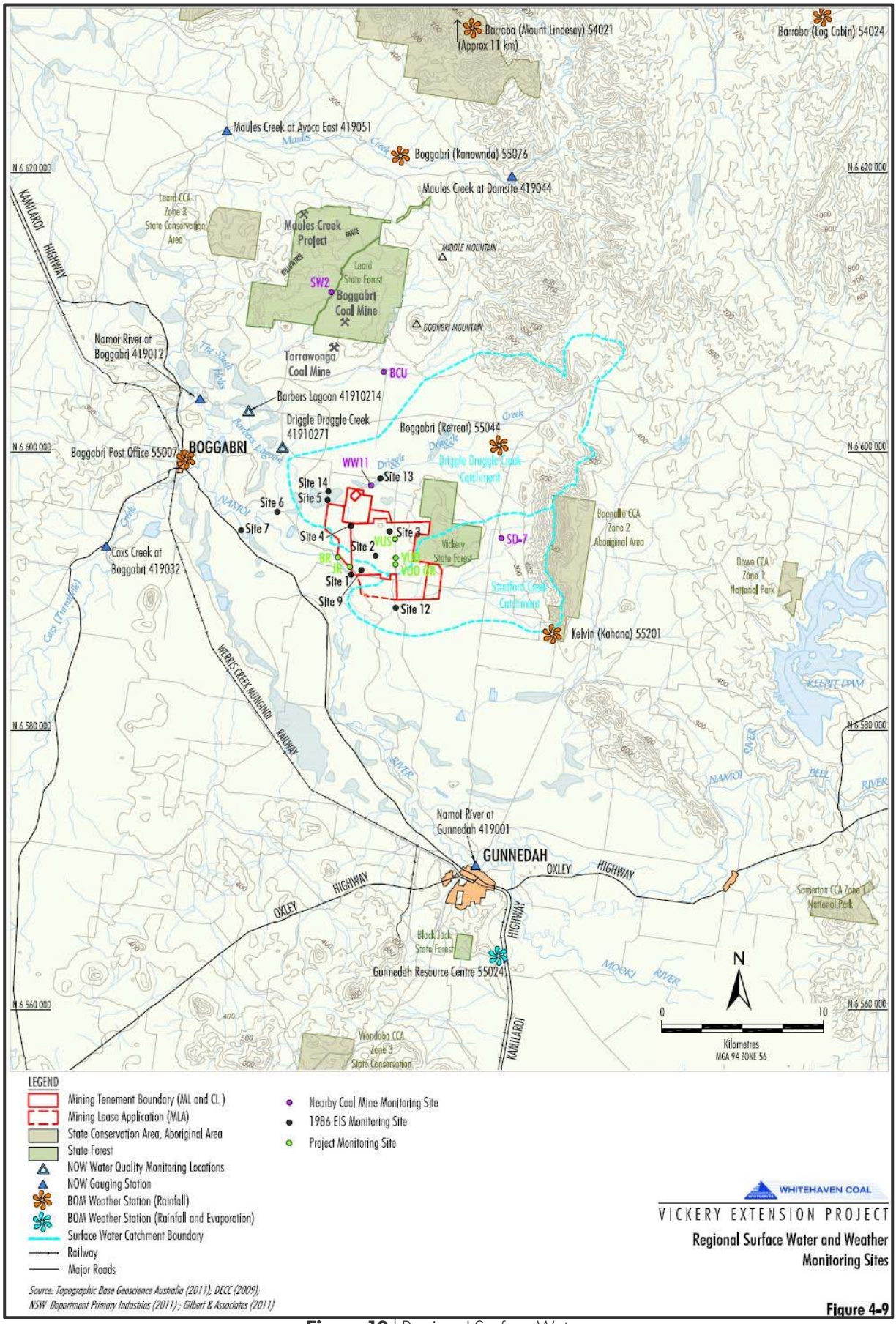


Figure 10 | Regional Surface Water

6.3 Amenity Impacts

The EIS includes a number of specialist studies and peer reviews undertaken to assess the amenity and health related impacts of the project, including noise and blasting, air quality and greenhouse gases, and visual amenity.

The assessments are based on avoidance and mitigation measures adopted by Whitehaven when evaluating reasonable and feasible measures that could be applied to reduce impacts. Key mitigation measures include:

- removal of the Blue Vale open cut from the project. This pit was located in the south-west area of the project mining area near off-site sensitive receivers, and was initially proposed to form part of the project;
- redesign of the emplacement area and mining progression to maximise shielding; and
- noise treatment of a selection of plant and infrastructure to reduce noise emissions.

Based on these and other mitigation measures the assessments indicate that:

- air quality emissions would comply with applicable criteria (based on the EPA's *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW*) at all sensitive receivers throughout the project;
- operational noise emissions would comply with applicable criteria (based on EPA's *Noise Policy for Industry*) at all receivers (see **Figure 11**), apart from:
  - a significant impact (>5dBA exceedance) at one residence to the south-west of the project mining area and rail loop (Residence 127c). This residence is already predicted to be significantly impacted (and has acquisition rights) under the approval for the Approved Project;
  - moderate impacts (3 to 5 dBA exceedance) at one residence on the same property (Residence 127b), which also has acquisition rights under the Approved Project; and
  - negligible impacts (1 to 2 dBA exceedance) at three residences also located to the south-west of the project mining area (Residences 131a, 131b and 132);
- construction noise impacts would be largely consistent with the operational noise impacts, although construction of the project rail spur would exceed applicable noise management levels (based on EPA's *Interim Construction Noise Guideline*) at two receivers (Residences 132 and 144b) for some construction activities;
- sleep disturbance, rail noise and cumulative emissions would comply with applicable criteria;
- greenhouse gas emissions would be comparable to other coal mining projects, and would contribute a small proportion to Australian and global emissions; and
- visual impacts would be moderate to high for a small number of receivers on large acreage properties within 5 kilometres of the mine during operations, although these impacts would reduce following rehabilitation of the emplacement area and/or mine.

The EPA and some other submitters questioned some of the inputs into the modelling, including the sound power levels used in the noise assessment, and emissions factors used in the air quality assessment. Some public submitters also questioned why predicted noise and dust levels are lower than the Approved Project, despite the project's increased size and additional infrastructure.

The Department understands that the differences can be largely attributed to the key mitigation measures outlined above, particularly the adoption of new-generation noise attenuated equipment, and the shielding that would be provided by the modified emplacement area. Notwithstanding, Whitehaven will be required to provide additional consideration of these aspects, and other issues raised in submissions, as part of its Response to Submissions. The Department will consider these issues in its detailed assessment of the project, in consultation with the EPA.

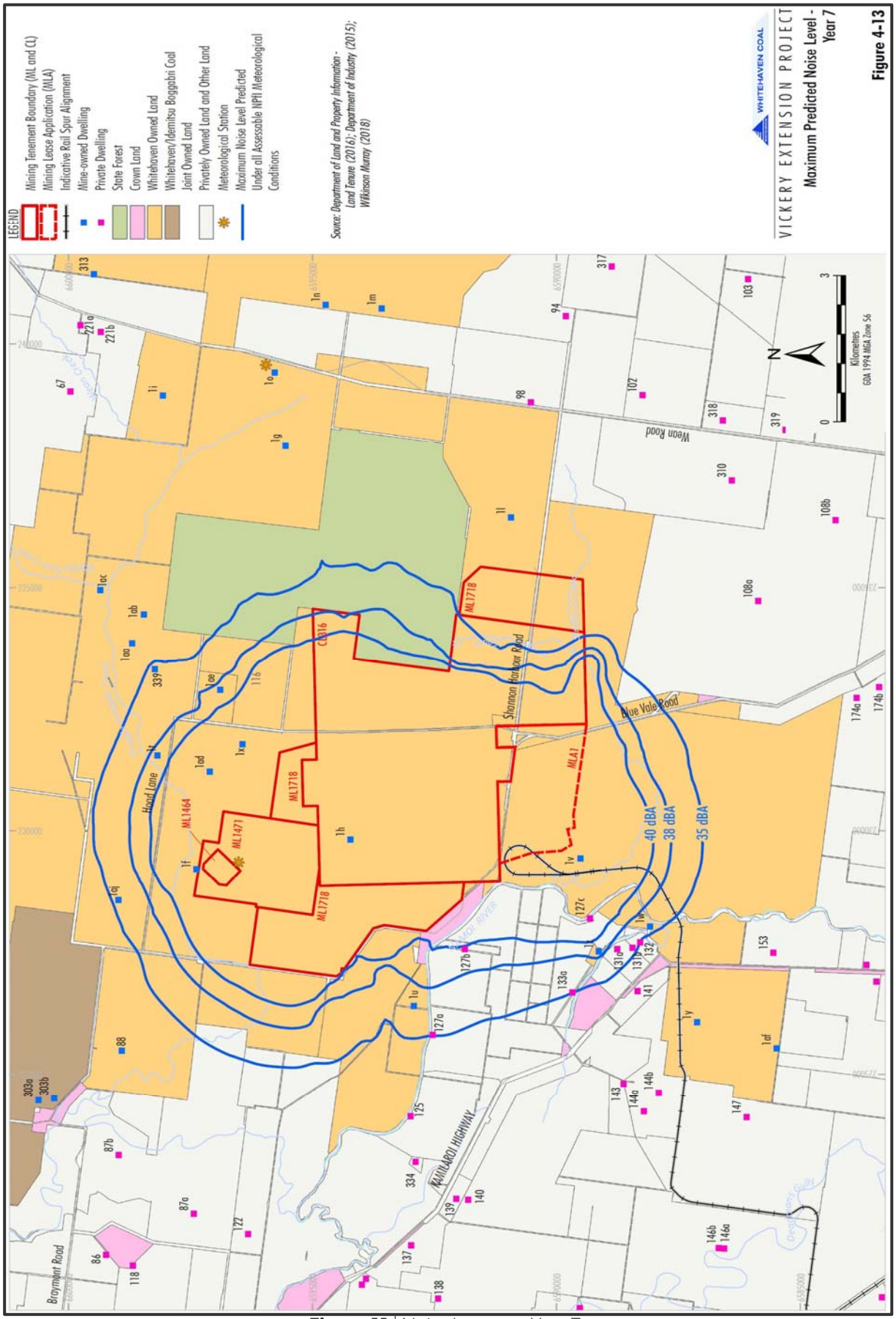


Figure 11 | Noise Impacts – Year 7

6.4 Biodiversity

The EIS includes a detailed biodiversity assessment undertaken by Resource Strategies, as well as an aquatic ecology assessment undertaken by Eco Logical. It also includes a peer review of the biodiversity assessment, undertaken by Dr Colin Driscoll of Hunter Eco.

The Approved Project has a total disturbance area of approximately 2,242 ha, including 464 ha of native woodland and 6 ha of Box Gum Woodland endangered ecological community (EEC).

The footprint of the proposed extension project outside the Approved Project comprises some 775.8 ha, including 77.8 ha (10%) of native woodland, 502 ha (65%) of derived native grassland, and 196 ha (25%) of cleared/exotic grassland.

Most of the additional woodland to be impacted is located in the project mining area. The project rail spur traverses mainly disturbed land, although there are some relatively small areas of native vegetation, particularly near the Namoi River crossing. It also traverses a small part of an offset area for the Approved Project (ie. Offset Area 5) (see **Figures 7** and **12**).

Six native vegetation communities are located in the additional disturbance area, however no EECs or threatened flora species have been identified in these areas. Eleven threatened fauna species are known to use the area, including 6 birds, 3 bats, and the squirrel glider and koala. Whitehaven has identified approximately 1ha of core koala habitat along the Namoi River and 50 ha of total koala habitat that would be impacted by the project. OEH and submitters have questioned the extent of Koala habitat identified in the EIS, with OEH estimating there would be an additional 28 ha of habitat in the mine extension footprint.

The EIS includes a detailed biodiversity offset strategy that builds upon the existing strategy for the approved project. The strategy comprises (see **Figures 7** and **12**):

- existing biodiversity offsets (3,423 ha), including:
  - 2,063 ha offsets; and
  - 1,360 ha rehabilitation;
- proposed additional offsets, including:
  - 482 ha of mine rehabilitation to woodland on the proposed extension area; and
  - 523 ha of additional mine rehabilitation to woodland on the Approved Project footprint;
- retiring available credits on Whitehaven's existing Biobank site and/or through the Biobanking Public Register;
- additional land-based offsets in the region (ie. Offset Areas 6, 7 and 8) and Mount Somner; and
- supplementary measures such as contributing to regional biodiversity programs and funds.

The EIS indicates that the proposed offsetting measures are capable of meeting the ecosystem and species credit requirements for the project under the NSW *Biodiversity Offset Policy for Major Projects*. However, as outlined in Section 5.3 and Appendix C1, OEH has noted that it is working with Whitehaven to review the biodiversity assessment and offset liability, and that the offset strategy will likely require updating following this review.

OEH, the Department and Gunnedah and Narrabri Shire Councils have also noted that a Koala Plan of Management (KPoM) is required to be prepared for the project given that Whitehaven is proposing to clear a small area of core koala habitat along the Namoi River. The Department will require the KPoM to be prepared as part of Whitehaven's Response to Submissions, and will consider the plan in consultation with the applicable authorities in its detailed assessment report.

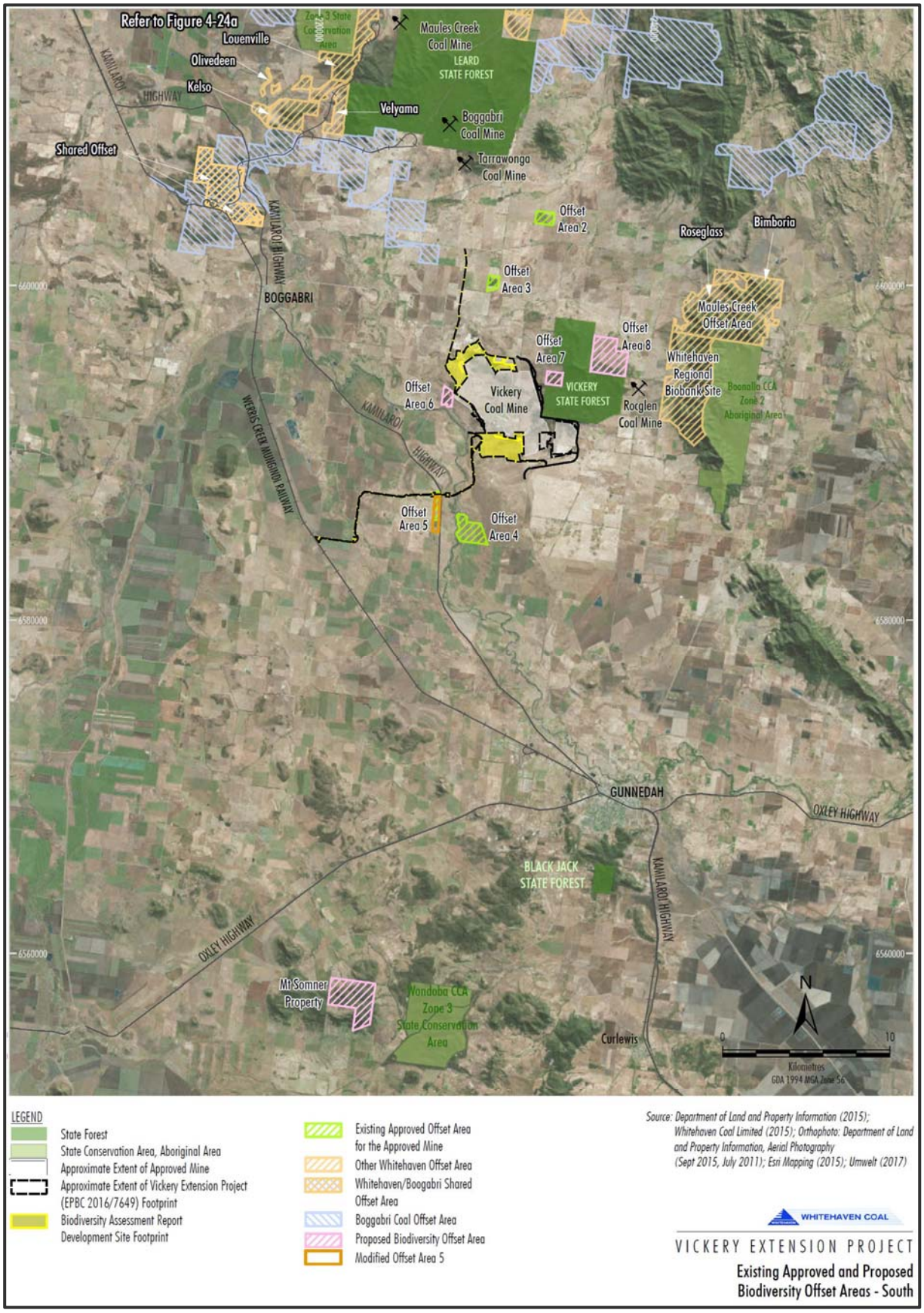


Figure 12 | Biodiversity offsets (see also Figure 7 for additional Willeroi offset located to the north)

6.5 Final Land Form and Land Use

A number of submissions from agencies and the general public raised concerns regarding the proposed final landform including the final void and the final land use for the rehabilitated mine site.

In this regard, the EIS includes a rehabilitation strategy that outlines the proposed rehabilitation activities and post mining land use for the final project area. The proposed final landform is shown on **Figure 13A**, with a comparison to the Approved Project landform shown on **Figure 13B**.

Final Voids

The proposed final landform includes a relatively large void in the south-east corner of the project mining area, in addition to the relatively small existing Blue Vale void on the western side of the mining area, which has already been rehabilitated.

The proposed new final void would have a catchment area of approximately 250 ha. In accordance with the existing approval it would act as a long-term groundwater sink, with inflows equilibrating at approximately 0.3 to 0.5 ML/day, sustained primarily from infiltration through the western emplacement. A pit lake would slowly form at the base of the void, reaching a dynamic equilibrium level of around 120 mAHD after about 300 years post mining. The lake level is well below the crest height of the void (around 260 mAHD), and is therefore not predicted to spill under any circumstances.

In comparison, the Approved Project has two final voids (in addition to the existing Blue Vale void), both of which contain a pit lake. The combined catchment area of the two approved voids is approximately 490 ha, with predicted equilibrated inflows of approximately 0.8 ML/day in the northern void and 0.6 ML/day in the southern void.

That is, there would be a net reduction in void catchment area of 250 ha comparing the project to the Approved Project and a slight reduction in long term pit inflows.

Salinity in the approved and proposed pit lakes would slowly increase over time, with the proposed pit lake reaching a salinity of 11,000 to 14,000 mg/L (higher rainfall cases), and up to 37,000 to 46,000 mg/L (lower rainfall cases) after about 1,000 years post mining.

A number of government authorities raised issues regarding the final void/final landform and the associated long-term groundwater impacts, including DRG, EPA, and Gunnedah and Narrabri Shire Councils. The authorities recommend that further work should be done to investigate alternatives to the final void, including partially or completely filling the void, to (potentially) reduce long term salinity build up within the void, and other groundwater impacts.

The Department's independent groundwater expert, Hugh Middlemiss (see Appendix E2), also believes that the application of the groundwater model to investigate mine closure and final void options does not fully align with best practice. Mr Middlemiss recommends that additional groundwater modelling is undertaken to help inform consideration of final void alternatives, such as backfilling to the pre-mining groundwater level. Such an option could, subject to careful evaluation of leachate risks, assist in reducing long term impacts on groundwater resources.

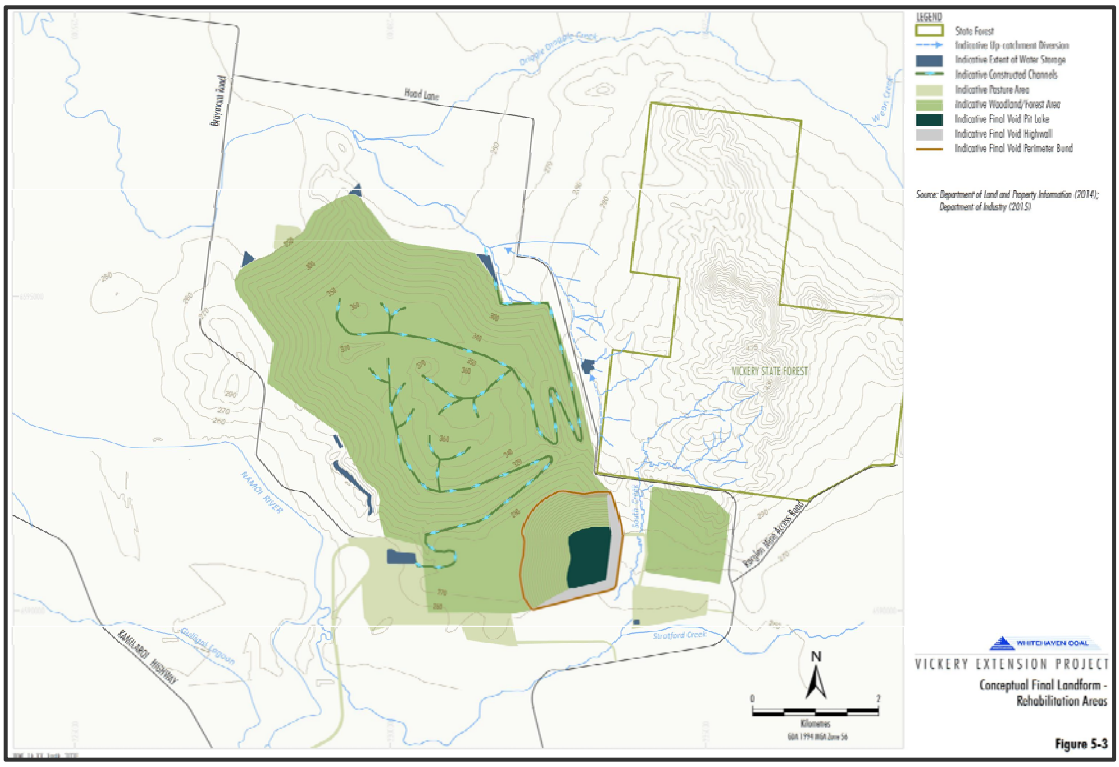


Figure 13A | Vickery Extension Project - Conceptual Final Landform

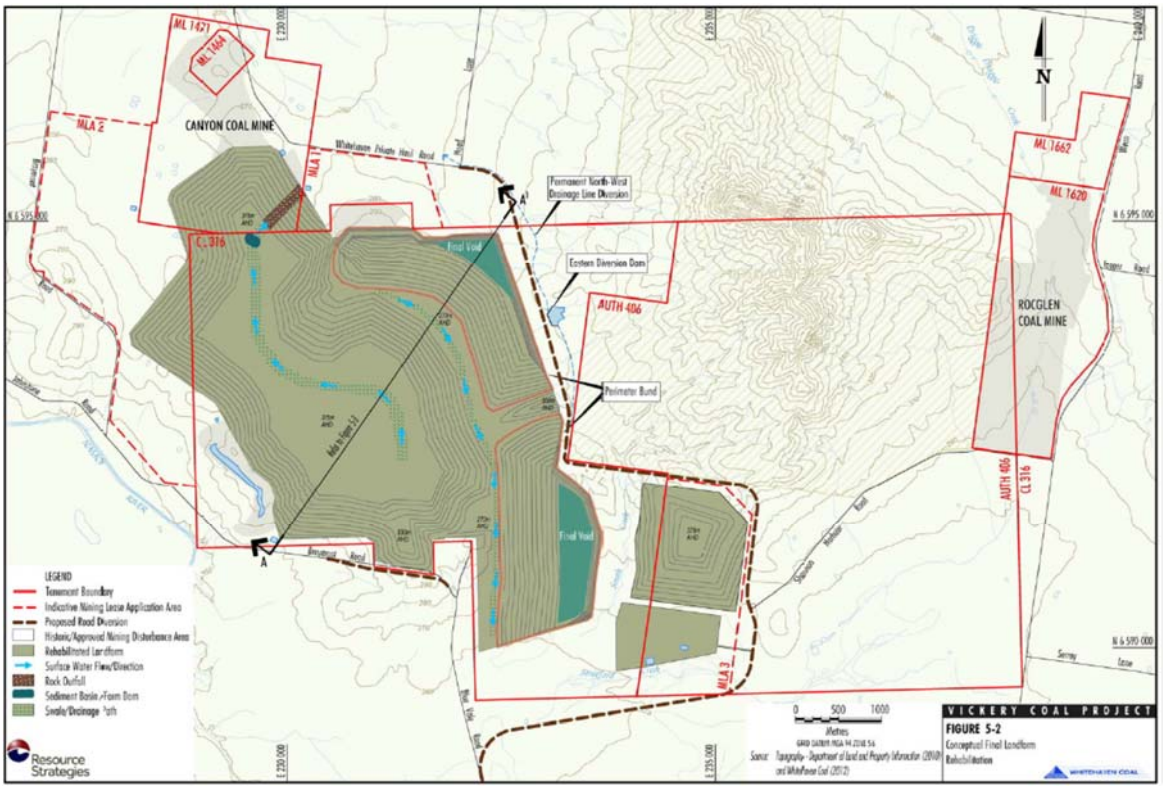


Figure 13B | Approved Project - Conceptual Final Landform (Note different scale to Figure 8A)

Although Whitehaven has not modelled the groundwater implications of alternative final void scenarios, it has considered alternative final landform designs, including partial or complete filling of the void (see EIS Section 6.1).

The analysis concludes that these options are not reasonable or feasible for a number of reasons, including the cost of partially ($440 million) or completely ($600 million) filling the void, and the small predicted long term indirect inflows from the Upper Namoi Alluvium (ie. maximum 22 ML/year) of the preferred final void option, which would be appropriately licensed. The Department notes that the proposed final void appears to be a considerable improvement on the approved final land form, in terms of the number and catchment area of the voids, and the long-term groundwater inflows.

Nevertheless, the Department agrees that there is merit in investigating best practice alternative final void/final landform designs in more detail, including additional groundwater assessment, to assist in determining the acceptability of the proposed final landform based on cost, operational constraints and environmental costs/ benefits associated with a permanent groundwater sink/ pit lake.

Final Land Use

As outlined in Section 3.2, land use in the project mining area currently comprises predominantly grazing with some dryland cropping. The land within the project mining area is mostly of Class 4 Agricultural Suitability (1,875 ha), although there are some areas of better quality Class 2 land (148 ha) and Class 3 land (774 ha), as shown on **Figure 14**. The project rail spur and borefield are located on better quality agricultural land, comprising Class 2 land (54 ha) and Class 3 land (32 ha).

The rehabilitation strategy proposes to return the project rail spur and borefield to their pre-existing land use and agricultural suitability following mining (unless a post-mining use is identified and is otherwise agreed with the applicable stakeholders).

However, the project mining area is proposed to be rehabilitated mainly to native woodland (approximately 2,385 ha), to assist with biodiversity conservation outcomes for the project and region (see **Figure 13A**). Approximately 256 ha of the project mining area is proposed to be rehabilitated to agricultural land suitable for grazing, comprising 78 ha of Class 3 land and 178 ha of Class 4 land. This compares to the Approved Project which would rehabilitate the mined area back to approximately 245 ha of Class 3 land and 508 ha of Class 4 land and 1,360 ha of native woodland.

Whitehaven considers that the final land use would provide good regional biodiversity conservation outcomes by improving woodland connectivity between the Vickery State Forest and the Namoi River, while retaining some agricultural land use in the flatter and more productive areas near the Namoi River. Assessment indicates that the project is unlikely to significantly impact agricultural production in the region, with a loss of 0.2% of agricultural land in the Gunnedah/Narrabri LGAs, and a loss of agricultural gross margins of $1.6 million annually.

DPI, Gunnedah Shire Council, Narrabri Shire Council and some public submitters recommended that rehabilitation should aim to maximise the area of land suitable for future sustainable agricultural land use. Narrabri Shire Council has recommended that Whitehaven rehabilitates the mine to provide at least 900 ha of Class 3 agricultural suitability land (ie. similar to the area of Class 2 and 3 land that would be disturbed).

While this would conflict with the proposed biodiversity conservation outcomes for the project, the Department agrees that detailed consideration of the rehabilitation strategy and post-mining land use is warranted for the project in consultation with relevant stakeholders, to ensure the highest and best use of the land is achieved over the long term.

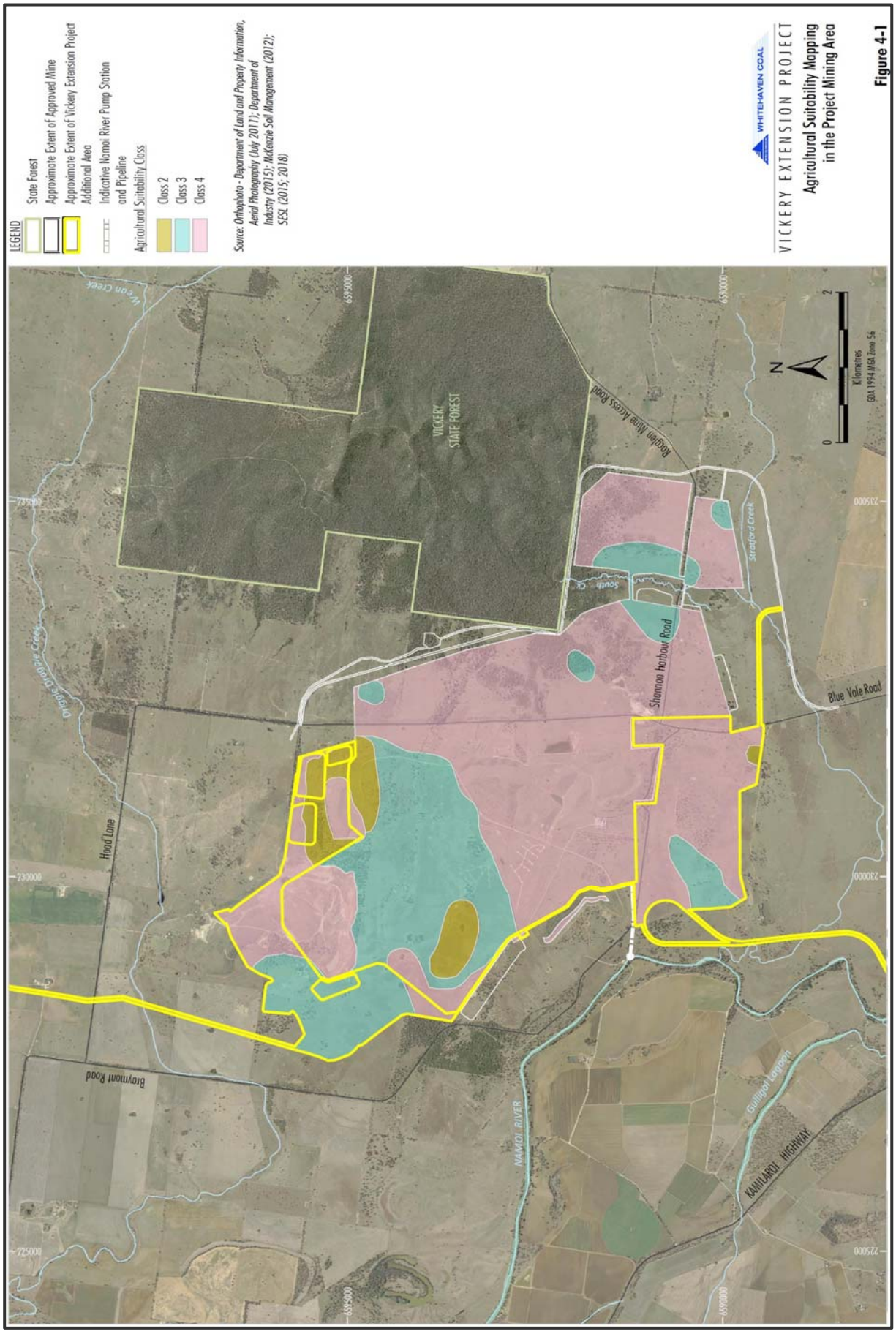


Figure 14 | Agricultural Suitability

6.6 Social

The EIS includes a a social impact assessment (SIA) of the project undertaken generally in accordance with the Department's *Social Impact Assessment Guideline for State Significant Mining, Petroleum Production and Extractive Industry Development*. The SIA includes social baseline information, community and stakeholder engagement undertaken for the assessment; and proposes targeted strategies with objectives and performance measures, and ongoing monitoring to avoid, manage and/or mitigate identified social impacts. The Department will carefully consider the likely effectiveness of these proposed strategies in its detailed assessment of the project.

Gunnedah and Narrabri Councils raised a number of social and economic issues associated with the project, including impacts on local infrastructure and services, particularly in Boggabri. The Councils consider that Whitehaven should place a higher emphasis on the local workforce rather than external labour, with recommended programs for local and indigenous employment, training and skills development.

Submitters on the project also raised concerns about social impacts on the local farming community around the mine site, particularly social cohesion impacts due to ongoing acquistions by mining companies and that benefits are not accuring to Boggabri and the local community, rather to the larger regional centres of Narrabri and Gunnedah.

The Department will consider these issues in detail in its assessment of the project.

Whitehaven has entered into Voluntary Planning Agreements (VPAs) with Gunnedah Shire Council and Narrabri Shire Council for the Approved Project.

Under the terms outlined in the development consent, the VPAs provide for developer contributions of:

- $5,250,000 to Gunnedah Shire Council, towards community projects including:
  - Gunnedah Memorial Pool upgrade;
  - urban road maintenance;
  - rural road maintenance;
  - cycleway and recreational facilities;
  - support of the Gunnedah Mens Shed; and
  - support of the Doreathea McKellar Society; and
- $2,250,000 to Narrabri Shire Council, towards community projects including:
  - Boggabri Community Hall;
  - Boggabri Swimming Pool;
  - bus shelter on Kamilaroi Highway, Boggabri;
  - Boggabri sewage capacity upgrade;
  - Boggabri Preschool;
  - Boggabri child care; and
  - Narrabri Airport upgrade.

Whitehaven is currently negotiating updated VPAs with the Councils for the proposed development and expects to complete this prior to the determination of the project.

Economic assessment indicates that the project would generate significant benefits for the region, including:

- up to 450 full time equivalent (FTE) direct jobs at the mine (average 344 FTE jobs);
- approximately 181 FTE indirect jobs in the region;
- increased disposable income of $316 million (Net Present Value) associated with the direct and indirect jobs;
- value added benefits of approximately $322 million NPV in other industries in NSW; and
- a net economic benefit of $1.2 billion NPV from generation of additional tax revenue and royalties.

The Department has engaged Mr Gavan Dwyer of Marsden Jacobs Associates to undertake an independent expert review of the economic costs and benefits of the project (see **Appendix E4**). Marsden Jacobs' review concludes that Whitehaven's economic assessment is robust, aligns with the applicable guidelines, and the results are consistent with the expert's expectations. The expert noted that some aspects of the assessment warrant further clarification and consideration, however it appears that these aspects would not significantly alter the key outcomes of the assessment.

6.7 Other Issues

As summarised in Appendix C, a range of other issues were raised in submissions on the project, including Aboriginal and non-indigenous heritage, traffic and transport, hazards and risk and climate change. Most of these issues will require further information and/or assessment from Whitehaven to respond to the issues raised. All of these issues will be carefully considered by the Department in its detailed assessment of the project, in accordance with the requirements of the EP&A Act and applicable government policies and guidelines.

7. Conclusion

The Department has undertaken a preliminary review of the development application, EIS and submissions for the Vickery Extension Project. It has also engaged a number of independent experts to review key aspects of the project, including surface water, flooding, groundwater and economics.

Some of the key issues raised in submissions, and/or the Department's preliminary review include:

- the rail spur – including its impacts on the Namoi River floodplain with regard to flooding and other water-related impacts, amenity-related impacts on receivers near the spur line, agricultural impacts, and further consideration of alternatives such as the 'northern corridor' option;
- water resources – including further clarification/ details of the flood modelling, groundwater sensitivity assessment and exchange between the Namoi River/ groundwater, and the impacts and management of discharges from sediment dams;
- amenity impacts – including clarification of noise and air emission assumptions used in modelling to support the predicted impacts;
- biodiversity impacts – including further clarification on biodiversity offset liability, credit calculations for rehabilitation and preparation of a Koala Plan of Management;
- final landform and land use – including further assessment of the final void configuration and the trade-off between biodiversity conservation and agricultural land use in the rehabilitated landscape; and
- social impacts – including impacts on the local farming community and cumulative impacts and benefits of mining on the broader community in the region.

All of these issues raised in submissions, as well as the issues identified in the Commission's public hearing report, will be considered in the Department's detailed assessment of the project. This assessment will be completed following receipt of the Commission's public hearing report and additional information from Whitehaven responding to the issues raised in submissions, agency advice and the public hearing.

The Department will continue to undertake targeted consultation with landowners and key stakeholders prior to finalising its detailed assessment report, and make its experts available through the assessment process.

Once the Department has completed its detailed assessment of the project, the development application will be referred back to the Commission for final determination. The Commission will undertake further consultation prior to making its final determination of the project, in accordance with its *Guidelines for a Public Hearing Held in Multiple Stages*.

This Preliminary Issues Report is hereby presented to the Commission for its consideration in the public hearing for the Vickery Extension Project.

30/11/18

Stephen O'Donoghue
A/ Director
Resource and Energy Assessments

30/11/18

David Kitto
Executive Director
Resource Assessments and Business Systems

Appendices

Appendix A – Environmental Impact Statement

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7480

Appendix B – Agency Advice and Public Submissions

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7480

Appendix C – Submissions Summary

Table C1: SUMMARY OF KEY ISSUES – PUBLIC AUTHORITIES

Summary of key issues
Division of Resources and Geoscience (DRG) considers that the proposal represents an efficient use and development of the State's coal resources, and that the risks and opportunities can be effectively regulated under the conditions of mining authorities under the *Mining Act 1992*. The Division noted that a new mining lease would be required over ML 1718 to allow extraction of coal resources. DRG recommended that an independent expert be engaged to review the final landform and final voids to ensure that it is the best alternate option. DRG also noted that it has no issues with the proposed biodiversity offsets with regard to resource sterilisation, but recommended that it be consulted in relation to any supplementary biodiversity offset measures.
The ***Resources Regulator*** also determined that sustainable rehabilitation outcomes can be achieved, and that the risks and opportunities of the resource development can be effectively regulated through the conditions of the mining authorities under the *Mining Act 1992.*
Environment Protection Authority (EPA) considers that the EIS contains inadequate information to enable it to provide recommended conditions at this stage. The EPA made comments and/or requested additional information in relation to: • Air quality: Clarification, justification and/or additional consideration of the emissions inventory. • Noise: Clarification and validation of sound power levels, low frequency noise correction factors, cumulative noise assessment, sleep disturbance impacts, and construction work hours. • Surface water: Additional consideration of potential impacts associated with discharges from sediment basins, risks associated with reusing mine water, design standards for mine water storages, investigation of alternative final void solutions that minimise long term salinity build-up and the mine water balance. • Waste: Additional consideration of waste generation, management and minimisation. • Groundwater: Additional consideration and justification for the final void and final landform, to maintain long term groundwater and surface water quality and clarification of groundwater monitoring locations.
Office of Environment and Heritage (OEH) noted that it has been consulting with Whitehaven during the EIS exhibition period to clarify a number of aspects of the Biodiversity Assessment Report (BAR), and that it will continue to liaise with the company in relation to the Biodiversity Offset Strategy (BOS). OEH noted a number of technical issues with the BAR, including an increase in the koala species credit requirements at the mine site. It also noted that the biodiversity credits in the offset areas would need to be reviewed, and that the BOS would likely need to be updated following this review. It also noted the need for a Koala Plan of Management (KPoM). With regard to Aboriginal heritage, OEH recommended further consideration of the technical investigation of scarred trees to be undertaken in consultation with the Registered Aboriginal Parties (RAPs). It also recommended consideration of potentially sensitive areas associated with the Namoi River. Further, OEH recommended that additional analysis of an axe grinding groove site (Site 24-4-0009) be undertaken as part of the Aboriginal Cultural Heritage Management Plan (post determination), which has the potential to be indirectly affected by blasting associated with the project. With regard to flooding and hydrology, OEH recommended that further flow distribution information be provided on the potential impact of the project rail spur line in the 1% AEP event. It also recommended consideration of cumulative flooding impacts and erosion risks where increased flow velocity is predicted.
Department of Industry (DoI) provided comments from its Lands & Water and Department of Primary Industries branches. Lands & Water raised a number of issues and recommendations for consideration prior to project determination, including: • confirmation that existing water entitlements are sufficient to account for existing projects and the proposed project, for all water sources; • clarification whether dewatering bores to reduce pit inflows would result in additional impacts;

Summary of key issues

- assessment of the borefield against applicable impact assessment criteria;
- additional assessment of the proposed diversion of South Creek;
- confirmation on the ability to achieve vegetated buffers to South Creek and Stratford Creek, and confirmation of the value of flow reduction to justify that the creeks would not be significantly affected;
- assessment of erosion-related risks on the Namoi River associated with the proposed rail infrastructure; and
- that Whitehaven purchases or otherwise enters into agreements regarding Crown land before undertaking any development on such land.

Lands & Water also recommended a number of water-related measures that it considers could be addressed post project determination, including measures relating to licensing, triggers for water quality monitoring, erosion and watercourse stability, construction standards, groundwater model review, acid-forming waste rock management, and water management plans.

Department of Primary Industries recommended that Whitehaven be required to consider the cumulative impact of the project on BSAL, together with other mining, solar farm and rail developments in the region. It also recommended that rehabilitation objectives should aim to maximise the area of land suitable for future agricultural land use.

Heritage Council supports Whitehaven's proposed measures to protect and preserve the Kurrumbede Homestead (associated with Australian poet Dorothea MacKeller), including the proposed Heritage Management Plan.

NSW *Health* recommended that management plans be prepared and implemented to address health-related aspects, including a:

- Water Management Plan, including risk assessments to inform strategies to protect water resources;
- Noise Management Plan, including complaints management; and
- Air Quality Management Plan, including continuous monitoring of particulate matter.

Rural Fire Service (RFS) noted that parts of the site are mapped as bushfire prone land, but that the EIS does not appear to consider bushfire related risks.

Roads and Maritime Services (RMS) did not raise any significant issues, but recommended that clarification be provided on whether the approved road-over-road overpass of the Kamilaroi Highway near the Gunnedah CHPP would still be required if the proposed rail-over-road overpass goes ahead. RMS also noted that works authorisation deeds (WADs) would be required for applicable road works, with detailed design of the works to the satisfaction of the relevant roads authority. It also recommended that a Traffic Management Plan be prepared including traffic control plans and a driver's code of conduct.

Australian Rail Track Corporation (ARTC) confirmed that the rail network has sufficient capacity to accommodate the demands generated by the project and noted that it has been consulting with Whitehaven in relation to the proposed project rail spur alignment.

Transgrid did not raise any issues, noting that the project does not affect any Transgrid power infrastructure.

Australian National University – Siding Spring Observatory (SSO) noted the mine site is within 200 kilometres of the Siding Spring Observatory. It acknowledged Whitehaven's proposed light spill mitigation measures, and recommended consideration of additional best practice measures including light shielding, use of energy efficient bulbs, avoidance of reflective surfaces and switching lights off when not in use. It also recommended that Whitehaven prepares a computation of the lighting impact of the project on the Observatory based on the natural, moon-free skyglow.

Table C2: SUMMARY OF KEY ISSUES – LOCAL COUNCILS

Summary of key issues

Gunnedah Shire Council (GSC) raised a range of issues including:

Proposed development:

- Clarification of aspects of the proposed development, including construction staging, extraction limits, final voids, access of alluvial groundwater, flood impact areas.
- Recommended that the existing consent be surrendered, if the project is approved.
- Recommended detailed plans be provided for the mine infrastructure, rail spur and visual/landscape screening.
- Recommended that rehabilitation focuses on sustainable agricultural land use as much as possible, with ongoing rehabilitation planning and validation reporting.

Flooding:

- Recommended that Council's flood mapping be updated to reflect the flooding changes generated by the project, at Whitehaven's cost.
- Recommended additional consideration of the risks to privately-owned residences, including safe wading depths and property access.
- Recommended that updated flood assessment/modelling be required upon completion of the rail spur design (post determination).

Road infrastructure:

- Acknowledged that the rail spur would reduce road haulage of coal, and recommended that no additional road haulage be allowed beyond existing limits (ie. 4.5 Mtpa), and that Whitehaven provides continued road maintenance contributions until the rail spur is constructed.
- Noted that the realignment of Blue Vale Road would need to be constructed subject to Council approval.

Noise:

- Recommended that no exceedances at privately-owned residences should be allowed to occur, particularly at night.
- Noted that the noise assessment does not appear to consider noise from some rail activity sources such as shunting.

Social and Economics:

- Considers that the EIS contains inadequate detail regarding the ability for surrounding centres to accommodate the increased population, including impacts on health services.
- Recommended that a higher emphasis should be placed on the local workforce than external labour, and raised concerns regarding the displacement of employment opportunities from the agricultural and other sectors.
- Recommended that the project should encourage use of local accommodation rather than the existing Boggabri workers accommodation facility.
- Considers that more detail should be provided on consultation feedback, including feedback from emergency services.
- Recommended a communication strategy with Aboriginal groups, especially in relation to maintaining access through Crown land and travelling stock reserves.
- Recommended a target of 10% indigenous employment, as well as a skills and employment strategy for sourcing local trainees and apprentices.

Biodiversity:

- Recommended that a Koala Plan of Management be required to be prepared prior to determination, in consultation with Council.
- Acknowledged the offset strategy, and recommended that it focus on endangered ecological communities, with tree planting to focus on koala feed species.

Visual:

- Recommended that the tree screening program be implemented early as part of the construction phase.

Heritage:

- Recommended that the weatherboard dwelling proposed to be directly impacted is preserved if possible, through relocation and/or archival recording if not able to be preserved in situ.

Summary of key issues

- Recommended that the Kurrumbede Homestead be preserved and maintained with greater access made available to the community.

Water resources:

- Recommended ongoing groundwater monitoring and a contingency strategy for unforeseen impacts.
- Recommended that Whitehaven be required to minimise leakage from mine water storages, and ensure no change to water quality in receiving watercourses.
- Consideration of water supplies in the event of reduced allocations.

Air quality:

- Noted that the project presents an opportunity to expand the Namoi regional air quality monitoring program, with recommended additional monitoring sites in Boggabri and Curlewis.

Other:

- Recommended that environmental management plans be required prior to determination.
- Recommended that expert reviews be undertaken for key aspects such as noise, air quality, groundwater and surface water, and biodiversity.
- Noted that Council is in discussion with Whitehaven regarding a revised voluntary planning agreement (VPA) for the project, and that this should be agreed prior to determination.

Narrabri Shire Council (NSC) raised a range of issues including:

Statutory Planning:

- Recommended detailed contamination assessment under SEPP 55.
- Consideration of a number of matters under the Mining SEPP and Infrastructure SEPP.
- Consideration of certain hazards matters in the Preliminary Hazard Analysis (PHA), as required under SEPP 33.
- Consideration of the permissibility of waste reject receival and disposal from the CHPP under the Narrabri and Gunnedah LEPs.
- Consideration of ecologically sustainable development (ESD), including the precautionary principle.

Agricultural impacts:

- Recommended that rehabilitation be amended to provide greater agricultural land use, including at least 900 ha of Class 3 Agricultural Suitability land.

Bushfire:

- Consideration of bushfire risk required.

Water resources:

- Groundwater – Consideration of cumulative groundwater impacts, and recommended detailed real-time monitoring, independent review, make good conditions, and modelling of impact on Boggabri town bore.
- Surface water – Consideration of water balance, and recommended ongoing water balance review, that discharges do not impact receiving watercourses and meet acceptable criteria, that no mine water discharges are allowed to occur, and ongoing surface water monitoring.
- Flooding – Recommended no impacts be allowed beyond those predicted, and that Blue Vale Road is designed and constructed above the 1% AEP flood level.

Final void:

- Recommended modelling and assessment of the potential for filling the voids, with cost benefit analysis.
- Ensure that the void does not overfill in any event including the probable maximum flood.

Noise:

- Consideration of cumulative and project specific noise impacts.
- Recommended real-time monitoring, and consideration of regional noise management and monitoring approach.

Blasting:

- Consideration of overpressure and vibration impacts, along with health-related impacts.

Air quality:

- Consideration of air quality impacts, including health-related impacts.
- Recommended ongoing independent monitoring, including real-time monitoring, and consideration of expansion of the Namoi regional air quality monitoring program, including stations at Boggabri and Curlewis.

Summary of key issues

Biodiversity:

- Recommended that a Koala Plan of Management is prepared in consultation with Council, prior to determination.

Socio-economics:

- Additional consideration of projected employment data.
- Consideration of applicable Council rates payable.
- Additional consideration of production-related costs in the cost benefit analysis.
- Additional local effects analysis, specific to the Narrabri LGA, including consideration of tourism value and potential.
- Additional consideration of the workforce, including measures to address gender balance in surrounding communities, and cumulative labour impacts.
- Recommended 50% of the operational workforce be sourced from the Narrabri LGA, with appropriate scholarships and traineeship/apprenticeship programs.
- Recommended a workforce management plan, including addressing automation risks to employment.
- Recommended a more ambitious target is adopted for indigenous employment, including support and training.
- Recommended that monetary and in-kind contributions and support focuses on Boggabri.
- Recommended a voluntary planning agreement (VPA) be negotiated with Council reflective of the project's socio-economic impacts on Boggabri and the wider Narrabri and Gunnedah LGAs.

Rehabilitation:

- Ensure adequate financial assurance and insurance/bonding to cover costs of rehabilitation.
- Recommended monitoring and compliance with rehabilitation targets.
- Recommended that the mining plan minimises the active mining footprint.

Waste:

- Recommended that a detailed waste management and minimisation plan be prepared.

Aboriginal heritage:

- Recommended ongoing consultation with the Aboriginal community, and maintenance of access to traditional lands and the Namoi River.

Historic heritage:

- Recommended that Whitehaven works with Gunnedah Council to manage the identified weatherboard dwelling of heritage significance.

Visual:

- Recommended that visual and lighting impacts be appropriately managed throughout the project.

Road transport:

- Recommended that Whitehaven demonstrates that the proposed access route restriction can be practically and legally enforced.
- Recommended that a number of local roads be upgraded and/or sealed to Council's satisfaction.
- Recommended an ongoing road maintenance agreement, and confirmation of timing for cessation of road coal haulage.

Liverpool Plains Shire Council (LPSC) made comments associated with social and economic issues, including that Whitehaven should focus on local employment and procurement, with clear strategies and guidelines. Council noted that Whitehaven has supported a broad variety of initiatives and events in the local community, and that the mining industry and government have an obligation to support regional economies by appropriately funding infrastructure needs.

In this regard, Council noted that the project would contribute to increased pressure on regional freight 'pinch points' within the LGA, including at Gap Road, Werris Creek and the Werris Creek Road railway level crossing.

Table C3: SUMMARY OF KEY ISSUES PUBLIC SUBMISSIONS

Summary of key issues raised by special interest groups and public submissions
Agriculture, including:
• the loss of prime agricultural land.
• that the economic assessment does not include land acquired by Whitehaven.
• the impacts of dust and noise on crops, livestock and farmers.
Groundwater, including:
• depressurisation of the Upper Namoi Alluvium.
• impacts of groundwater drawdown and the difficulties for landowners to obtain make good provisions;
• the cumulative impacts on groundwater drawdown from other mines in the area;
• uncertainties, inconsistencies and assumptions used in the modelling groundwater;
• leakage from the Namoi River and alluvial aquifer
Surface Water, including:
• contimanation of surface waters from acid mine drainage, overflow of sediment dams, seepage through the waste rock emplacements and mine water releases;
• connectivity between the Namoi River and aquifers, and the impacts of blasting on this connectivity;
• the legality of collecting water under harvestable rights
Flooding, including:
• the cumulative impacts from multiple transport corridors across the flood plain;
• the effects on aquifers from pylons and train vibrations;
• the suitability of the draft Flood Management Plan for use in the assessment;
• the assumptions used in the flood modelling;
• the impacts on the rail tack geometry from soil swelling and shrinking;
• the lack of design information on the rail infrastructure;
Biodiversity, including:
• impacts on koala habitat a (including the under-estimation of koala habitat and habitat types);
• barriers to koala movements;
• impacts to Groundwater Dependent Ecosystems;
• impacts to aquatic ecology and fish species from altered hydrology, stream crossings and contamination, and in particular the stretch of the Namoi River;
• the cumulative impacts of all mines on the vegetation dispersal at a landscape level;
• the value of the biodiversity credits calculated for mine rehabilitation;
Air Quality, including:
• dust;
• greenhouse gas emissions;
• the need for a dust monitor in Boggabri;
• the assumptions regarding the wind direction;
Social and health, including:
• loss of farming families and population decline from the area
• the impacts on housing occuptation
• changes to the social fabric of the town and area
• closure of access from the south of the Traveling Stock Route along the Namoi River adjoining the project would stop cattle movements along the TSR and prevent access to the river for Aboriginal people
• the physical and mental health impacts of the project from anxiety, sleep disturbance and negative impacts on community
• loss of peace
• loss of sense of community
Cumulative impacts, including:
• the adequacy of the assessment of cumulative impacts
• the lack of a cumulative impacts guideline

Summary of key issues raised by special interest groups and public submissions
Heritage, including:
• the impacts to Kurrumbede and its outbuilding used by Andrew "Boy" Charlton
• adequacy of consultation with the Aboriginal community
• impacts to Aboriginal heritage sites, including top and bottom rocks on river

Appendix D – IESC Advice

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7480

Appendix E – Expert Peer Review

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7480

E1: Flooding – Erin Askew of WMA Water

E2: Groundwater – Hugh Middlemiss of Hydrogeologic

E3: Surface Water – Martin Giles of BMT

E4: Economics – Gavan Dwyer of Marsden Jacobs Associates