



ADDENDUM REPORT:

STATE SIGNIFICANT DEVELOPMENT

Wallarrah 2 Coal Project (SSD 4974)



Section 89E of the
Environmental Planning and Assessment Act 1979

February 2017

Cover photo: Proposed Tooheys Road Surface Facilities Site, showing Wyong Coal Areas Joint Venture's remote weather station, facing north

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EXECUTIVE SUMMARY

This Addendum Report for the Wallarah 2 Coal Project (the project) has been produced by the Department of Planning and Environment for the consideration of the Planning Assessment Commission. The Commission has been requested by the Minister for Planning to conduct a second merit review of the project following the Wyong Areas Coal Joint Venture's (WACJV's) amendment of its 2012 development application.

This Report provides an addendum to the Preliminary Assessment Report (PAR) of February 2014 for the project. The PAR provides a detailed assessment of the key issues associated with the project in accordance with the requirements of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and remains part of the Secretary's environmental assessment of the project. This Report is supplementary to the PAR and both comprise the Department's current assessment of the project for consideration by the Commission.

This Report is in three parts, in that it includes:

- 1) a merit assessment of the proposed changes to the project presented in the amended development application and resulting from ongoing discussions between WACJV, the Department, other NSW Government agencies and the Darkinjung Local Aboriginal Land Council (Darkinjung LALC) (**Part 1**);
- 2) an assessment of the residual matters and a response to the recommendations identified in the Commission's *Wallerah 2 Coal Project Review Report* of June 2014 (the Commission's First Review Report) and the responses to that report by WACJV (**Part 2**); and
- 3) overall Conclusions and Recommendations (**Part 3**).

The amended project involves:

- a new rail siding to house the train load out facility on the eastern side of the Main Northern Rail Line;
- a conveyor system to deliver product coal from a stockpile at the proposed Tooheys Road Site to the new location of the train load out facility;
- removal of the previously proposed rail loop; and
- realignment of a sewer connection.

The amended project does not involve changes to the proposed:

- mining area, mining methods and maximum production rate;
- coal handling or rail loading methods;
- surface infrastructure other than coal loading and dispatch infrastructure listed above;
- construction schedule;
- operational and construction workforce; or
- capital investment value.

In regards to the merits of the amended project, the Department has assessed the amendments in regards to potential impacts on noise, air quality, visual amenity, transport, biodiversity, water resources, socio-economics and Aboriginal heritage.

The Department notes that the amended project reduces some of the noise impacts predicted for the original project. The current noise assessment shows that the amended project's operational noise impacts are generally within acceptable limits derived under the *Industrial Noise Policy*. However, there are significant noise exceedances (up to 4 dB(A)) at 3 noise assessment locations. Under the Government's *Voluntary Land Acquisition and Mitigation Policy*, landowners at these locations are entitled to noise mitigation measures being installed by WACJV at their residence.

The Commission previously considered that the predicted air quality impacts of the original project (being an underground mining project with a limited surface expression) were both minor and manageable. The Department considers that the potential air quality impacts of the amended project are very similar to the predicted impacts of the original project and that these impacts are well within the relevant assessment criteria.

While parts of the newly-proposed coal conveyor and rail load out facilities would be visible to passing motorists on the Motorway Link Road and train passengers on the Main Northern Rail Line, the Department considers the overall visual impact to existing road and rail users to be low. The Department has also carefully considered the potential for the amended project to affect future residents in Darkinjung LALC's two proposed developments at its Bushells Ridge and Doyalson sites. Overall, these potential visual impacts are considered to be limited and acceptable.

The Department acknowledges that continued consultation between WACJV and relevant transport authorities (ie Sydney Trains, Transport for NSW, the Australian Rail Track Corporation and Roads and Maritime Services) is required but is satisfied that the operational transport requirements of the amended project could be suitably managed. The amended project would maintain and provide improved access to adjacent landowners (including Darkinjung LALC) through the construction of an all-weather road adjacent to the rail siding. It would have a minimal impact on down-track level crossing road closures.

Overall, the Department is satisfied that the amended elements of the project results in less disturbance to native vegetation communities. This has the consequent effect of less impact to potential habitat for flora and fauna species, including threatened and migratory species. The Department is also satisfied that the impacts of re-locating the rail siding are substantially outweighed by the benefits of avoiding the previously proposed rail crossings of Wallarah Creek.

The amended project does not involve any changes to the underground mining aspects of the project or the proposed water management system at either surface facility. The amended project would not alter the predicted rates of mine inflow or seepage from shallow groundwater systems. Consequently, the focus of the water resource assessment of the amended project relates to the changed surface facilities. The modelling predicts that the amended project would not result in any measurable changes to flood flows in the Spring Creek catchment. A small section of the proposed conveyor system is in the Wallarah Creek Catchment, which would experience substantially reduced impacts compared with the original project that required four crossings of Wallarah Creek and its tributaries. The Department is satisfied that the impacts of the amended elements of the project on water resources are minimal.

The written particulars supporting the amended project included a revised economic impact assessment (EIA) for the whole project undertaken in accordance with the Department's *Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals*. The EIA found that the amended project as a whole would have total net production benefits to NSW of \$275 M (present value), comprising \$200 M in royalties, \$70 M in company tax and \$5 M in voluntary contributions. It would result in direct employment of 300 persons during the mine's operational phase. The amended project is also expected to generate both market and non-market employment benefits. The environmental impacts of the amended project are estimated to have a present value of \$1 M. The net social benefit of the amended project is predicted to range from \$274 M to \$485 M (present value), depending on whether employment benefits are considered.

The Department commissioned an independent review of the EIA by the Centre for International Economics (CIE). While CIE questioned some inputs to the EIA's Cost Benefit Analysis, some of the methods used, and the quantum of some costs and benefits, its conclusion was that the EIA is broadly consistent with the Department's Economic Guidelines and that the amended project would result in a net benefit to NSW.

No Aboriginal heritage sites or potential subsurface archaeological deposits were identified in surveys of the amended project area. The Department is satisfied that the amended elements of the project would result in minimal impacts to Aboriginal heritage.

The Commission's First Review Report generally concurred with the Department's assessment of the original project's key impacts and most recommendations contained within the PAR, but provided 35 additional recommendations that it considered would enhance the determination of the project and ensure that potential impacts are avoided, minimised or mitigated. The Commission's recommendations for further consideration of issues and consultation were primarily in relation to:

- conditions of consent regarding subsidence management, management of surface water and groundwater resources (particularly water resources which support the Central Coast Water Supply) and monitoring of subsidence and related impacts;

- provision of further information regarding potential losses of baseflow from key streams resulting from subsidence impacts and conditions of consent to manage such impacts; and
- WACJV commissioning a new economic assessment and having it peer reviewed.

The First Review Report concluded that *“if the recommendations concerning improved strategies to avoid, mitigate or manage the predicted impacts of the project are adopted then there is merit in allowing the project to proceed.”*

The Department generally supports the Commission’s recommendations and has amended and strengthened its draft conditions appropriately, including to require:

- monitoring of non-conventional subsidence movements;
- detailed Trigger Action Response Plans (TARPs) in each Extraction Plan, to warn of any increasing risk of unacceptable subsidence impacts and to guide the implementation of adaptive management;
- intensive and comprehensive monitoring of water resources, including surface water, groundwater, and potential impacts on flooding and the Central Coast Water Supply;
- compliance with strengthened performance measures pertaining to streams and their alluvium and the Central Coast Water Supply;
- independent audits of subsidence, surface water and groundwater impacts; and
- development and implementation of a compensatory mechanism to offset any measured loss of water to the Central Coast Water Supply.

The Department has also recommended a number of comprehensive water-related conditions which would be applicable to both the unchanged components of the original project and the amended project.

The Department remains satisfied that the project as amended would provide major economic and social benefits for the Central Coast region and for NSW as a whole. These benefits include the:

- direct employment of 300 full time equivalent staff during operations (targeting 70% local employees and 10% Indigenous employees) and around 450 contractors during construction;
- estimated indirect employment of around 879 people across NSW during operations;
- estimated annual direct and indirect household incomes across NSW of \$104 M during operations; and
- total estimated net economic benefit to NSW of \$275 M (Net Present Value), which includes:
 - o \$5 M in voluntary contributions;
 - o \$200 M to the State of NSW in royalty revenue; and
 - o \$70 M in Commonwealth, State and local tax revenues.

The Department is satisfied that its recommended conditions, which incorporate a number of changes as recommended by the Commission, are based on contemporary policy and reflect current best-practice, and are equitable and enforceable. The Department remains satisfied that the project is, on balance, in the public interest, and is approvable, subject to the draft conditions of consent.

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PART 1

AMENDED DEVELOPMENT APPLICATION

1.0 INTRODUCTION

1.1 Background

Wyong Areas Coal Joint Venture (WACJV) lodged a development application in October 2012 for the Wallarrah 2 Coal Project (the project). The project was subject to a merit review by the Planning and Assessment Commission (the Commission) in early 2014. Further consideration of the project was then delayed for an extended period of time (see **Sections 1.4** and **1.5**). The development application for the project was then amended by WACJV and re-exhibited (see **Sections 1.7, 2.0** and **4.2**). The Amended Development Application and Accompanying Written Particulars are attached to this report as **Appendix A**.

This Addendum Report (AR) has been produced by the Department of Planning & Environment (the Department) for the consideration of the Commission, which has been requested by the Minister for Planning to conduct a second merit review of the project following WACJV's amendment of its development application. This AR provides an addendum to the Preliminary Assessment Report (PAR) of February 2014 for the project. The PAR provides a detailed assessment of the key issues associated with the project in accordance with the requirements of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and remains part of the environmental assessment of the project. This AR is supplementary to the PAR and both comprise the Department's current assessment of the project for consideration by the Commission.

This AR is in three parts, in that it includes:

- 1) a merit assessment of the proposed changes to the project presented in the amended development application and resulting from ongoing discussions between WACJV and the Department, other NSW Government agencies and the Darkinjung Local Aboriginal Land Council (Darkinjung LALC) (**Part 1**);
- 2) an assessment of the residual matters and a response to the recommendations identified in the Commission's *Wallarrah 2 Coal Project Review Report* of June 2014 (the Commission's First Review Report) and the responses to that report by WACJV (**Part 2**); and
- 3) overall Conclusions and Recommendations (**Part 3**).

In reviewing the AR, the Commission should first note that the three Parts of the report contain Section numbers which are parallel, rather than serial. References to Sections in the same Part are identified solely by Section number. References within one Part to Sections in another Part are identified by also referring to the other Part. Table numbers and Figure numbers are consecutive throughout the report.

1.2 Project Overview

WACJV is seeking approval to develop the project, a new underground coal mine, located west of Wyong on the Central Coast, approximately 100 kilometres (km) north of Sydney. The project involves extraction of up to 5 million tonnes per annum (Mtpa) of run of mine (ROM) coal using longwall mining methods and a 28-year project life. Only minimal processing of the coal would occur on-site before transport by rail to the Port of Newcastle for export. The project would have a capital investment of approximately \$805 million, and would employ 450 people during construction and 300 during operation.

The major components of the project, as included in the amended application, are summarised in **Table 1** and depicted in **Figures 1** and **2**. These are described in further detail in **Section 2**.

Table 1: Key components of the Wallarrah 2 Coal Project

Aspect	Description
Project Summary	• Development of a new underground coal mine using longwall mining methods • Extraction of up to 5 Mtpa of ROM thermal coal • Development of surface infrastructure at the following three sites: 1. Tooheys Road Site, including a declining tunnel ('decline') to the underground mine workings, conveyors, ROM coal and product coal stockpiles, water and gas management facilities, offices, and a rail siding and train load out facility located to the east of the Main Northern Rail Line; 2. Buttonderry Site, including a vertical shaft to the underground mine workings to provide main personnel access, administrative offices, training rooms, bath house, an access road from a new intersection with Hue Hue Road, car park, upcast and downcast ventilation shafts and surface water treatment facilities; and

Aspect	Description
	3. Western Ventilation Shaft Site, including a downcast ventilation shaft • Transfer of all coal extracted from the underground mine by conveyor in the decline to the Tooheys Road Site for limited processing and railing to market • Rehabilitation of the site
Project Life	28 years, including 3 years for construction and 25 years of mining operations
Mining and Reserves	Extraction of 95 Mt of a mineable reserve of 150 Mt within a total potentially viable coal resource of 375 Mt in the Wallarah-Great Northern Seam. Longwall panel widths would range from 125 metres (m) to 255 m, with narrower panels below the Hue Hue Mine Subsidence District (MSD) and below the 1:100 year flood zone
Coal Processing & Reject Management	ROM coal would undergo minimal processing. ROM coal would not be washed, only sized and screened. A small amount of waste rock may be produced, which would be trucked offsite to a licensed emplacement facility. No fine coal tailings would be produced
Water Demand and Supply	Underground dewatering would result in a peak water surplus of approximately 2.5 megalitres (ML) per day after 8 years of operations. The water management system would include: • a 180 ML operational water dam, a 30 ML portal dam, a 20 ML stockpile dam, a water treatment plant, a 20 ML treated water storage, 9 ML of brine storage, a stormwater management system and potable water storage tanks at the Tooheys Road Site; and • a 10 ML entrance dam and stormwater management system at the Buttonderry Site
Employment	Construction workforce of 450 employees and an operational workforce of 300 employees
Support Facilities and Utilities	Administration, store, workshop and staff facilities (bathhouse, lamp room, etc); ventilation systems and service/distribution boreholes; water bores and surface water management infrastructure; services boreholes; power supply and communications infrastructure; bulk storage facilities; underground mine access; rail provisioning facility and internal site roads
Hours of Operation	24 hours, 7 days a week
Mine Site Access	• Access to the Tooheys Road infrastructure site would be via the Motorway Link Road • Access to the Buttonderry pit top site would be via Hue Hue Road • Access to the Western Ventilation Shaft site would be via Little Jiliby Road to a location on Brothers Road
Product Coal Transport	All product coal would be transported via rail to the Port of Newcastle for export, using conveyors from the Tooheys Road Site to the rail siding and train load out facility. A maximum of 4 train cycles/day (8 one way movements) would be loaded and dispatched
Clearing, Rehabilitation and Offsets	• The project would cause a loss of 76 hectares (ha) of native vegetation and indirect impacts as a result of subsidence effects. The rehabilitation and offset strategy involves rehabilitation of the Buttonderry and Tooheys Road Sites and conservation of 261 ha of land at Hue Hue Road, which includes 201 ha of native vegetation • Rehabilitation of all surface facilities following the completion of mining
Capital Value	\$805 million

The amended project involves:

- removal of the previously proposed rail loop;
- location of a new rail siding to house the train load out facility on the eastern side of the Main Northern Rail Line;
- a conveyor system to deliver product coal from a stockpile at the proposed Tooheys Road Site to the new location of the train load out facility; and
- realignment of a sewer connection.

The amended project does not involve changes to the proposed:

- mining area, mining methods and maximum production rate;
- coal handling or rail loading methods;
- surface infrastructure other than coal loading and dispatch infrastructure listed above;
- construction schedule;
- operational and construction workforce; or
- capital investment value.

The amended project is described in further detail in **Section 2**.

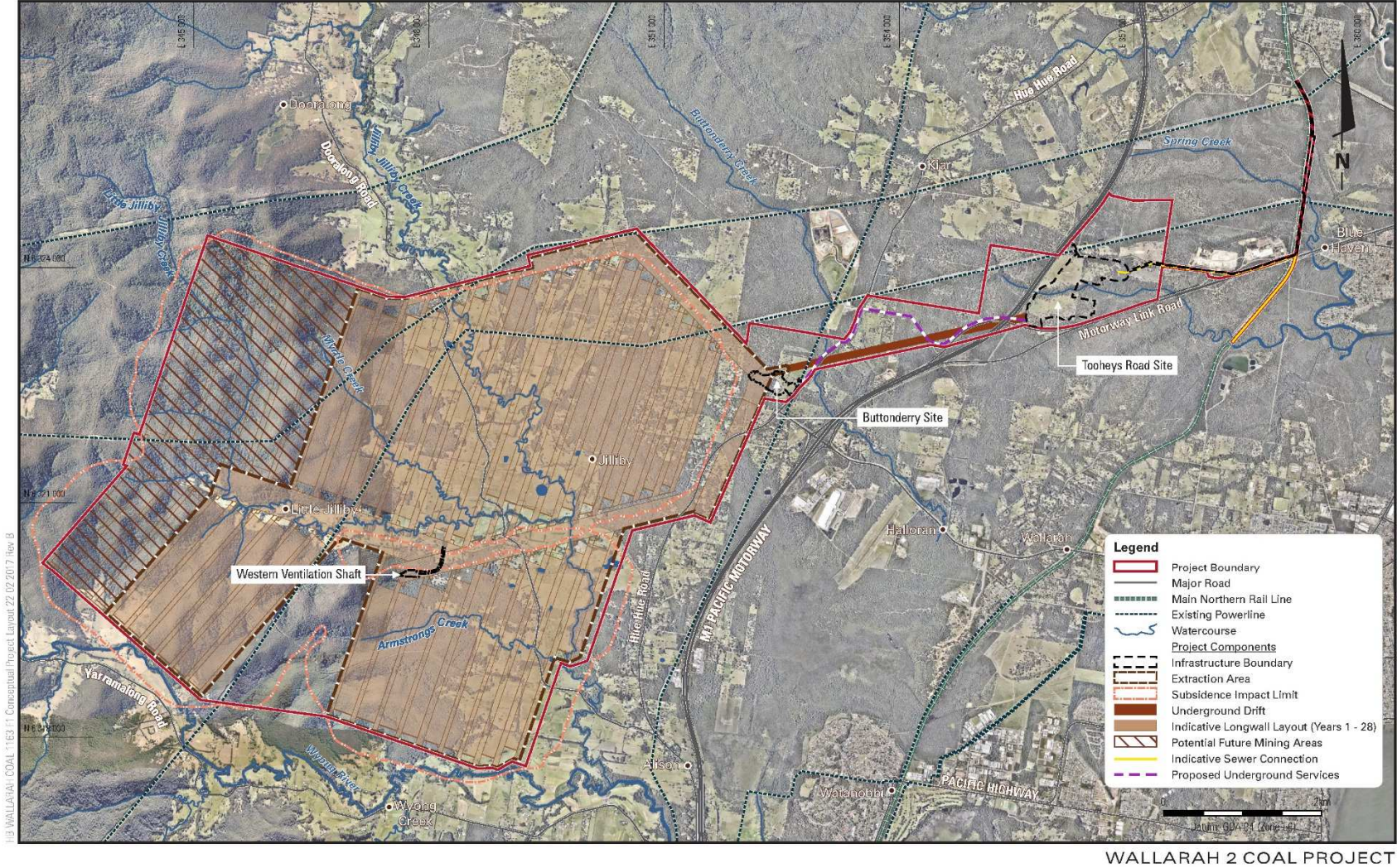


Figure 1: Location of proposed longwalls

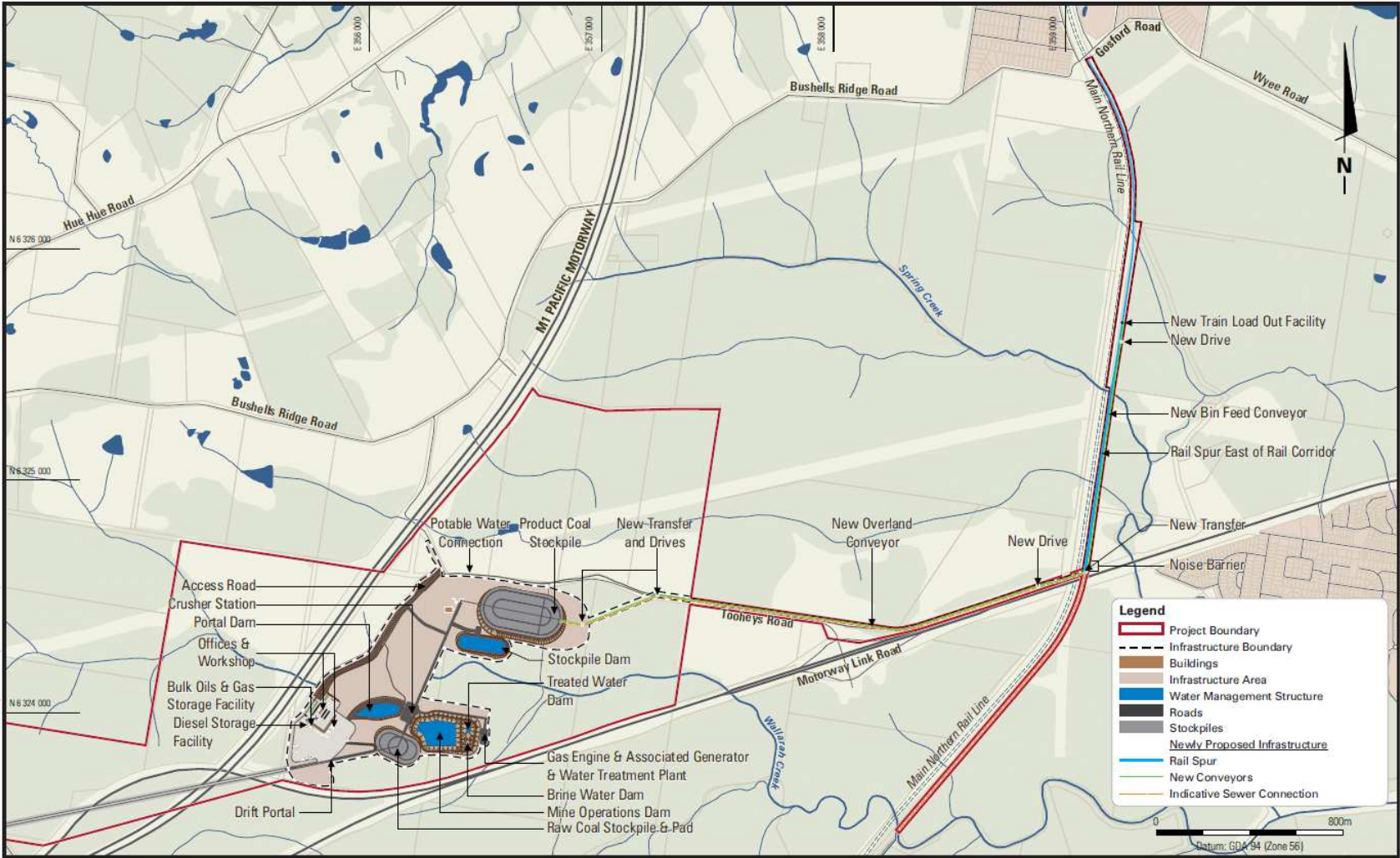


Figure 2: Location of proposed Tooheys Road Surface Facilities (as amended – see Sections 1.7 and 2)

1.3 Preliminary Assessment Report

In February 2014, the Department completed its preliminary assessment of the project as originally exhibited and submitted its PAR to the Commission for consideration as part of a public review process (see **Section 1.4**).

The PAR considered the project, its strategic and statutory context, public and agency submissions, and WACJV's response to submissions and residual matters report. The Department carefully considered all environmental, social and economic impacts of the project, in accordance with the relevant requirements of the EP&A Act. The Department also undertook an extensive consultation process with Government agencies and other relevant stakeholders. It identified the key issues relating to the application to be:

- predicted mine subsidence impacts of ponding and reductions in surface flows in key streams;
- potential mine subsidence impacts on streams in the upland areas;
- predicted mine subsidence impacts on built features, including from flooding; and
- noise and air quality impacts, particularly in relation to the Tooheys Road Site.

The PAR concluded that:

- amenity and health impacts of the project are likely to be minor, and can be managed through conditions of consent, including appropriate noise and air quality performance criteria;
- impacts on creeks and rivers are likely to be minor, and there is a very low risk to groundwater resources; and
- subsidence impacts to built features are likely to be minor and compensation should be able to be managed by the Mine Subsidence Board (see **Section 4.3**).

In conjunction with the PAR, the Department provided the Commission with a set of draft conditions of consent. The draft conditions included a range of standard operating outcomes and performance measures, including for water, biodiversity, built features, heritage, noise and air quality, and were aimed at preventing and/or mitigating potential impacts, particularly subsidence impacts. The draft conditions also included requirements for a comprehensive suite of management plans to address the areas of potential impact identified in the performance measures.

The Department's draft conditions of consent were based on an adaptive management approach, which accepted that knowledge and understanding of underground mining in this 'greenfields' area would substantially increase over the life of the project, and allowed for appropriate alterations to mining operations to reflect this improved knowledge. After weighing up the concerns in relation to subsidence and amenity impacts against the socio-economic benefits of the project, the Department concluded that the project's benefits outweigh its potential impacts and that it was approvable, subject to conditions.

1.4 Planning Assessment Commission's First Review

Section 23D of the EP&A Act provides that the Minister may request the Commission to conduct a review of a development application and hold a public hearing into the matter the subject of the review.

The Minister's Terms of Reference issued on 16 January 2014 for the Commission's review of the original project were to:

1. Carry out a review of the Wallarah 2 Coal Project, and:
 - a) consider the (then) Department of Planning and Infrastructure's assessment report of the merits of the project;
 - b) consider the EIS for the project, the issues raised in submissions, the formal response to submissions and any other relevant information provided on the project during the course of the review;
 - c) assess the merits of the project as a whole, paying particular attention to potential water and biodiversity impacts of the project; and
 - d) recommend any further measures required to avoid, minimize, and/or manage the potential impacts of the project.
2. Conduct public hearings during the review as soon as practicable after the (then) Department of Planning and Infrastructure provides a copy of its assessment report for the project to the Planning Assessment Commission.
3. Submit its final report on the review to the (then) Department of Planning and Infrastructure within 6 weeks of the public hearings, unless the Director-General of the (then) Department of Planning and Infrastructure agrees otherwise.

The approach taken by the Commission was to critically examine the potential impacts of the project, determine whether these impacts can be avoided, mitigated or managed successfully within the scope of the draft conditions of consent recommended by the Department, or whether some further steps could avoid or lessen the impacts. A public hearing was held in Wyong on 2 April 2014.

The Commission's First Review Report was completed in June 2014 (see **Appendix E**). The Commission considered that the potential impacts of the project could be broadly divided into those associated with subsidence (ie potential impacts on water supply, stream morphology, groundwater, flooding, biodiversity, built infrastructure, etc), those associated with the proposed surface facilities (ie noise impacts, air impacts, water balance, etc) and a miscellaneous group including rail transport, land development, etc.

The Commission agreed with most of the PAR's findings and recommendations, but provided 35 recommendations it considered would enhance the determination of the project and ensure that potential impacts are avoided, minimised or mitigated (see **Part 2**).

The Commission's First Review Report concluded that *"if the recommendations concerning improved strategies to avoid, mitigate or manage the predicted impacts of the project are adopted then there is merit in allowing the project to proceed."*

1.5 Land and Environment Court Proceedings

Following the Commission's first review, the project was subject to legal proceedings in the NSW Land and Environment Court initiated by the Darkinjung LALC. The Court's decision turned on the proper interpretation of clause 49 of the *Environmental Planning & Assessment Regulation 2000* (EP&A Regulation) which relates to requirements for landowner's consent to development applications. Clause 49(3A) of the EP&A Regulation makes provision for the consent of the NSW Aboriginal Land Council to be required where land is owned by a LALC. This clause had effect because part of the project's originally-proposed rail spur would have been located on land owned by the Darkinjung LALC.

On 12 June 2014, the Court held that insofar as the development application (SSD 4974) is made in respect of Lot 195 DP 1032847 (ie land owned by Darkinjung LALC), the application could not be determined without the NSW Aboriginal Land Council first providing its consent.

1.6 Negotiations Between WACJV and the Darkinjung LALC

Both the WACJV and the Darkinjung LALC agreed to participate in mediation proceedings first proposed by the Secretary of the Department. Mediation meetings took place from 19 to 20 February 2015 and 10 April 2015. The mediation was independently facilitated by the Hon RN Talbot (a retired judge of the Court) and Mr Tony McAvoy (an Aboriginal barrister). The mediation concluded on 29 April 2015. Darkinjung LALC and WACJV could not reach agreement during the mediation and substantial differences remained between the parties' final offers.

WACJV offered in-kind payment in the form of land, social benefits, business opportunities, training and education funded through the operation of the mine over the projected 42-year life of the resource (ie not just limited to the 28-year life of the project). Darkinjung LALC sought a compensation package primarily composed of significant ongoing per-tonne payments. WACJV advised the Department that the compensation sought by Darkinjung LALC would render the project financially unviable.

Because agreement could not be reached, the Darkinjung LALC wrote to the NSW Aboriginal Land Council requesting that it refuse consent to the application for the project. The NSW Aboriginal Land Council then wrote to Darkinjung LALC and WACJV seeking submissions on whether it should give its consent to the application. Following consideration of these submissions, the NSW Aboriginal Land Council confirmed in a letter dated 19 June 2015 to the Minister for Planning that it would not provide its consent to allow the project's development application to be made (and therefore determined).

1.7 Amended Development Application

WACJV has continued to identify other options to transfer coal from its surface facilities to the Main Northern Rail Line. WACJV first investigated the feasibility of relocating its spur rail line to land that is mainly owned by Boral, which operates an adjacent brick manufacturing facility. However, this proposed route would still cross about 40 m of land owned by Darkinjung LALC. Given that the Darkinjung LALC and NSW Aboriginal Land Council have refused to agree to the use of this land, WACJV then abandoned this proposal.

Late in 2015, WACJV commenced negotiations with other nearby landowners about a proposal to construct a conveyor and rail load-out facility which would avoid land owned by the Darkinjung LALC. WACJV has consulted closely with all private and public landowners for the proposed route of the conveyor to transport coal from its planned Tooheys Road surface facilities to the Main Northern Rail Line, where it plans to construct a train load-out facility, as well as other affected agencies. The company has undertaken consultations/negotiations with:

- Roads and Maritime Services (RMS);
- Department of Primary Industry (DPI) - Crown Lands;
- Division of Resources and Energy (DRE) of the Department of Industry;
- Sydney Trains;
- Transport for NSW; and
- Boral – the owner and operator of a clay/shale quarry and brick manufacturing facility, over whose land part of the conveyor is planned to cross.

In light of the Court's judgment, and in the absence of a negotiated outcome with the Darkinjung LALC and consequential consent from the NSW Aboriginal Land Council, WACJV re-designed its proposed coal transportation infrastructure and sewer connection for the project to fully avoid land owned by Darkinjung LALC, including Lot 195 DP 1032847 (see **Figure 3** and **Section 2**).

WACJV then sought to amend its development application under clause 55 of the EP&A Regulation. Clause 55 allows for development applications to be amended during the period of their assessment, but only with the agreement of the 'consent authority' (ie the Minister).

On 15 July 2016, the Minister's delegate agreed to the amendment of the development application under clause 55. The delegate also agreed that the amended development application should be publicly exhibited for a period of six weeks. The amendment documents were placed on public exhibition from 22 July 2016 to 5 September 2016 (see **Sections 3.2** and **4.2**).

1.8 Chronology of Events

A brief chronology of the key events relevant to this project is presented in **Table 2**.

Table 2: Chronology of events

Date	Event
October 2012	Development application submitted for the Wallarrah 2 Coal Project (SSD 4974)
November 2012	Department requested more information from WACJV around water, flood management, biodiversity, Aboriginal and non-Aboriginal heritage, subsidence, noise, traffic, transport and visual impacts
February 2013	Department received revised Environmental Impact Statement (EIS) and asks for more information to be included
March 2013	Department received a second revised EIS, which is accepted
April – June 2013	Public exhibition of EIS, leading to 700 submissions including around 600 objections
February 2014	Department completed its PAR and referred the project to the Commission for a merit review
April 2014	The Commission held public hearings
June 2014	The Commission completed its first review and provided 35 recommendations to further reduce the project's impacts
June 2014	Land and Environment Court ruled that WACJV needs to obtain the consent of the NSW Aboriginal Land Council before development consent can be granted, because a rail spur for the project would be on Aboriginal-owned land (ie Lot 195 DP 1032847)
February – April 2015	A pre-mediation conference took place on 9 February 2015, with representatives of WACJV, Darkinjung LALC, the NSW Aboriginal Land Council and the Department present. Formal confidential mediation took place on 19 and 20 February 2015, and 10 April 2015. Only the two parties, their legal representatives and the mediators were present (ie the Department was not a party to the formal mediation process)
29 April 2015	Mediation concluded with no agreement reached between Darkinjung LALC and WACJV. The opportunity given the parties to reconvene was not taken up
19 June 2015	NSW Aboriginal Land Council wrote to the Minister for Planning confirming that it would not give its consent for the development application to be made
June 2015 to February 2016	WACJV investigated alternative locations for its coal conveyor, rail siding and rail load-out facility that would either avoid Darkinjung LALC land or else be acceptable to the LALC
February 2016	WACJV lodged two applications with DPI - Crown Lands to close and purchase Crown roads on which it proposes to construct components of its revised coal conveyor, rail siding and rail load-out facility
16 June 2016	WACJV lodged an amended development application and accompanying particulars

	describing proposed changed arrangements for product coal conveying and rail load out
1 July 2016	The Department sought further work on the amended development application
11 July 2016	Amended development application and accompanying particulars accepted as adequate
15 July 2016	The Minister's delegate agreed to an amended development application under clause 55 of the EP&A Regulation 2000
22 July – 5 September 2016	Public exhibition of the amended development application. Approximately 680 submissions received
September – October 2016	Darkinjung LALC and WACJV re-initiated consultation, seeking to negotiate an outcome beneficial to both parties. Darkinjung LALC proposed a third option involving a coal conveyor and train load out to the south of the current proposals and closer to Wallarah
27 October 2016	Darkinjung LALC advised WACJV that it wished to withdraw from these discussions and reinforced its position on the following: 1. it strongly objects to the amended development application; 2. it is prepared to revisit the original development application, however this would be negotiated on commercial terms; and 3. it is open to developing a 'negotiated regional planning outcome' on its lands to the south of the Motorway Link Road to seek a balanced use of lands
4 November 2016	WACJV submitted its Response to Submissions on the amended development application
22 December 2016	The Department sought further information from WACJV to inform its assessment of the amended project
16 January 2017	WACJV submitted a response to the Department's December 2016 information request

2.0 AMENDED DEVELOPMENT APPLICATION

2.1 Changes to the Project

2.1.1 Description of the Amended Project

As discussed in **Section 1**, the original development application was partly in respect of land owned by the Darkinjung LALC. Specifically, the project's coal transportation infrastructure and sewer connection affected this land. As a consequence of the Court's decision (see **Section 1.5**), the amended project now seeks to avoid this land. **Figure 3** shows the amended project and adjoining land ownership. **Figure 4** shows both the original and currently-proposed coal transportation structure and sewer connection.

The Department again notes that the mine plan, mining method and coal production rate for the amended project are unchanged from that originally proposed (see **Section 1.2** and **Figure 1**). Infrastructure at the Buttonderry Site and the Western Ventilation Shaft Site, and the construction schedule are also unchanged from the project description in the original EIS.

The particulars of the changes to the project (ie the amended project) can be summarised as follows:

- removal of the previously proposed rail loop;
- location of a new rail siding to house the train load out facility on the eastern side of the Main Northern Rail Line to the north of the Motorway Link Road overpass;
- a conveyor system to deliver product coal from a stockpile at the proposed Tooheys Road Site to the new location of the train load out facility; and
- realignment of the sewer connection.

A comparison of the key components of the project as originally proposed and as amended is provided in **Table 3** and depicted in **Figure 4**.

Table 3: Comparison of the original project with the amended project

Project Aspect	Original Project	Amended Project
Project duration	28 years	No change
Mining method	Underground longwall mining	No change
Coal reserves	150 Mt, of which 95 Mt would be recovered during the approved project life	No change
Production rate	Maximum of 5 Mtpa	No change
Tooheys Road Site	• Drift (decline) portal • ROM coal stockpile • Secondary crusher • Conveyor to product coal stockpile	• No change • No change • No change • No change

	- Product coal stockpile - Water management structures - Storage facilities - Workshop - Offices - Water and sewer connections - Rail loop and spur to the west of the Main Northern Rail Line - Train load out facility west of the product coal stockpile - Conveyor from product stockpile to train load out facility	- No change - No change - No change - No change - No change - Realignment of sewage pipeline - Rail loop removed. Proposed rail siding located east of and next to the Main Northern Rail Line - Train load out facility located on the new rail siding - Conveyors from product stockpile to relocated train load out facility
<i>Buttonderry Site</i>	- Downcast shaft (personnel access to mine) - Mine ventilation fan house - Offices - Bathhouse - Storage facilities - Water management structures - Electrical substation - Helipad	No change
<i>Western Ventilation Shaft Site</i>	- Downcast ventilation shaft - Water management structures - Required from Year 13 of the project	No change
<i>Mine Plan</i>	35 longwall panels to be mined during the project (a further 11 panels may be subject to a future application)	No change
<i>Coal Transportation to Port</i>	- Rail to Newcastle 38 x 120 tonne (t) wagons - Average of 4.3 trains/day and a peak of 6 trains/day would be loaded and dispatched	- No change 44 x 100 t wagons (Years 4 to 6) 60 x 100 t wagons (Years 7 to 28) - Maximum of 4 train cycles per day
<i>Employment</i>	- Construction workforce of 450 full time personnel - Operation workforce of 300 full time personnel	No change
<i>Water Management</i>	- Mine water dams - mine operations dam - portal dam - stockpile dam - Sediment dams - entrance dam - sedimentation dam - Mine water treatment - water treatment plant - brine treatment plant - treated water dam - brine dam	No change
<i>Waste Management</i>	Brine to be deposited in underground sump and longwall goafs	No change
<i>Operational Hours</i>	24 hours a day, 7 days a week	No change
<i>Capital Investment</i>	\$805 million	No change

The Tooheys Road Site would still contain the project's main coal handling, transportation and water management infrastructure. The stockpiles, crusher, water management infrastructure and buildings remain unchanged. The only changes to the Tooheys Road Site relate to product coal transportation infrastructure. A rail loop, containing a coal load out facility, was to be connected to the Main Northern Rail Line by a rail spur which crossed land owned by the Darkinjung LALC. The amended project has omitted the rail loop and rail spur. Instead, a new rail siding containing a coal load out facility would be located on the eastern side of the Main Northern Rail Line, approximately 1.1 km north of the Motorway Link Road, avoiding all land owned by the Darkinjung LALC.

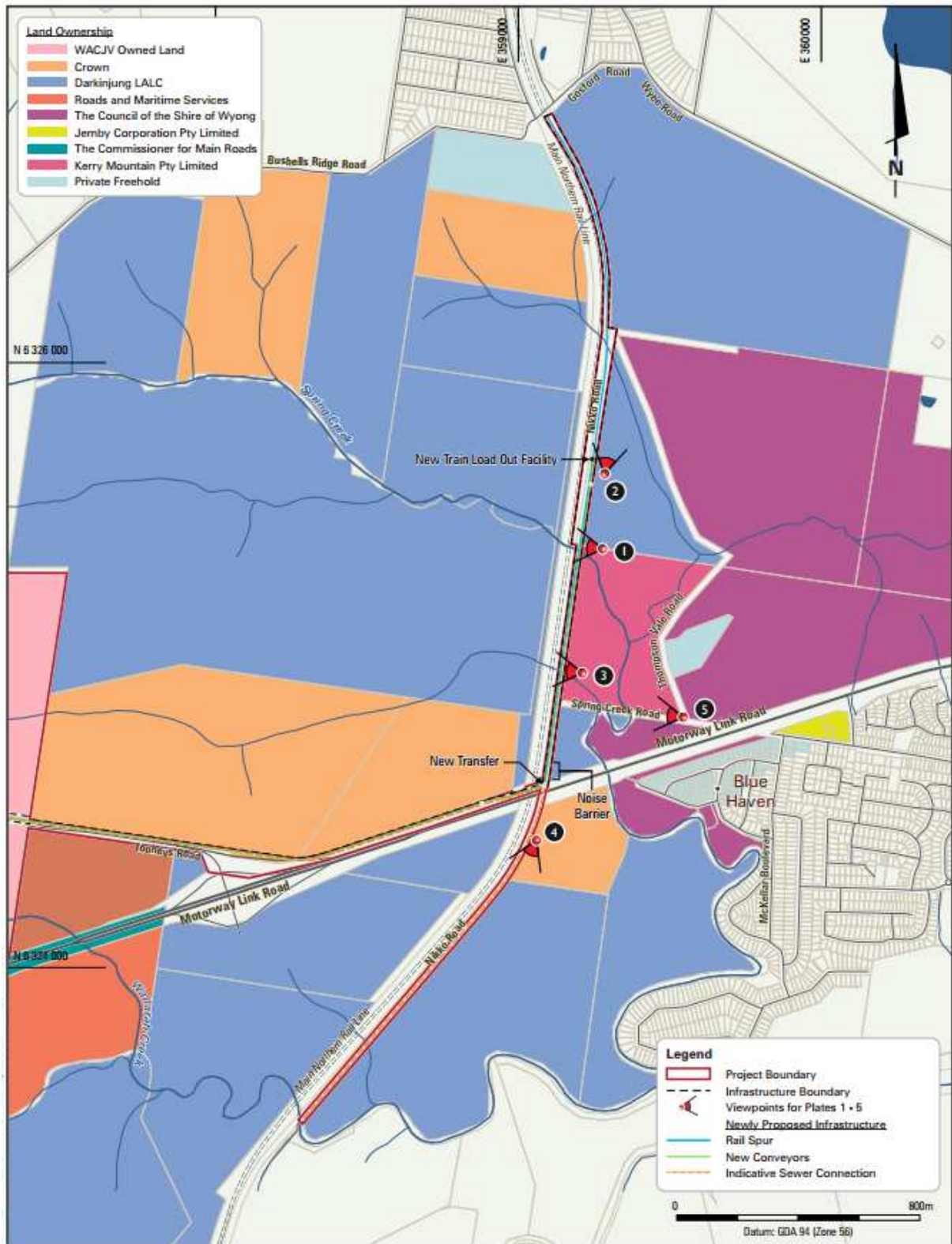


Figure 3: Proposed infrastructure associated with the amended project and land ownership

Product coal would be transported by conveyor to the new train load out facility. The project's trains would branch off the Main Northern Rail Line and onto the rail siding immediately south of Gosford Road, Wyee (see **Figures 2 and 4**). The Tooheys Road Site would still require a connection to the municipal sewer system. The amended project proposes a different alignment for the sewer connection (see **Figures 2 and 4**).

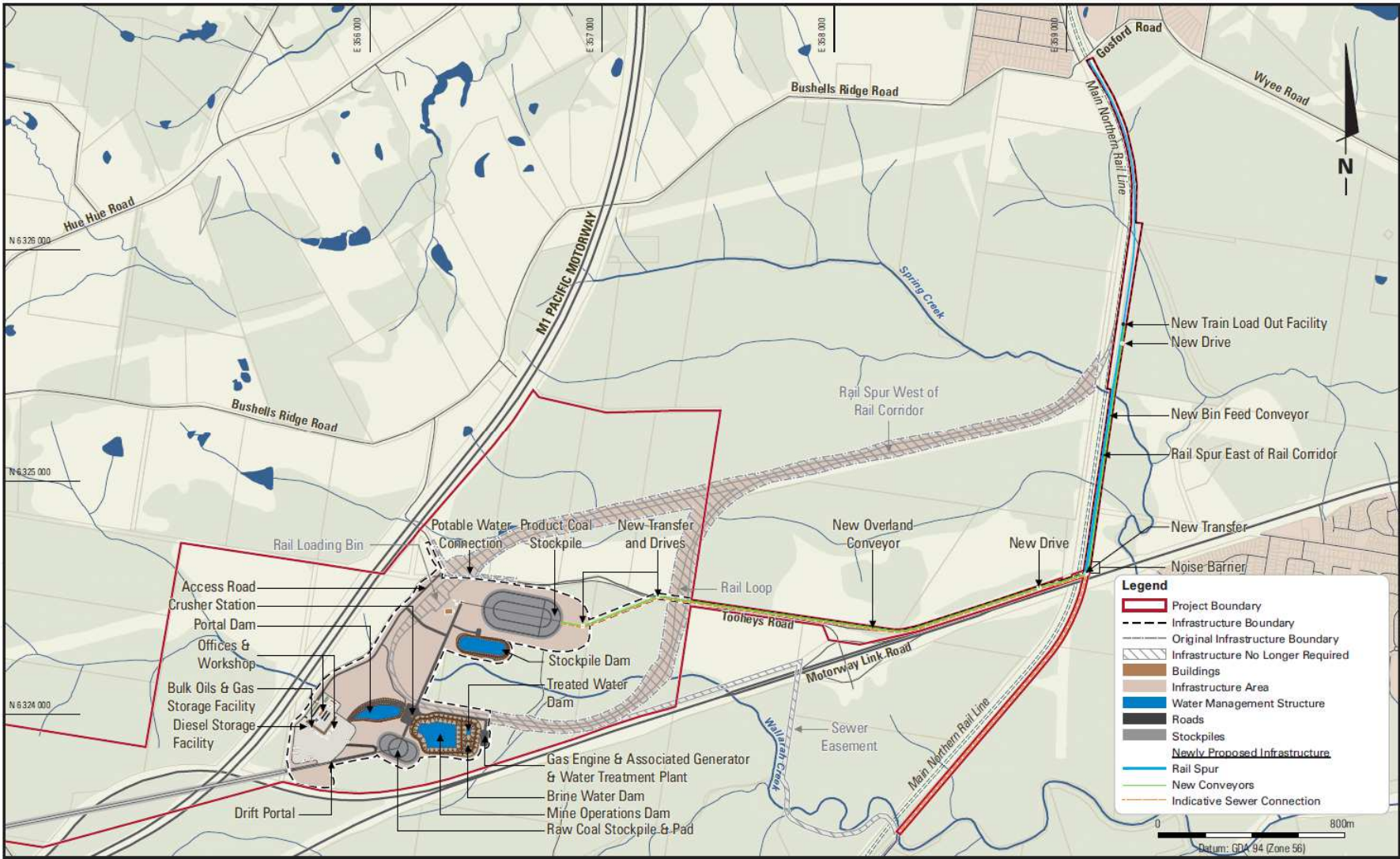


Figure 4: Original and amended coal transportation layout

The Department notes that the proposed conveyor system, rail siding, train load out bin and sewer connection would be located on land which is currently a Crown road (Nikko Road). Whilst the amended project does not directly affect land owned by the Darkinjung LALC, there are privately-owned lots which front Nikko Road, including lots owned by the Darkinjung LALC. However, WACJV has advised that the proposed infrastructure on Nikko Road has been designed so that physical access to these lots is maintained (see **Section 5.4**). Land lots to the north of the Motorway Link Road are also legally accessible via Thompson Vale Road, Spring Creek Road and Wyee Road.

The infrastructure layout for the amended project requires approximately 26 ha less disturbance than the previously proposed layout.

2.1.2 Proposed Infrastructure

Conveyors and Transfer Stations

As discussed above, a conveyor system (comprising an overland conveyor and a bin feed conveyor) would be constructed to deliver coal from the product coal stockpile to the relocated train load out facility. The overland conveyor would be approximately 2.3 km long. It would follow a west-east alignment and deliver coal from the product stockpile to a transfer station adjacent to the Main Northern Rail Line. The bin feed conveyor would carry coal from the transfer station to the load out facility. The bin feed is approximately 1.1 km long and would follow a south-north alignment adjacent to the Main Northern Rail Line (see **Figures 2 - 4**).

The overland conveyor would commence at the product stockpile and cross to the northern side of Tooheys Road. The conveyor would then follow the southern boundary of the Boral Montoro brickworks until it enters the corridor of the Motorway Link Road. Once within the road corridor, the conveyor would run parallel to the Motorway Link Road until it reaches the transfer station on the eastern side of the Main Northern Rail Line (see **Figures 2 - 4**). Elevated crossings would be constructed to enable the conveyor to pass over Tooheys Road, Boral's access road and the Main Northern Rail Line.

Rail Siding

The rail siding for the project has been relocated to the eastern side of the Main Northern Rail Line. The proposed rail siding (approximately 2.2 km long) would run alongside the southbound line between the Gosford Road and Motorway Link Road bridges (see **Figures 2 - 4**).

The connection to the southbound line of the Main Northern Rail Line would be located a short distance south of the Gosford Road Bridge along a straight section of the tracks. Existing crossovers on the Main Northern Rail Line are located approximately 500 m north of the Gosford Road Bridge. These crossovers would be used by the project's train movements.

Train Loading System

The train load out facility would be located on the proposed rail siding, approximately 1.1 km north of the Motorway Link Road (see **Figures 2 - 4**). WACJV has advised that the bin would be approximately 12 m in diameter, 29 m in height and have a nominal maximum capacity of approximately 1,000 t. The loading system would be able to be controlled locally and remotely. The loading system would be capable of loading trains at a nominal rate of approximately 2,500 to 5,000 t/hour. The conceptual design of the train load out facility is illustrated in **Figure 5**.

Sewer Connection

The sewerage pipeline for the amended project would follow the alignment of the overland conveyor through the Boral Montoro premises and Motorway Link Road corridor. Once on the eastern side of the Main Northern Rail Line, the pipeline would run south along Nikko Road to the Charmhaven Sewage Treatment Plant (see **Figures 2 - 4**). More specifically, the sewage pipe would be slung under or upon the conveyor belt structure, crossing over Tooheys Road and the Main Northern Rail line as part of the conveyor gantry. Once on the eastern side of the railway, the sewerage line would diverge away from the conveyor gantry and run to the south along the southern section of Nikko Road. The proposed sewer connection has been re-aligned to avoid land owned by the Darkinjung LALC (see **Figure 3**).

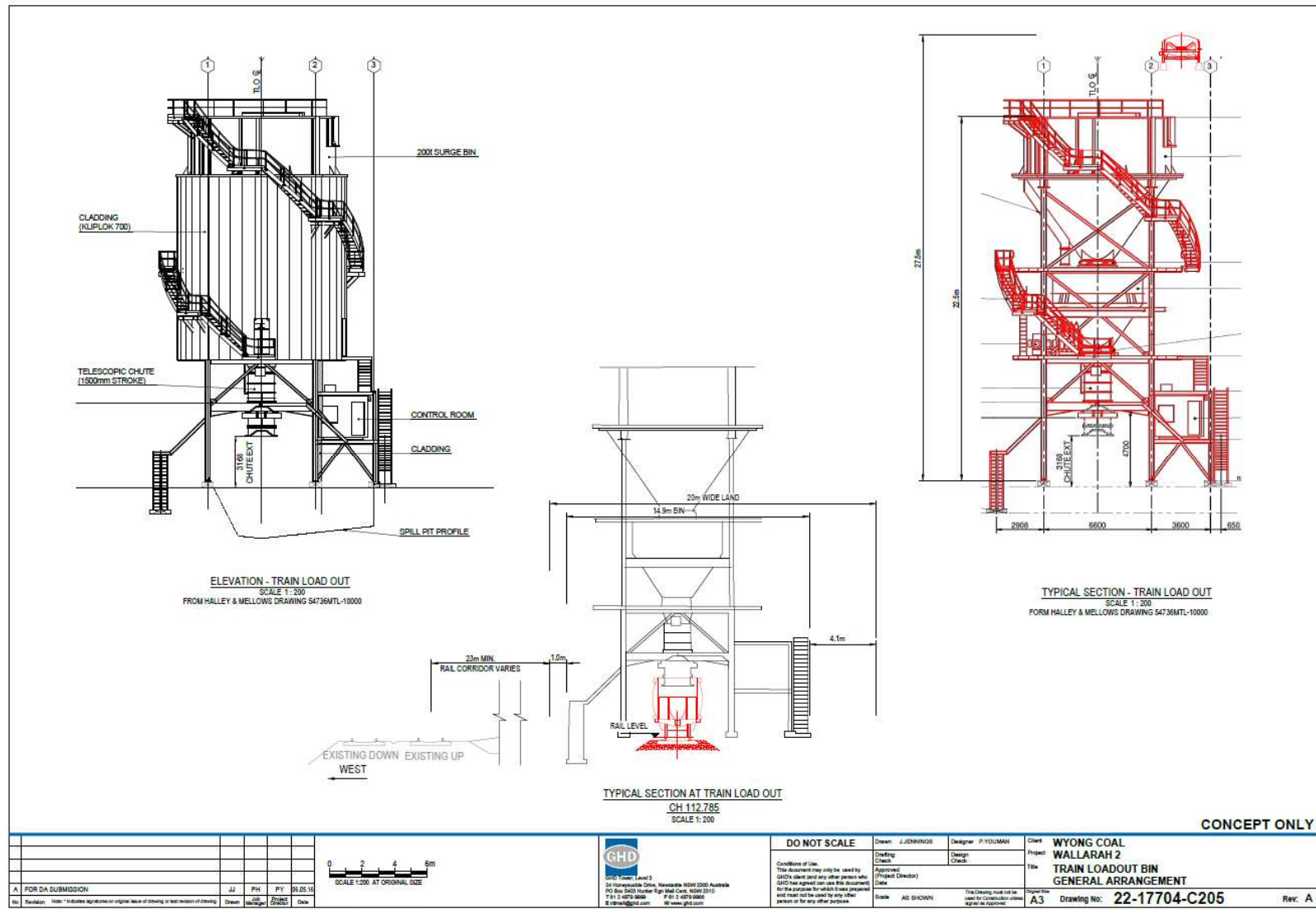


Figure 5: Conceptual train load out facility design

2.2 Justification for the Proposed Changes

2.2.1 General Justification

The original project required construction and operation of a rail spur and sewer connection on land owned by the Darkinjung LALC (see **Section 1**). The amended project would avoid development on land owned by the Darkinjung LALC, thereby removing the requirement under the EP&A Regulation for the consent of the NSW Aboriginal Land Council. The amended project would enable the development application to be determined by the Commission.

WACJV considers that the amended project would also result in a number of positive environmental outcomes. This includes a reduction in disturbance of 26 ha, which would reduce impacts to ecological, hydrological and cultural heritage values. WACJV also considers that air quality and noise modelling has demonstrated that amenity impacts can be managed to all relevant standards.

WACJV also considers that the amended project would allow for the economic and employment benefits of the project to be realised (see **Section 5.7**). Coal is NSW's biggest mineral commodity in terms of production value, with the coal industry generating around 80% of the State's mining income. Coal is also the State's single largest export in revenue terms - around 25% of its export revenue. NSW is the third largest mineral-producing State in Australia after Western Australia and Queensland, and generates approximately 12% of the gross value of Australian mineral production.

The production of coal from this project is predicted to generate a total of approximately 800 jobs, including 300 direct jobs and 500 flow-on jobs. This would be of particular significance in the Central Coast region, where the Wyong LGA has fared poorly in relation to recent State averages for key socio-economic indicators. The PAR reported that the unemployment rate in the Wyong LGA was 8.1% in September 2012, which was nearly 60% higher than the then NSW average rate of 5.1%. In the 2016 June quarter (the last quarter for which figures individual to the Wyong Shire were published), the local rate had increased to 8.50%, whereas the NSW rate had remained effectively stable at 5.2%. Unemployment is an important indicator of the economic strength of an area. A low unemployment rate can indicate an affluent area with a high rate of access to jobs, or a place where those who cannot find jobs leave the area. A high rate can indicate a declining local economy with closures of key industries, or residential areas with a significantly disadvantaged population.

Overall, the project would generate significant numbers of direct and indirect jobs within the Wyong region, which experiences substantially higher-than-average unemployment rates. The project would also generate Government revenues in the form of royalties, company tax and voluntary contributions, which are used by Governments to fund infrastructure projects and services. Without the amendments to its scope, the project is unlikely to be able to proceed and as such, these potential benefits would be foregone.

Lastly, as noted in **Section 1.4**, the Commission concluded that *"If the recommendations concerning improved strategies to avoid, mitigate or manage the predicted impacts of the project are adopted, there is merit in allowing the project to proceed"*. WACJV contends that the amended project would provide significant economic benefits and requires less disturbance than the original proposal.

2.2.2 Alternatives Considered

Following the Court's decision, WACJV considered a number of other alternatives, including:

- *pursuing the original project*: however it determined that this was not feasible as consent from the NSW Aboriginal Land Council could not be obtained;
- *locating the train load out facility near the Motorway Link Road Bridge*: however this was considered unsuitable due to the relative proximity of the Blue Haven residential area;
- *an alternative western location for the rail spur within the existing rail corridor*: however this option presented potential rail safety concerns and potential interactions with an existing track used by the Darkinjung LALC for accessing its lands to the north. There is also less space on the western side of the Main Northern Rail Line resulting in greater construction risks;
- *transport of coal by overland conveyor via the Vales Point Power Station*: however this was not considered feasible due to land access constraints and considerably greater capital costs; and
- *the amended project*.

Overall, WACJV identified the amended project as described in **Section 2** as its preferred option and is seeking consent for this option.

3.0 STATUTORY CONTEXT

3.1 State Significant Development

Section 3.1 of the PAR details the mechanism under the EP&A Act that results in the project being classified as State significant development (SSD). This classification does not change as a result of the amended development application. The amended project remains SSD and must be determined by the Commission under the relevant Ministerial delegations.

3.2 Clause 55 – Amended Development Application

Under clause 55 of the EP&A Regulation, a SSD application may be amended or varied at any time before its determination with the agreement of the consent authority. Clause 55 contains three provisions, which in summary:

- a) allow a development application to be ‘amended or varied’ with the ‘agreement of the consent authority’ at any time prior to determination;
- b) require ‘written particulars sufficient to indicate the nature of the changed development’ to be annexed to the amended application; and
- c) require the amended application to be forwarded to a concurrence authority or approval body for cases where concurrence is required or in cases of integrated development.

The third provision has no application to the project and therefore only the first two provisions of clause 55 must be satisfied. The Department reviewed the amended development application and accompanying particulars and considered (following revision) that they contained sufficient written particulars to clearly indicate the nature of the changed development, and that it thereby satisfied the requirements of clause 55(2). The development as proposed to be amended is permissible and not wholly prohibited on the site (see **Section 3.3** below).

The Department determined that amended Secretary's Environmental Assessment Requirements (SEARs) were not required for the amended project as it would not result in any new impacts not already considered in the existing Director-General Requirement's (DGRs) (ie the original DGRs remained appropriate for determining the content of the written particulars accompanying the amended development application).

Section 89F of the EP&A Act outlines the requirement for public exhibition of applications for SSD. Under section 89F(4), the Secretary is required to consider if further public participation (ie exhibition) is required by determining whether the:

- a) amended application substantially differs to the original application; and
- b) environmental impacts of the development have not been reduced by the changes made.

The Department considered that the proposed amended development application does not substantially differ from the original application as it only involves changes to the proposed coal transportation infrastructure and the re-alignment of a sewer connection. It is also noted that the environmental impacts of the development are likely to be reduced by the proposed changes. Nevertheless, the Department decided to place the amended project on public exhibition for a period of 42 days to ensure transparency and allow the public a fresh opportunity to provide comments.

In accordance with the delegation dated 16 February 2015, the Minister's delegate agreed to the amending of the application for the project.

3.3 Permissibility

As detailed in Section 3.2 of the PAR, part of the project area is zoned under the *Wyong Local Environmental Plan 2013* (Wyong LEP) to permit mining with development consent and a number of other areas are zoned E1 National Parks and Nature Reserves, E2 Environmental Conservation, E3 Environmental Management, SP2 Infrastructure, and RE 1 Public Recreation, where mining is prohibited.

The land that is subject of the amended project is zoned IN1 General Industrial, RU6 Transition, E2 Environmental Conservation, and SP2 Infrastructure. Development for the purposes of underground mining is permissible (with consent) in zone IN1. However, development for the purposes of underground mining is prohibited in zones RU6, E2 and SP2.

Section 89E(3) of the EP&A Act provides that 'development consent may be granted despite the development being partly prohibited by an environmental planning instrument.' Further to this, clause 7 of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (the Mining SEPP) provides that development for the purpose of underground mining is permissible with development consent on any land. Clause 5 of the Mining SEPP states that if there is an inconsistency between the Mining SEPP and another environmental planning instrument, the Mining SEPP prevails to the extent of the inconsistency. Therefore, the Mining SEPP prevails over the Wyong LEP, thus permitting underground mining to be carried out with development consent.

3.4 Integrated and Other Approvals

Under section 89J of the EP&A Act, a number of other approvals have been integrated into the Part 4 approval process and are not required to be separately obtained for the project. Under section 89K of the EP&A Act, a number of further approvals are required to be obtained, but must be approved in a manner that is consistent with any development consent for the project. These include:

- a mining lease under the *Mining Act 1992*;
- an environment protection licence under the *Protection of Environment Operations Act 1997*; and
- a consent under the *Roads Act 1993*.

The other approvals required for the original project are discussed in the PAR.

In relation to the additional land that is the subject of the amended project, WACJV has lodged an application under the *Mining Act 1992* for a mining lease for mining purposes over the lands on which it intends to construct the conveyor and rail load-out facility. WACJV needs Boral to agree to its application as the land is covered by an existing mining lease for the extraction of clay/shale, also held by Boral. There is no impediment under the *Mining Act 1992* to the grant of overlapping mining leases, providing that they are for different 'groups' of minerals (ie coal v clayshale) and the consent of the first leaseholder (ie Boral) is obtained.

An environment protection licence would be required for the project and would extend to include the lands and activities associated with the amended project.

WACJV has submitted its applications to DPI - Crown Lands for the closure and purchase of two Crown roads (Nikko Road and Tooheys Road). It plans to construct a rail siding and a train load-out facility on Nikko Road, the alignment of which runs parallel to the rail line. These applications are not expected to be finalised until 2017. Crown roads are unlike normal Crown land parcels and are not subject to Aboriginal land claims or Native Title claims.

WACJV's legal advice is that the status of the road closure applications would have no bearing on the determination of its development application, as conditions of consent would stipulate that any related approvals are to be in place prior to the start of any works that affected the land in question. The Department concurs with this advice.

The construction of the conveyor system associated with the amended project would take place partially within a section of the RMS corridor for the Motorway Link Road. Under section 7 of the *Roads Act 1993*, the local council is the roads authority for all roads other than Crown roads and freeways. The consent of the Central Coast Council would therefore be required for construction works within this corridor.

The project has been declared to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as it may impact on nationally-listed threatened species and water resources. The Commonwealth Department of the Environment and Energy (DoEE) will assess the project separately under the EPBC Act. WACJV has made a request under section 156A of the EPBC Act to vary its proposed action in consideration of the amended project. The variation instrument was signed by DoEE in September 2016.

Consideration of the *Crown Lands Act 1989* was provided in the EIS for the original project. This Act would be repealed upon commencement of the *Crown Lands Management Act 2016*. The approval of the DPI - Crown Lands is required for any works within a Crown road reserve or other Crown land. This would remain the case under the new Act. **Figure 3** shows the location of Crown land in relation to the amended project.

3.5 First Planning Assessment Commission Review

On 16 January 2014, the Minister requested that the Commission carry out a review of the project by:

- a) considering the then Department of Planning and Infrastructures' assessment report of the merits of the project;
- b) considering the EIS for the project, the issues raised in submissions, the formal response to submissions and any other relevant information provided on the project during the course of the review;
- c) assessing the merits of the project as a whole, paying particular attention to potential water and biodiversity impacts of the project; and
- d) recommending any further measures required to avoid, minimize, and/or manage the potential impacts of the project.

The Minister also requested that the Commission hold a public hearing during the review. The public hearing was held in Wyong 2 April 2014, with 36 verbal submissions and 30 written submissions received from individuals, special interest groups, the then Wyong Council and a local Member of Parliament.

3.6 Second Planning Assessment Commission Review

On 7 February 2017, the Minister requested that the Commission carry out a second review of the project (as amended) by:

- a) considering the amended development application and accompanying written particulars, the issues raised in submissions, the formal response to submissions, the Department's addendum report on the development application, and any other information provided on the development during the course of the review or as part of the public hearings;
- b) considering the likely economic, environmental and social impacts of the amended development application in the locality, in the region and for the State;
- c) assessing the merits of the amended development application as a whole, having regard to all relevant NSW Government policies and guidelines;
- d) considering the Department's responses to the Commission's previous review of the development; and
- e) providing recommendations on any additional reasonable and feasible measures that could be implemented to avoid, minimise and/or manage the potential impacts of the development.

The Minister also requested that the Commission hold a public hearing during the review and submit its final report on the review to the Department within 86 weeks of receiving the Department's addendum assessment report, unless otherwise agreed with the Secretary of the Department.

3.7 Environmental Planning Instruments

Under section 79C of the EP&A Act, the consent authority is required to consider the provisions of relevant environmental planning instruments (EPIs), including any exhibited draft EPIs and development control plans. The EPIs current at the time of the preparation of the PAR were considered and discussed in Section 3.5 and Appendix H of the PAR.

The Department has considered the amended project against the relevant provisions of relevant EPIs, and also considered WACJV's consideration of these instruments in the written particulars accompanying its amended development application. The key instruments include:

- *Wyong LEP 2013*: see **Section 3.3** for a discussion of zoning and permissibility in relation to the amended project;
- *SEPP No. 33 – Hazardous and Offensive Development*: the amended application does not result in the project becoming potentially hazardous or offensive;
- *SEPP No. 44 – Koala Habitat Protection*: the PAR concluded that the original project is generally consistent with the aims, objectives and requirements of SEPP 44, noting that there is potential Koala habitat within the project area. The amended application results in a reduction of 9.9 ha of

potential koala habitat impacted. The amended application is consistent with the aims, objectives and requirements of SEPP 44;

- *SEPP No. 55 – Remediation of Land*: land associated with the amended project does not contain evidence of contamination caused by historic land uses and no remediation measures are necessary. The project is generally consistent with the aims, objectives and provisions of SEPP 55;
- *SEPP No. 71 – Coastal Protection*: a portion of the amended project is located within the State's Coastal Zone. However the nearest land that constitutes 'coastal foreshore' is the land fronting Budgewoi Lake, which is approximately 2.5 km southeast of the project boundary. Proposed infrastructure for the amended project would not restrict public access to the coastal foreshore. All effluent generated by the amended project would be conveyed to the Charmhaven Sewage Treatment Plant. This would ensure that there are no discharges of untreated wastewater to watercourses. The water management system has been designed so that all runoff from industrial and hardstand areas is captured and treated prior to being discharged. In addition, temporary sediment basins would be established during construction to ensure that all runoff is treated prior to being discharged. The project would not result in discharges of untreated stormwater;
- *SEPP (State and Regional Development) 2011*: the project, as amended, continues to satisfy the definition of SSD and meets the aims, objectives and provisions of the SEPP;
- *SEPP (Infrastructure) 2007*: in accordance with clause 104 of the SEPP, the amended application was referred to the RMS (see **Section 4**). The matters raised in RMS's submission were considered by the Department and conditions of consent in relation to approvals under the *Roads Act 1993* have been drafted by the Department; and
- *Mining SEPP*: under clause 7 of the Mining SEPP, the amended project is permissible with consent. The Department has considered the matters identified in the SEPP in its assessment of the project (see **Section 5** below and **Section 3 of Part 2**). The Department is satisfied that the project is able to be managed in a manner that is generally consistent with the aims, objectives, and provisions of the Mining SEPP.

The project site is also within the coverage of the *Central Coast Regional Plan 2036*, which includes priority actions to 'strengthen the economic self-determination of Aboriginal communities' while providing a 'prosperous Central Coast with more jobs close to home'. These actions include the Department collaborating with the Central Coast Council and the Darkinjung LALC to strategically assess DLALC's landholdings and identify priority sites to create a pipeline of projects and to incorporate the outcome of the assessment into a revised *North Wyong Shire Structure Plan*. The Department is satisfied that the amended project is consistent with the objectives of this Plan.

The proposed extraction area, Buttonderry Site, Western Ventilation Shaft Site and most of the Tooheys Road Site are located outside of the 'coast zone' as defined under the draft *Coastal Management SEPP 2016*. However the proposed conveyor system, rail siding, train load out facility and sewer connection are located within the 'coastal use' area. None of these components are located near a foreshore, beach, headland or rock platform. These components would not cause wind funnelling or loss of views from public places to foreshores. It is not expected that these components would adversely affect the visual amenity and scenic quality of the coast, or affect the use of the surf zone. Lastly, there are no items of Aboriginal heritage significance reported at the site of the proposed infrastructure.

Part of the sewerage pipeline is also located within the 'coastal environment' area. The sewer connection would consist of a fully enclosed pipeline (approximately 200 m long) which would be either surface mounted or buried at a shallow depth. Construction of the sewer connection is expected to result in minimal disturbance, cause no interactions with the groundwater system, nor impede surface flows to Spring Creek. The Department notes that the sewer connection would be over 8 km from the nearest beach and would be beyond the tidal limit, therefore is extremely unlikely to significantly impact on geological and geomorphological coastal processes and features. It is also not expected to impact on rock platforms, undeveloped headlands, the surf zone or items of Aboriginal heritage significance. The sewer connection would deliver wastewater directly to the municipal sewerage system and not result in any discharge of water to natural waterbodies, therefore not impacting on the water quality of the marine estate.

Based on its consideration of these EPIs and its environmental assessment (see **Section 5**), the Department is satisfied that the project can be undertaken in a manner that is consistent with the

aims, objectives and provisions of these instruments, subject to a range of mitigation, monitoring and management measures, as proposed in the draft conditions of consent.

3.8 Objectives of the EP&A Act

The objectives of the EP&A Act are discussed in the PAR. The objects of most relevance to the Commission's decision on whether or not to approve the project are found in section 5(a)(i),(ii),(vi)&(vii) of the Act. The Department has considered these in relation to the original project and the amended project.

The Department is satisfied that the project encourages the proper use of resources (Object 5(a)(i)) and the promotion of orderly and economic use of land (Object 5(a)(ii)).

The encouragement of environmental protection (Object 5(a)(vi)) is considered in Section 5 of the PAR and **Section 5**. Following this consideration, the Department is satisfied that the potential impacts of the project can be suitably mitigated, managed and/or offset to ensure an acceptable level of environmental performance.

The Department has considered the encouragement of ecologically sustainable development (ESD) (Object 5(a)(vii)) in its assessment of the original and amended application. This assessment has sought to integrate all significant economic and environmental considerations, and to avoid any serious or irreversible damage to the environment, based on an assessment of risk-weighted consequences.

4.0 CONSULTATION

4.1 Earlier Consultation

The original development application and EIS were publicly exhibited by the Department in accordance with the requirements of section 89F of the EP&A Act. The Department:

- publicly exhibited the EIS for an extended period of nearly 2 months from 26 April 2013 until 21 June 2013, as well as notifying the relevant public authorities; and
- advertised the exhibition in the *Sydney Morning Herald*, *Newcastle Herald* and the *Central Coast Express Advocate*.

The Department received a total of 742 submissions on the original project, including:

- 18 from public authorities;
- 113 public and special interest groups submission in support of the project (including one submission that attached a petition with 450 signatures); and
- 611 public and special interest group submissions objecting to or commenting on the project (over 400 of these objections were form letters).

The majority of objections raised concerns about potential subsidence impacts on natural features (including water resources and heritage) and built features (including residences and other structures). The other key group of concerns related to noise impacts and air quality impacts (including both health and greenhouse gas issues) from the proposed surface operations at the Tooheys Road and Buttonderry Sites. Other concerns raised in submissions included potential impacts on traffic, transport and agriculture.

WACJV provided a formal Response to Submissions (original project RTS) on 17 September 2013 which addressed the issues raised in community and agency submissions. Further comments were received from several agencies in response to the original project RTS. On 30 October 2013, WACJV submitted a Residual Matters Report in response to the residual concerns raised in agency comments on the original project RTS.

The Department held further meetings with agencies in order to resolve certain residual issues, including with:

- OEH on 11 September 2013;
- NSW Office of Water (now DPI Water) and WACJV on 11 October 2013; and
- OEH and WACJV on 24 October 2013.

The Commission's first review of the project included a public hearing, which was held in Wyong on 2 April 2014, with 36 verbal submissions and 30 written submissions received.

The Commission's first review paid close consideration to several issues raised in agency and public submissions made regarding the EIS. The Commission also sought additional advice on a number of key aspects of the project from WACJV and its consultants, Government agencies and individuals.

The Commission generally concurred with the Department's assessment of the project's key impacts and most recommendations contained in the PAR, but provided 35 recommendations it considered would enhance the determination of the project and ensure that potential impacts are avoided, minimised or mitigated (see **Part 2**).

4.2 Public Exhibition of the Amended Application

On acceptance of the amended development application and accompanying written particulars, the Department re-exhibited this material for public and agency review. The Department:

- placed a public exhibition notice in the *Newcastle Herald* and *Central Coast Express Advocate*;
- made the amended development application and accompanying particulars publicly available at its Information Centre, Lake Haven Library and the Central Coast Council Services Centre (formerly Wyong Council Customer Service Centre) and the Nature Conservation Council from Friday 22 July until Monday 5 September 2016; and
- placed the amended development application and accompanying particulars on its website.

The Department is satisfied that the notification process met the requirements of the EP&A Act and the EP&A Regulation.

In response to the exhibition of the amended project, the Department received a total of 687 submissions, comprising:

- 13 from public authorities, including Central Coast Council, Australian Rail Track Corporation, Transgrid and 10 NSW Government agencies;
- 118 public and special interest group submissions in support of the project; and
- 556 public and special interest group submissions objecting to the project.

The Department notes that this figure differs slightly from the number of submissions as reported by WACJV in its amended project Response to Submissions (RTS2), which was submitted on 4 November 2016. The reason for this is that a number of individuals made multiple submissions. The Department counted multiple submissions from a single submitter as one submission. However, it made sure that all issues raised by each submitter were considered. WACJV was unable to adopt this approach as the majority of the individuals who submitted multiple times wished to remain anonymous. Consequently, WACJV could not aggregate multiple submissions in the manner used by the Department.

A summary of the issues raised in public authority, special interest group and general public submissions is provided below. A full copy of all submissions and the RTS2 are provided in **Appendices B** and **C**, respectively.

4.3 Submissions

4.3.1 Public Authorities

Submissions received from agencies provided comment on the amended project, highlighted residual issues from the original application that were considered as not being addressed in the amended development application and recommended conditions of consent should the project be approved.

The **Division of Resources and Energy** of the Department of Industry (DRE) noted that the amended development application did not consider the effects of subsidence and suggested that further advice should be sought from DPI's Resource Regulator. Given that the amended project did not propose any changes to the underground mining area, and subsequently potential subsidence impacts, the Department did not consider this necessary.

WACJV has undertaken a risk assessment to identify potential environmental issues associated with the project and notes that the amended project does not involve any changes to the underground

mining proposal. Therefore the effects of subsidence from the amended project are unchanged from the assessment contained in the original EIS. WACJV also stated that it would obtain the appropriate mining leases should the project be approved and prior to undertaking mining operations.

Conditions of consent outlining rehabilitation requirements were recommended should the project be approved. Overall, DRE's proposed conditions relating to rehabilitation objectives and outcomes, progressive rehabilitation and the preparation of a Rehabilitation Management Plan are considered by WACJV and the Department to be appropriate and achievable. The Department has recommended a number of changes to the rehabilitation objectives in the draft conditions of consent.

DRE advised the Department that WACJV's RTS2 adequately addressed its concerns and asked to review the final rehabilitation and post mining land use commitments should the project be approved.

The **Heritage Council of NSW** (HC) commented that the amended project did not identify any additional historic heritage issues requiring consideration. The HC made reference to its previous submission on the original project which recommended a Historic Heritage Management Plan, should the project be approved. WACJV acknowledged the comments provided by the HC and propose to prepare a Historic Heritage Management Plan, should the project be approved. The Department notes that the recommended Extraction Plan condition contains a requirement for the preparation and implementation of a Heritage Management Plan.

The **Office of Environment and Heritage** (OEH) commented that the amended project reduces the disturbance footprint at the Tooheys Road Site by 26 ha while the offset package remains unchanged from the original application, thereby providing a higher offset ratio than was originally proposed. However OEH noted that the details of the mechanisms used to secure the offset area are not discussed in the amended development application. WACJV's RTS2 notes that suitable options for mechanisms to protect offset land are discussed in the original RTS and PAR and have not changed as a result of the amendment.

The mine layout map in the amended development application includes 11 longwalls for which development consent is not currently being sought. These are identified as 'potential future mining areas'. OEH requested that the proposed locations of these 11 proposed longwalls not be shown on plans and that only an outline of the area proposed for future development is indicated. WACJV notes that the figure listed in the OEH submission refers to the 11 proposed longwalls as 'potential future mining areas' with an 'indicative longwall panel layout', which implies that their layout is not definitive or certain. WACJV considers that the description of 'potential future mining areas' clearly distinguishes the longwall panels that are included in the current application from the panels that are not included. The Department is satisfied that these 11 longwall panels are not in any way included in the current application and assessment process and would be subject to a separate development application and assessment process. Their inclusion in figures is acceptable provided it is clearly shown they are a potential future mining area not subject to this application.

OEH notes that landowner's consent from the Minister administering the *National Parks and Wildlife Act 1974* is required to allow mining within the Jilliby State Conservation Area. The Department and WACJV acknowledge that landowner's consent from the Minister for the Environment (as the 'owner' of the Jilliby SCA) is required.

OEH recommended conditions relating to Aboriginal cultural heritage and threatened biodiversity, should the project be approved. WACJV considers that OEH's suggested conditions requiring an Aboriginal Heritage Management Plan are consistent with the Department's existing draft conditions, as discussed in the PAR. Potential impacts to Aboriginal heritage from the amended project are discussed further in **Section 5.8**. The Department has recommended strengthening its draft conditions for Aboriginal heritage management to reflect more contemporary consents and best practice.

OEH considers that the RTS2 generally addresses its concerns.

The **Department of Primary Industries – Water** (DPI Water), requested that WACJV provide updated information on water licensing, with specific reference to the new and amended water sharing plans and how the predicted take of surface and ground water would be licensed. DPI Water also requested that WACJV consult further regarding its water licensing strategy for the project.

WACJV notes in the RTS2 that the amended project does not involve any changes to the underground mining aspects of the project or the proposed water management system. As a result, the amended project would not alter the predicted rates of mine inflow or seepage from shallow groundwater systems.

The Department has proposed a condition of consent requiring WACJV to ensure that it has sufficient water for all stages of the development and, if necessary, adjust the scale of its mining operations to match its available water supply. In addition, under the *Water Act 1912* and/or the *Water Management Act 2000*, WACJV is required to obtain all necessary water licences for the development.

WACJV acknowledges that it is required to obtain all appropriate water licences to account for the predicted inflows to the mine workings and for the predicted seepage from alluvial aquifers as a result of mining. It has made an application under Part 5 of the *Water Act* to secure sufficient licensed volumes.

Additionally, DPI Water recommended that all works on waterfront land are consistent with its *Guidelines for Controlled Activities on Waterfront Land*. WACJV has committed that any development on waterfront land would be undertaken in accordance with relevant DPI Water guidelines.

DPI Water advised the Department that its previously-proposed draft conditions of consent remain appropriate for the amended application. Nevertheless, the Department has recommended a number of changes to these conditions to strengthen the requirements to be placed on WACJV, reflect contemporary wording and provide confidence to regulators and the community.

NSW Environment Protection Authority (EPA) sought clarification on a number of issues relating to predicted noise and air quality impacts from the amended project and provided further comments relating to water quality impacts from the project.

Further information was sought in relation to the amended development application's Noise and Vibration Impact Assessment Addendum; specifically classification criteria used for several assessment locations, the meteorological conditions applied and the consideration of construction noise impacts. Confirmation of the amended development application's Air Quality Impact Assessment modelling results was sought, as the maximum PM_{2.5} predictions were marginally higher than PM₁₀ predictions. Noise impacts, air quality impacts and water resources are discussed in **Sections 5.1, 5.2 and 5.6**.

The EPA provided further comments for consideration in any conditions of consent relating to:

- appropriate regulation should any potentially harmful flocculants or coagulants be discharged through stormwater systems;
- maximum allowable discharge limits for Wallarah Creek;
- amendments to the proposed Brine Treatment Management Plan to include appropriate construction and monitoring of surface and underground brine storages; and
- consultation with relevant authorities regarding potential impacts of brine disposal on surface water.

WACJV responded in its RTS2 and considered that the EPA's comments relating to the original project were already addressed in the RTS, PAR and the Commission's first review. In December 2016, EPA advised that it had reviewed the RTS2 and that its issues had been adequately addressed. EPA further advised that its June 2013 recommended conditions of consent remain applicable, except for noise conditions. The Department has considered noise-related matters in **Section 5.1**.

NSW Health requested clarifications relating to air quality, noise impacts, water, drinking water and sewage services. NSW Health noted that its comments are subject to the EPA confirming that the appropriate modelling has been completed.

WACJV responded to the comments from NSW Health in the RTS2. NSW Health then advised the Department that, while the RTS2 addressed some of its concerns it did not adequately address concerns over air quality and noise impacts. These issues are discussed in **Sections 5.1 and 5.2**.

Subsidence Advisory NSW (SA NSW, formerly the Mine Subsidence Board) noted that SA NSW's approval is required to subdivide, erect or alter any improvements on the surface of land within the Hue Hue and Wyong Mine Subsidence Districts. SA NSW also noted that the *Mine Subsidence Compensation Act 1961* has recently been reviewed and large-scale changes to this Act are likely to proceed in 2017. In light of this, SA NSW recommended a condition of consent requiring WACJV to accept responsibility for any damage to existing surface improvements by mine subsidence from the project and the associated cost to repair. The Department does not consider it appropriate or procedurally fair to recommend such a condition as it is contrary to the approvals other underground mines in NSW and should the new changes to the Act not be adopted, the existing Act would continue to apply. The Department considers that the new statutory changes should be introduced across all such mines by the same means and at the same time.

WACJV acknowledged that approval from the SA NSW is required prior to construction or relocation of infrastructure within the Hue Hue and Wyong Mine Subsidence Districts. Proposed conditions for the original project included an Extraction Plan for any second workings, which is required to include a Built Features Management Plan addressing appropriate remediation measures and commitments to mitigate, repair, replace or compensate all impacts on affected built features. The Department has recommended a number of changes to these conditions to strengthen the requirements to be placed on WACJV, reflect contemporary wording and provide confidence to regulators and the community.

No further comments have been received from SA NSW in relation to the amended project.

Transport for NSW (TfNSW) reviewed the amended development application and had no further comments on the project.

The **Australian Rail Track Corporation** (ARTC) confirmed that there is sufficient capacity in the ARTC's Hunter Valley Network to accommodate the project dispatch volumes; however the operational complexities between integrating the ARTC's Hunter Valley Coal Chain with the adjoining TfNSW networks timetable would create significant challenges in successfully delivering the proposed project volumes across the two rail networks. Variable day to day risks would require close co-ordination between WACJV, TfNSW and ARTC in order to manage and resolve issues.

WACJV has committed to further consultation with ARTC, TfNSW and Railcorp to address operational interactions between the two rail networks.

The Department has received no further comments from ARTC in relation to the amended project. Potential transport impacts from the amended project are discussed further in **Section 5.4**.

TransGrid commented that no mine activities are permitted to occur near its easements and infrastructure without prior written consent and requested to be consulted regarding access, encroachment or relocation of any TransGrid-owned infrastructure, including specifying this as an essential condition of any development consent.

Transgrid recommended that WACJV undertake a detailed assessment of land categorised as its easements and the exact position of TransGrid's infrastructure and requested continued consultation.

WACJV and TransGrid have since met several times leading to commitments by both parties, as documented in the October 2016 *Modification Processes Agreement - Wallarah 2 Coal Transmission Line 2M/22 Modification* (Transmission Line Agreement). The Transmission Line Agreement relates to work that TransGrid would undertake (should development consent be granted) to resolve issues relating to subsidence impacts on its assets.

Roads and Maritime Services (RMS) raised no objection to the amended project and restated advice consistent with its previous comments on the original project relating to access and bridge design.

WACJV notes that considerable consultation with RMS has occurred to define access and construction requirements associated with its proposed coal transportation infrastructure. The amended project does not require any access to or from Motorway Link Road and the overland conveyor would be constructed alongside the Motorway Link Road with no interaction with the road.

WACJV notes that a road closure application (W562973) has been lodged in respect of the section of Nikko Road that would be impacted by its rail infrastructure. WACJV proposes a Construction Noise and Vibration Management Plan for the amended project, including commitments to monitor vibration at the bridge supports for the Motorway Link Road overpass. The Department has recommended conditions to this effect under a requirement for a Noise Management Plan, standard operating conditions and construction hours.

Potential transport impacts from the amended project are discussed further in **Section 5.4**.

Central Coast Council (Council) requested further information to address impacts of the amended project on:

- *flooding* - details of bridge designs in order to gauge the robustness of flood modelling provided in the amended development application;
- *noise* - ongoing noise monitoring to verify modelling during the operational stages of the development with requirements and assessment of potential impacts on future residential and commercial development to the north of the proposed rail siding;
- *air quality* - assessment of potential impacts on future residential and commercial development to the north of the proposed rail siding and requested installation of permanent dust deposition gauges;
- *ecology* - surveys in the ecological impact assessment were not completed during the optimal survey period and did not follow Council's *Flora and Fauna Survey Guidelines* (2014); and
- *visual* - amended visual impact assessment (VIA), to include assessment of visual impacts on land to the north of the proposed coal load out facility, Council's land holdings and photomontages of all viewsheds.

WACJV addressed the Council's request in the RTS2 by providing detailed bridge designs, photomontages and proposed mitigation to address potential air quality, noise and ecological impacts. Council provided a further response advising that construction of infrastructure within road reserves would require either a lease or licence from the relevant road authority. No further comments were provided.

Lake Macquarie City Council (LMCC) requested further information to address concerns over coal transport on the rail network including network capacity and air potential quality and noise impacts.

WACJV provided additional information to address LMCC's concerns in the RTS2. Further discussion of these issues is included in **Section 5.4**. After reviewing the RTS2, LMCC recommended alternative wording for proposed biodiversity conditions. The Department has updated the biodiversity offset condition to reflect contemporary standards.

4.3.2 Special Interest Groups

In total 45 special interest groups (SIGs) provided submissions on the amended project. The majority supported the amended project, since they represent engineering, construction or mining businesses that have potential to supply goods and services should the project be approved. The submissions outlined reasons for supporting the project due to local and regional socio-economic benefits, ongoing job security and confidence that potential environmental impacts could be adequately managed. Several submitters noted improvements with the amended project, especially a reduction in land disturbance and the removal of development from Darkinjung LALC's land.

The 18 SIG submissions received which objected to the amended project were from environmental, community and recreational groups, including the Nature Conservation Council and Lock the Gate Alliance. Concerns raised specific to the amended project included:

- *noise* - the amended project would increase noise impacts from the use of a rail siding and coal loader close to residential areas;
- *air quality* - the amended project would increase dust emissions from moving coal via the proposed conveyors, rail siding and associated coal load out facility;
- *health* - coal dust and noise impacts as a result of transporting coal via rail would impact the health of local communities;
- *social* - inadequate community consultation by WACJV, particularly given the proximity of the coal loader to residential areas and potential impacts on community facilities and services; and
- *visual impacts* - visual impacts from the new conveyor and loading facilities.

In addition to the matters identified above that directly relate to the amended project, many submissions received during exhibition of the amended project also restated concerns in relation to the overall project (ie the original project as amended). SIG and public concerns relating to the original project were addressed in the Department's PAR. A summary of these matters and where they are addressed in the PAR is included in **Sections 4.4.1 and 4.4.2**.

4.3.3 Public Submissions in Support

Ninety public submissions were received by the Department in support of the amended project which outlined numerous reasons why it should be approved. However, there were several common themes throughout the submissions which can be summarised as follows:

- recognition of the high rate of unemployment on the Central Coast and the employment opportunities the project would provide;
- positive flow-on effects of the project for local businesses;
- the project would provide ongoing material socio-economic benefits to the local community and the wider State economy;
- recognition that the amended project reduces the surface footprint associated with the Tooheys Road Site and no longer requires development on Darkinjung LALC's land;
- the importance of the mining industry in the region and the established specialist businesses which rely on the continuation of mining; and
- the belief that the project's overall benefits outweigh its negative impacts.

4.3.4 Public Submissions in Objection

Public exhibition of the amended development application attracted strong interest in the community, with the Department receiving 629 public submissions. Of these submissions, around 85% objected to the project with a significant proportion of the objection submissions being form letters (approximately 270). **Figure 6** depicts the main issues raised in these submissions.

Concerns directly relating to the amended project included that:

- closure of local roads would limit community and emergency vehicles access (see **Section 5.4**);
- a thorough Bushfire Impact Assessment has not been completed including consideration of water supply for firefighting and evacuation routes (see **Sections 4.4 and 5.4 and Tables 4 and 13**);
- increased congestion on the Newcastle rail network and additional daily rail crossing closures at Adamstown and Islington (see **Section 5.4**);
- the proposed conveyor system would 'land lock' Darkinjung LALC's land, downgrades its value and restricts projected developments and threatens valuable jobs in the construction industry (see **Sections 4.5 and 5.7**);
- there was a lack of community consultation surrounding the amended project (see **Sections 4.2 and 4.3** below);
- there would be unacceptable levels of noise and dust resulting from the project in close proximity to residential areas. There were also concerns raised about the mapping of coal dust, and the inadequacy of compliance regulation and that coal wagons would not be covered during transportation (see **Sections 5.1 and 5.2**);
- there would be health impacts from dust resulting from the close location of rail facilities to residential areas (see **Section 5.2**);
- the Central Coast is a growing residential development area and the amended project would impact upon tourism and agriculture businesses in the region (see **Section 5.7**);
- there was incomplete, misleading or incorrect information included in the amended development application, including in the economic assessment, in detailed design specifications and in relation to land ownership details (see **Section 5.7 and Appendix C**); and
- construction employment figures are overstated as construction of the conveyor would result in less jobs than the figures stated (see **Section 5.7 and Appendix C**).

4.4 Consideration of Matters Raised in SIG and Public Submissions

4.4.1 Key Matters Relating to the Original Project

Several concerns relating to the overall project were reiterated in SIG and community submissions for the amended project. The key concerns which relate specifically to the original project that are not affected by the proposed project amendments are outlined below, together with an identification of where those concerns were primarily addressed in the PAR.

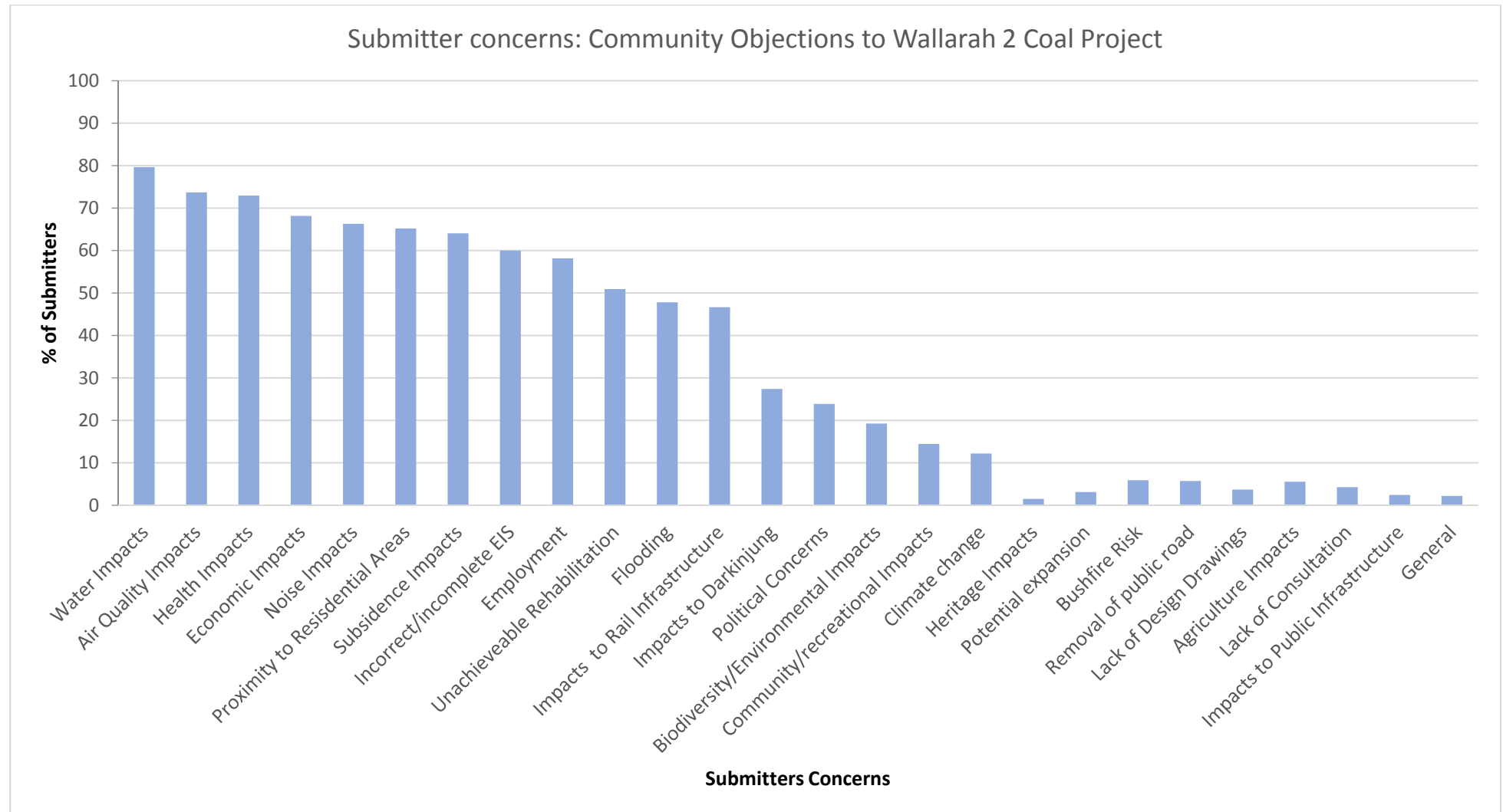


Figure 6: Concerns raised by submitters in objection to the amended project

Water Impacts

Concerns were raised regarding water quality and supply reliability for the environment and domestic and agricultural users. These concerns particularly related to the volume of water required for the project, the potential 500-year recovery time for impacted surface water bodies, and the proposed treatment of salty waste mine water and risk of contamination to existing watercourses.

The Department's general assessment of water impacts for the project (particularly the proposed mining) is included in Section 5.2 of the PAR. The Department has also addressed a number of water-related recommendations that arose during the Commission's review process in **Part 2**.

Subsidence and Flooding

Concerns were raised regarding predicted mine subsidence and the resulting impacts on watercourses and public and private infrastructure. Submissions state that 245 homes would be affected by subsidence. There is a modelled increase in the relative level of flood waters (since the land level on the flood plains would drop) and submitters are concerned that regular flooding of the Jilliby Valley would lead to degradation and long periods of isolation from facilities and emergency services. The Department's assessment of subsidence and associated flooding impacts is included in Section 5.2 of the PAR. The Department has also addressed flood-related recommendations that arose during the Commission's review process in **Part 2**.

Biodiversity

Concerns were raised regarding the project's impacts on biodiversity. Specific concerns included potential impacts to aquatic fauna like platypus, fish and frog populations in the Wyong River, Ourimbah Creek and Jilliby Creek. Vegetation clearance of potential ecological corridors and the resultant impacts this would have on native plants, birdlife (including local and international migratory shore birds) were also raised. The Department's general assessment of biodiversity is included in Section 5.3 of the PAR.

4.4.2 Other Matters Relating to the Original Project

A number of political, economic and other issues relating to the overall project were given as reasons for objecting to the amended project in both community and SIG submissions. These are outlined below, together with an identification of where those concerns were primarily addressed in the PAR, where relevant.

2011 Government Election Commitment

A number of submitters noted that the original project was prominently discussed during the 2011 NSW State government election. The Government is committed to assessing proposals on their merits, in the light of the best scientific evidence, in an open and transparent manner. The original project was rigorously assessed by the Department and independently reviewed by the Commission. Provisions of the EP&A Act do not limit the ability of applicants to submit amended development applications, in fact they facilitate it.

The Department must assess each application received on its merits. This includes careful consideration of all community feedback received through public exhibition.

Land and Environment Court Merit Appeals

Merit appeals are allowed under section 23F of the EP&A Act against certain categories of development consents. These appeal rights apply to persons lodging a submission objecting to the proposal during exhibition, unless the Commission has held a public hearing into the matter. These provisions have been in place since passage of the EP&A Act in 1979 (albeit that they first applied where an application had been subject to a 'Commission of Inquiry', rather than a review by the Commission. The fundamental reason for this is that the Legislature has considered that an independent review (including public hearings) by appointed planning experts is sufficient, and that it overcomes any public benefit that would otherwise result from an independent review of a proposal's planning merits by a judge of the Land & Environment Court following the hearing of evidence.

The decision to refer projects for public hearings by the Commission is at the discretion of the Minister. The Department is required to assess all applications within the framework of the EP&A Act taking in account the merits of the project and issues raised through community consultation.

Potential Project Expansion and Confidential Conditions

Submitters expressed concern that WACJV would seek to expand the project should it be approved. The Department notes that any holder of a development consent may apply to modify parameters of a development consent, within limits imposed by section 96 of the EP&A Act, and may also submit a new development application. The Department can only assess a development based on the merits of the application without consideration of any potential future modifications or development application. The original project was assessed by the Department and draft conditions of consent accompanied the Department's PAR which was referred to the Commission for review. The draft conditions are not confidential and have been discussed in reports relating to the original project and are discussed further in the AR. They are also available on the Department's website.

Climate Change

The majority of submitters opposed the approval of further thermal coal production in NSW due to the impacts of anthropogenic climate change. Submissions cited Australia's signing of the 2016 *Paris Agreement*, which sets out an action plan between 195 countries to limit the global impacts of climate change. The Department's assessment of greenhouse gas impacts is in Section 5.7.3 of the PAR.

Global Coal Prices

Some submissions considered that preparing accurate predictions of global supply and demand of commodities is fundamentally unreliable, due to variations and complexities of country-specific concerns and the influence this has on global market trends. The Department requires all applicants for coal mining projects to carefully consider project economics and providing a Cost Benefit Analysis (CBA) which includes risk and sensitivity analysis of coal prices over the life of the project. The Department's assessment of the current CBA is discussed in **Section 5.7**.

Cumulative Impacts

Many submitters raised concerns over cumulative impacts associated with the project, in particular the lack of assessment of cumulative noise and air quality impacts. Given that the project largely relates to underground mining, with limited surface impacts, the Department is satisfied that the noise and air quality assessments for the original project were appropriate. They are discussed in Sections 5.6 and 5.7 of the PAR.

Financial Status of Kores and Rehabilitation

Submitters raised concerns over the financial stability of Kores, the majority stakeholder in the WACJV, and whether this may limit the likelihood that the project would be developed, or that it could be successfully rehabilitated. The Department notes that should development consent be granted, the consent would apply to the land to which it relates. It does not relate solely to the Applicant. It is conceivable that another company may take up the consent should it result that Kores or WACJV more broadly is not in a financial position to develop the project. Therefore the financial stability of Kores is not a primary concern in determining the project, nor does the EP&A Act directly require the consent authority to consider this.

However, the *Mining Act 1992* requires that any applicant for a mining lease must satisfy a 'fit and proper person' test. Further mechanisms in the form of rehabilitation security bonds are held by DRE to ensure that mine sites are satisfactorily rehabilitated. The security deposit is designed to cover the full cost of undertaking rehabilitation, and may be 'called in' by DRE in the event that a leaseholder fails to meet rehabilitation requirements set by the *Mining Act 1992* and within the relevant mining lease. The Department's assessment of rehabilitation is included in Section 5.9 of the PAR. Rehabilitation is fully addressed within the draft conditions of consent.

Claims Against Subsidence Advisory NSW (the former Mine Subsidence Board or MSB)

Submitters noted concerns over the MSB and the small number of claims that it had accepted in the last ten years, as well as stating that only houses are covered while sheds, fences or pools are exempt from claims.

The *Mine Subsidence Compensation Act 1961* has recently been reviewed to ensure that the Mine Subsidence Compensation Fund remains sustainable, the compensation framework is fair and that it is being administered efficiently. The review aims to provide a more consistent method to compensate property owners who are directly affected by mine subsidence.

A major proposed change is to require current underground coal mining operators to directly rectify property damage arising from subsidence they cause. It is currently proposed that SA NSW will manage a panel of independent technical assessors to oversee claims. It is currently planned that an amending Bill will be submitted to Government for further consideration in early 2017. Subject to the Bill being passed in Parliament, the major changes to the levy framework will take effect in 2018. The Department's assessment of subsidence and related impacts is included in Section 5.1 of the PAR.

Lack of Consultation

Many submitters stated that WACJV has failed to consult with the communities directly affected by the project, including failure to hold any open public meetings explaining the project. WACJV notes that a stakeholder engagement program was implemented for the original project and is discussed in the EIS, amended development application and RTS2.

4.4.3 Matters Relating to the Amended Project

The main concerns raised by SIGs and the general public relating to the amended project, WACJV's responses and where these issues are addressed in the AR are summarised below.

Noise

WACJV addressed concerns relating to noise impacts in the RTS2 and noted that the project's noise impacts are within the limits required under the *NSW Industrial Noise Policy*. Additionally, noise mitigation and monitoring has been proposed. WACJV also stated that consultation with affected landholders subject to the Government's *Voluntary Land Acquisition and Mitigation Policy* has been undertaken. Noise impacts are discussed further in **Section 5.1**.

Air Quality

WACJV noted that the Commission's review of the original project concluded that 'air quality impacts can be managed' and agreed to the Department's proposed conditions of consent. The Air Quality Impact Assessment for the amended project shows that the project would comply with all relevant air quality criteria at all existing residences, including residences in Wyee and Blue Haven and other sensitive receivers in the wider area. WACJV has committed to dust mitigation and monitoring for the amended project. **Section 5.2** discusses the Department's assessment of air quality impacts.

Employment

The RTS2 notes that coal mines provide potential employment across a wide range of disciplines. WACJV has been consulting with the community regarding employment and is confident that a 70% local employment rate is achievable, targeting a wide range of experience levels. The Department has assessed the socio-economic impacts of the project in **Section 5.7**.

Health

WACJV provided a response to the perceived health impacts in both the original RTS and RTS2 and note that the amended project is predicted to comply with all relevant air quality and noise criteria. WACJV has proposed mitigation measures and monitoring to further address these concerns. Further discussion of health impacts is included in **Sections 5.1** and **5.2**.

Visual Impacts

WACJV has designed the proposed surface infrastructure such that the requirement for external lighting is minimised. The RTS2 provided a series of photomontages to address visual impacts from the project and included detailed design drawings. Potential visual impacts are discussed further in **Section 5.3**.

Closure of Local Roads and Emergency Impacts

WACJV proposes to construct an all-weather road along Nikko Road which emergency services would be able to access. Additionally a water pipeline would be fitted to the linear infrastructure between the product coal stockpile and coal loading facility, with fire fighting off-take points which emergency services would have access to if required. Impacts on roads from level crossings at Adamstown and Islington are discussed further in **Section 5.4**.

Bushfire Risk

The EP&A Act requires any proposed development on Bushfire Prone Land to adhere to the Rural Fire Service's guideline *Planning for Bush Fire Protection*. However, this requirement does not apply

to SSD. The draft conditions of consent require bushfire management measures to be implemented should the project be approved. WACJV has committed to ensuring that the site is suitably equipped to respond to bushfire emergencies and would assist emergency services in the event of a fire. Bushfire risk is discussed further in **Tables 4 and 13**.

Rail Network Capacity

Rail network modelling completed by TfNSW has determined that there are sufficient train paths available for the train cycles proposed in the amended project and that they would not affect the scheduling of other train services on the Main Northern Rail Line. Further discussion of the transport impacts is included in **Section 5.4**.

Lack of Community Consultation

The Department exhibited the amended application for six weeks and provided the community with a good opportunity to comment. All documents associated with the original project (including the EIS, RTS, PAR and the Commission's First Review Report) were concurrently available on the Department's website. WACJV undertook community consultation through newsletters, a brochure and community consultation meetings held through August 2016.

Residential and Business Development

WACJV considers that the amended project would not preclude any prospective industrial development on Darkinjung LALC's land and that the amended project is not incompatible with potential uses of the surrounding land. See **Sections 4.4.4 and Section 5.7** for further discussion.

4.4.4 Consultation between WACJV and Darkinjung LALC

The Department recognises that the Darkinjung LALC is a significant and influential landowner in the vicinity of the Tooheys Road Site (see **Figure 3**). The Darkinjung LALC owns land that was directly affected by the original project and it is an adjacent landowner to the proposed rail siding and coal load out facility. These issues are addressed in detail in **Section 1**.

Because of the local significance of the Darkinjung LALC and the extent of the project's potential impacts on its landholdings, the Department has consistently encouraged consultation and negotiation between it and the WACJV (see **Section 1.6**). Senior Departmental officers have also met with senior Darkinjung LALC representatives on a number of occasions over the past several months.

The Department notes that, since it lodged its amended application, WACJV and the Darkinjung LALC have continued to make efforts to reach an outcome that satisfies both parties. This has included correspondence and face-to-face meetings between the parties, and with the Department. A record of correspondence between Darkinjung LALC and WACJV is provided in **Appendix D**.

As part of this consultation, Darkinjung LALC initially requested WACJV to consider reverting to the original project (which consisted of the originally proposed rail spur across Darkinjung LALC's land), with the addition of a rail siding for a potential waste management facility to be operated by or on behalf of the Darkinjung LALC. WACJV advised the Department that it did consider this proposal and that it was feasible if commercial and logistical arrangements could be resolved.

Darkinjung LALC subsequently advised WACJV (22 September and 17 October 2016) that it now considered that rail access was no longer necessary for its proposed waste management facility and that the original rail spur was no longer an option that it would agree to. Darkinjung LALC then advised WACJV on 27 October 2016 that it now wished to withdraw from all discussions between the parties and reinforced its position that it:

- strongly objects to the amended development application;
- is prepared to revisit the original development application, however this would be negotiated on commercial terms; and
- is open to developing a 'negotiated regional planning outcome' on its lands to the south of the Motorway Link Road to seek a balanced use of lands.

In response, WACJV advised the Department that it remains committed to engaging with Darkinjung LALC in respect of the project and addressing the LALC's concerns regarding its planning merits. Furthermore, WACJV remains willing to consider alternatives including reverting to the original

alignment and considering the new option to the south of the Motorway Link Road; however it cannot delay progressing the current amended development application.

The concept of a 'negotiated regional planning outcome' is something that Darkinjung LALC has raised with both WACJV and the Department. The Department notes that such documents usually take at least 12 months, and usually longer, to develop and that other development applications (such as this project) cannot be put on hold while they are pursued. As mentioned above, the Department is bound by the EP&A Act to assess the merits of the application before it which in this case is the amended project.

The concerns raised by Darkinjung LALC in its various submissions on the amended project are outlined in **Table 4**, together with a summary of WACJV's responses and the Department's consideration of the issues.

Table 4: Concerns raised by Darkinjung LALC, WACJV's response and the Department's considerations

Darkinjung LALC Concern	WACJV Response	Department's consideration
<i>Validity of the Amendment:</i> The LALC states that the amended project constitutes a substantial alteration to the original project and as such, warrants a new development application rather than an amendment to the existing development application.	Clause 55 of the EP&A Regulation outlines the process for amending a development application. Clause 55 does not, by its terms, contain any such limitation. The only pre-requisites for the amendment of a development application prior to it being determined are the 'agreement of the consent authority' and, if the amendment results in a change to the proposed development, sufficient written particulars indicating the nature of the change is required. The amended project does not represent a substantial alteration of the proposed development, with most aspects of the project remaining unchanged. In terms of the nature and characteristics of the proposed development, the original project and amended project involve construction and operation of a new underground coal mine and associated infrastructure. With respect to the reasons for making the amendment application, the NSW ALC has not provided its consent in respect of land owned by The LALC, as required under clause 49(3A) of the EP&A Regulation. As a result, WACJV investigated and decided to proceed with the amended project.	The proposed amendment was accepted by the Minister's delegate on 20 July 2016. The delegate was satisfied that the amended development application contained sufficient written particulars. See Sections 1 and 3.2 for further detail.
<i>Adequacy of Amendment Document:</i> The LALC states that the documentation supporting the amended project does not satisfy the requirements of an EIS as it does not satisfy the Director-General's Requirements or the Supplementary Director-General's Requirements. Further, documentation supporting the amended project is inadequate to allow a proper assessment and public comment.	Clause 55(2) of the EP&A Regulation states that an application to amend a development application must be supported by 'written particulars sufficient to indicate the nature of the changed development'. The amended development application provides a detailed description of the amended project. There is no requirement, legislative or otherwise, for an EIS to be prepared in respect of a proposed amendment to a development application. The proposition put forward by the LALC is an incorrect understanding of the law. The documentation provided in relation to the original project and amended project is adequate to allow a proper assessment.	The Department's view is that an amended development application does not have to be accompanied by a formal EIS, only sufficient written particulars. The proposed amendment was accepted by the Minister's delegate on 20 July 2016. The delegate was satisfied that the amended development application contained sufficient written particulars. See Section 3.2 for further detail.

<i>Procedural Fairness:</i> The LALC states it has been denied procedural fairness by being denied access to information.	The two fundamental requirements of procedural fairness are that: • there should be a fair hearing; and • there should be no bias on the part of the decision-maker. The LALC has made no allegation of bias by the decision-maker, which has had ample opportunity to be heard in relation to the amended project. The LALC has utilised many opportunities to object to the amended project, including: • via a letter from its legal representative (Chalk & Fitzgerald Lawyers & Consultants) to the Minister on 22 April 2016; • its submission to the Director, Resource Assessments on 31 August 2016; and • its submission to the Director, Resource Assessment on 30 September 2016.	It is noted that the amended project was on exhibition for public comment between 22 July and 5 September 2016. During this time, the LALC was afforded the same opportunity as all agencies, other SIGs and the general public to review and comment on the amended project. See Section 4 above for further detail. A further opportunity for comment would be available to the LALC when the amended project is the subject of a public hearing by the PAC (see Section 3.6).
<i>Road Closure Application:</i> The LALC stated that it has been denied access to WACJV's closure application for Nikko Road and states that this is contrary to the rules of procedural fairness.	WACJV objected only to the publication of information within the road closure application (W562973) which identified third parties as being involved in commercially sensitive negotiations. It is understood that the road closure application would ultimately be advertised by DPI Crown Lands and all interested persons would have the opportunity to provide comments.	The Department notes that the proposed road closure is associated with the amended project; however it is a completely separate and independent process from the development application process under the EP&A Act. In the circumstances, the road closure application is not a relevant consideration in determining the application for the amended project (see Section 3.4). Nevertheless, the impacts of the proposed road closure have been assessed in Section 5.4 below.
<i>Nikko Road:</i> The LALC states that the amended project would impede the use of Nikko Road by the public.	Road closure is the terminology used by DPI Crown Lands. Nikko Road is not physically being closed by WACJV. Wyong Coal proposes to construct a 6 m wide all-weather access road for the full 1.5 km length of Nikko Road to the north of the Motorway Link Road. This replaces the current dirt track which is less than 300 m in length. This road would provide a connection between the LALC's lands that does not currently exist. However, access to the south of the Motorway Link Road would remain restricted by the current envelope between the bridge supports. WACJV's intention is that the all-weather access road along Nikko Road is only accessed by WACJV, Council, emergency services, infrastructure owners and service providers, and all adjoining landowners including The LALC. It is not intended to be used by the public.	The impacts of the proposed road closure have been assessed in Section 5.4.
<i>Nikko Road:</i> The LALC states that Nikko Road is an important component of the regional road network and that it may be developed in the future	WACJV consulted with RMS, DPI Crown Lands and Council during preparation of the amended development application. No matters were raised regarding any future plans regarding development of Nikko Road as a connecting road.	The Department notes that neither RMS, DPI Crown Lands nor CCC have raised plans regarding future development of Nikko Road in their submissions (see Section 4.3). Nikko Road is

as a link between Wyee and Warnervale.	It is also noted that the LALC has previously proposed that road access to its proposed residential developments north of Nikko Road is via the existing main arterial Gosford and Wyee Roads, with no connection to Nikko Road.	also not identified in the <i>Central Coast Regional Plan 2036</i> released on 14 October 2016. The impacts of the proposed road closure have been assessed in Section 5.4 .
<i>Nikko Road:</i> The LALC states that WACJV cannot provide an easement over Nikko Road unless it obtains ownership of the road.	If the road closure application is approved, the former Nikko Road would be vested in WACJV. WACJV would grant access to other specific users (as noted above) via an easement along the section of Nikko Road within the project boundary.	Refer to the Department's response under <i>Road Closure Application</i> , above.
<i>Bushfire Risk:</i> The LALC states that the amended project is inappropriate because it involves development on land that is mapped as Bushfire Prone Land (BPL) or a bushfire buffer zone. The LALC also states that bushfire risks have not been adequately considered in risk assessments.	The project is situated on land that is mapped as BPL, which is consistent with the vast majority of the Wyong LGA. Section 79BA(1) of the EP&A Act states that development consent cannot be granted for any proposed development on BPL unless the development conforms to the NSW Rural Fire Service's guideline <i>Planning for Bush Fire Protection</i>. However, section 79BA(1B) states that this requirement does not apply to SSD. Emergency services would have access to the all-weather road along Nikko Road. The linear infrastructure between the product coal stockpile at Tooheys Road and the train load out facility at Nikko Road would be fitted with a water pipeline to address operational requirements, and supplemented to include fire fighting off take points able to be accessed by emergency services. Furthermore, prior to construction and then again prior to operation of the amended project, WACJV would conduct constructability and operational risks assessments and put in place all subsequently identified safety measures to ensure the safety of its workforce, the local community and its equipment in the event of bushfire.	The Department's draft conditions would require bushfire management measures to be implemented. WACJV would be required to ensure that the site is suitably equipped to respond to bushfire emergencies and assist emergency services in the event of a fire. Bushfire risk is discussed further in Section 5.9.
<i>Site Access:</i> The LALC inquired about WACJV's proposed routes for accessing Nikko Road during construction and operations. The LALC also states that Nikko Road does not provide sufficient room for parking or employee facilities.	Personnel allocated to the Nikko Road works would be transported to the Nikko Road site by bus. This arrangement reduces the number of vehicle movements to and from Nikko Road. Preliminary constructability assessments by an accredited rail and civil constructor advise that access to the Nikko Road site would occur via Gosford Road and the adjoining rail corridor to the north of the proposed train load out facility. Given that the conveyors, transfer station and train load out facility are automated, no personnel would be permanently stationed at the facilities along Nikko Road. Accordingly, no permanent parking or employee facilities would be required.	The Department notes that the routes for accessing the surface infrastructure sites are unchanged from those assessed as part of the original project. The main entry to the Tooheys Road Site would be located on Tooheys Road. General access issues are discussed in Section 5.4 below.
<i>Amenity Impacts:</i> The LALC states that the amended development application did not adequately assess potential noise and dust impacts. In particular, the	All air quality and noise impact assessment (ie for both the original and amended projects) were undertaken in accordance with relevant EPA guidelines. PM_{2.5} and PM₁₀ concentrations predicted to be generated by the amended project are well below	The Department has assessed the predicted noise and air quality impacts of the amended project in Sections 5.1 and 5.2 , respectively.

LALC inquired about potential impacts to persons that have to use the proposed access track alongside the proposed infrastructure on Nikko Road.	regulatory air quality criteria, even at locations directly alongside the proposed conveyor. Noise levels along Nikko Road are expected to exceed 50 dB(A) at certain times. Elevated noise levels are only expected to occur when the train load out facility and/or bin feed conveyor are operating. At all other times, the noise level is expected to be significantly lower. Authorised persons using this section of Nikko Road are not expected to remain on the road for long periods of time. Exposures to the predicted low dust levels and moderate noise levels for short periods of time are not expected to give rise to any adverse health consequences.	
<i>Risk Assessment:</i> The LALC states that the risks associated with the amended project have not been adequately assessed. In particular, the LALC states that the risk assessment has not considered risks associated with conveying coal over the Main Northern Rail Line.	A comprehensive risk assessment was undertaken which identified all risks that needed to be assessed in the amended development application. The conveyor gantry across the Main Northern Rail Line would be entirely enclosed eliminating the risk of spilling coal onto the Main Northern Rail Line. WACJV would continue to consult further with Sydney Trains, TfNSW and accredited civil and rail constructors in conducting further comprehensive risk assessments. The outcomes of those risk assessments would address matters associated with interactions between the project's infrastructure and the Main Northern Rail Line. Prior to construction and then again prior to operation, WACJV would conduct constructability and operational risks assessments and put in place all subsequently identified safety measures to ensure the safety of the wider community, its workforce and its equipment. This risk based process is a requirement involving construction within 25 m of a rail corridor, which can only be undertaken with TfNSW consent.	The Department has assessed the risks of the amended project in Section 5.
<i>Stormwater Management:</i> The LALC states that the amended development application did not address stormwater management.	The amended project does not involve any changes to the water management system. Additional stormwater management measures would be implemented to avoid discharges of untreated water to Spring Creek and adjoining properties. Appropriate erosion and sediment controls for the works at Nikko Road would be included in the Water Management Plan.	The Department has assessed the potential water-related impacts of the amended project in Section 5.6.
<i>Rehabilitation:</i> The LALC states that a rehabilitation plan has not been prepared for the amended project.	WACJV has committed to preparation of the required Rehabilitation Management Plan in consultation with appropriate regulatory authorities.	The draft conditions of consent would require preparation of a Rehabilitation Management Plan (see Section 3 of Part 2).
<i>Economic Impacts:</i> The LALC states that there has been no assessment of the adverse economic impacts of the amended project, particularly given	A revised Economic Impact Assessment (Appendix J) was undertaken for the amended project. This assessment included a Cost-Benefit Analysis (CBA) which weighed the benefits of the project against its costs. For the purposes of the CBA, these costs are all potential social and environmental impacts to society.	The Department has carefully considered all socio-economic impacts of the overall project as amended. It commissioned an independent review of the project's revised Economic

its location within a growing residential area.		Impact Assessment (see Section 5.7).
Aboriginal Land Rights Act: The LALC states that that amended project is contrary to the objects and purposes of the <i>Aboriginal Land Rights Act 1983</i>.	Section 3 of the <i>Aboriginal Land Rights Act 1983</i> (ALR Act) lists the purposes of that Act as follows: (a) <i>to provide land rights for Aboriginal persons in New South Wales;</i> (b) <i>to provide for representative Aboriginal Land Councils in New South Wales;</i> (c) <i>to vest land in those Councils;</i> (d) <i>to provide for the acquisition of land, and the management of land and other assets and investments, by or for those Councils and the allocation of funds to and by those Councils; and</i> (e) <i>to provide for the provision of community benefit schemes by or on behalf of those Councils.</i> The ALR Act enables an Aboriginal Land Council to make a claim for 'claimable Crown lands', as defined under section 36 of the Act.	The Department notes that the infrastructure associated with the amended project would be located on land that is either private freehold (owned by WACJV), part of the Boral Montoro clay/shale quarry and brickworks, a road reserve or a rail corridor. None of these lands satisfy the definition of 'claimable Crown lands' under the ALR Act. Therefore, the amended project does not impede on the provision of land to Aboriginal Land Councils.
Consultation with Affected Landowners: The LALC states that WACJV has not consulted with landowners potentially affected by the amended project.	WACJV has consulted with all adjacent landowners, including those predicted to experience exceedances of the regulatory noise criteria.	The Department notes that WACJV has provided a full log of its consultation with the LALC regarding the amended project (see Appendix D). Further details are discussed in Section 4.4.4.
Permissibility of the Amendment: The LALC states that the Nikko Road infrastructure is prohibited due to the zoning of the land on which it is proposed to be located. The LALC also states that the location of this infrastructure is inappropriate as it is sited within the Coastal Zone (as defined under SEPP 71).	Clause 7 of the Mining SEPP provides that development for the purpose of underground mining is permissible with development consent on any land. The amended project would comply with the provisions of <i>State Environmental Planning Policy No. 71 – Coastal Protection</i>.	See Sections 3.3 and 3.4.
Design Drawings: The LALC requested design drawings of the proposed noise barrier, transfer station and conveyor gantry over Tooheys Road. The LALC requested plans of the proposed infrastructure within the Nikko Road reserve, including the rail siding, transfer station, train load out facility and retaining walls.	These drawings were presented and discussed in detail with the LALC on 7 September 2016 with WACJV's specialists in attendance, and offers to provide further information should it be required. To date, no further requests from the LALC regarding these matters have been received. Further detailed design of the proposed infrastructure would be completed prior to construction.	The Department is satisfied that drawings with an appropriate level of detail to allow an assessment of the merits of the amended project have been provided by WACJV to both the Department and the LALC.
Sewer Connection: The LALC requested clarification on whether the proposed sewer connection would be a private line, or a component of the municipal sewerage system that could be	The purpose of the proposed sewer connection is to connect the Tooheys Road Site to the municipal sewerage system. This would be a private pipeline and would be designed in accordance with Council's requirements. However, WACJV would consider allowing access to other users should the need arise.	No further comment considered necessary. The proposed sewer connection is discussed in greater detail in Sections 2.1.

used to service other developments.		
<i>Visual Impact:</i> The LALC states that the amended development application has not assessed the potential visual impacts of the train load out facility.	A comprehensive visual impact assessment has been provided in the amended development application and in the RTS2 (see Appendix C).	The Department has assessed the potential visual impacts of the amended project in Section 5.3 .
<i>Construction Activities:</i> The LALC states that the amended development application did not contain a construction plan. In particular, the LALC requested detail on how construction equipment and materials would be transported to the proposed site along Nikko Road.	The construction schedule as presented in the original project EIS remains applicable to the amended project. Approximately 60,000 m ³ of fill material would be required for the construction activities along Nikko Road. Excavated rock from the development of the drift would be re-used as fill material. This material would be transported to Nikko Road via the overland conveyor.	The Department is satisfied with WACJV's response and notes that the proposed condition of consent would require WACJV to construct and operate the amended project in accordance with strict performance measures, criteria and standards.
<i>The LALC's Proposed Residential Development:</i> The LALC requested an assessment of potential impacts on its proposed residential development at Bushells Ridge and Doyalson.	See discussion below	See discussion below and the Department's assessment of the merits of the amended project in Sections 5.1, 5.2, 5.3 and 5.4 .
<i>Other LALC Proposals:</i> The LALC states that the amended project would impede access to its industrially zoned land (particularly Lot 195 DP 1032847). The LALC states that this would interfere with its plans to develop a waste management (i.e. resource recovery) facility and associated rail siding and the CASAR Park Precinct.	Lot 195 DP 1032847 is located immediately to the west of the Main Northern Rail Line. The amended project does not involve any development adjacent to the western boundary of the rail corridor, so there would be no impediment to accessing Lot 195 DP 1032847 from the Main Northern Rail Line. Discussions with TfNSW confirm that, while a full assessment of rail options into Lot 195 DP 1032847 would be required to facilitate rail access to this lot, WACJV's proposed connection to the Main Northern Rail Line does not appear to present any impediment to access by the LALC. The CASAR Park Precinct is a proposed motorsport facility located on Lot 191 DP 1032847 and Lot 195 DP 1032847. The CASAR Park Precinct was the subject of a development application (DA 658/2015) lodged with Council on 30 June 2015. Public access to the CASAR Park Precinct is proposed via an access road off Bushells Ridge Road. The amended project does not include any development that would impede access from Bushells Ridge Road.	The amended project does not involve any development on land owned by the LALC (see Sections 1 and 2). As discussed above, during consultation between the LALC and WACJV following the LALC's first submission on the amended project, the LALC advised WACJV that its proposed resource recovery facility no longer required rail access. As such, the amended project would not preclude any prospective industrial development on the LALC's land. See discussion below and the Department's assessment of the merits of the amended project in Section 5 .
<i>Alternatives to the amended project:</i> The LALC states that WACJV's consideration of alternatives to the amended project was inadequate.	WACJV considered all infrastructure configurations that were practicable and did not involve development on the LALC's land. Alternative development concepts raised by the LALC during ongoing consultations have been and would continue to be assessed as required. However, at this stage none meet the general suite of practicability and environmental planning criteria, and do not avoid the LALC's land.	The Department has considered the alternatives as assessed by WACJV in Section 2.2.2 above.

Darkinjung LALC made a second submission on the amended project on 30 September 2016. This submission largely reiterated the issues raised in its first submission of 31 August 2016. Darkinjung LALC's second submission stated that a "further alternative scenario has been presented to Wallarah 2". This is understood to be a reference to Darkinjung LALC's new alternative involving the LALC's lands to the south of the Motorway Link Road (the 'negotiated regional planning initiative') first discussed under **Section 4.4.4**.

Darkinjung LALC argued that this new alternative would lead to fewer impacts to the community and the LALC's proposed land development plans to the north near Bushells Ridge and Doyalson.

WACJV conveyed initial concerns to the LALC regarding this proposal, but agreed to review and consider the offer and requested further details in writing from the LALC. To the Department's knowledge, these written details were not provided by the LALC. Nonetheless, WACJV undertook a detailed review of the option which indicated a number of significant impediments, including:

- placement of trains and the coal loading facility closer to the existing Blue Haven, Woongarra and Wallarah residential areas and Warnervale Urban release areas;
- lack of topographic relief between the proposed rail siding and loader and the existing residential and Warnervale Urban release areas;
- increased potential for visual, noise and dust impacts on the existing residential and Warnervale Urban release areas;
- insufficient area within which to construct and operate a rail siding and loader;
- rail connection issues requiring connection to the Main Northern Rail line to be north of the M1 link road bridge;
- impacts on a significant area of riparian and adjoining vegetation, crossings of Wallarah Creek and a major controlled access road;
- environmental study requirements with potential delays of up to two years;
- significant delays associated with a regional planning outcome, with no guarantee of an outcome suitable to WACJV;
- the land offered by Darkinjung LALC is also under an existing Awabakal/Guringai Native Title Claim; and
- any agreement with Darkinjung LALC would still require an approval from the NSW Aboriginal Land Council.

Darkinjung LALC has since advised that it no longer wishes to participate in further consultation with WACJV regarding the amended project but has still not provided any information to allow WACJV to further consider this alternative.

As set out in **Table 4**, Darkinjung LALC has raised concerns regarding the "serious adverse impact" that the amended project may have on its lands adjacent and nearby to the proposed coal transportation infrastructure, in particular its concerns that putting in a siding would reduce its development potential. Darkinjung LALC lodged a multi-site rezoning proposal with the then Wyong Council in June 2014. The Bushells Ridge Site is currently zoned IN1 (General Industrial) and E2 (Environmental Conservation) and is proposed to be re-zoned to R2 (Low Density Residential) and R5 (Large Lot Residential). The Doyalson Site is proposed to be rezoned from RU6 (Transitional) and E2 (Environmental Conservation) to R2 (Low Density Residential) and B1 (Neighbourhood Centre). Portions of both sites are expected to be rezoned to E2 Conservation. The Department notes that site subject to the proposed waste management facility is not subject to the rezoning proposal.

The then Wyong Council prepared a Planning Proposal in respect of Darkinjung LALC's rezoning proposal. On 24 February 2016, the then Wyong Council submitted the Planning Proposal to the Department for a Gateway determination under section 56 of the EP&A Act. On 2 May 2016, the Department provided permission for the rezoning proposal to proceed (subject to conditions). The new Central Coast Council is required to revise the Planning Proposal to address the conditions imposed by the Department. Council must then re-submit the Planning Proposal to the Department prior to undertaking community consultation. The amendment to the Wyong LEP is required to be finalised within 18 months of the Gateway determination (ie by 2 November 2017). The Gateway determination outlined a significant number of further studies required to be undertaken in order to determine a final planning outcome for the Darkinjung LALC lands. This includes giving consideration to any land use conflicts with extractive industries and in particular, the Wallarah 2 coal proposal.

The Department has considered the potential impacts the amended project may have on the proposed residential land, as presented in the Planning Proposal (see **Sections 5.1, 5.2, 5.3 and 5.4**). In summary, the amended project would not result in any exceedances of the regulatory air quality criteria over the proposed residential land. The land that is subject of the re-zoning proposal currently experiences noise impacts from road and rail traffic. Approximately 9.8 ha of the land subject to the rezoning proposal is expected to experience noise levels greater than the amenity criterion of 50 dB(A). Approximately 3.3 ha of this land are within the area that is proposed for residential development. This represents approximately 1.1% of the land subject to the rezoning proposal. The night period is the most sensitive period for noise, as the amenity criterion is the lowest for this period.

The *Voluntary Land Acquisition and Mitigation Policy* (VLAMP) provides that rights to land acquisition would arise where the amenity criteria is exceeded over more than 25% of privately-owned land. Based on the conceptual lot boundaries presented in the Planning Proposal, there are approximately 25 potential lots where the night-time amenity criterion (50 dB(A)) is exceeded over more than 25% of the land area (see **Section 5.1** for further detail).

WACJV's photomontages and 3-D visual modelling show minimal line-of-site impacts from proposed residences to WACJV proposed infrastructure.

The Department notes that there are still substantial regulatory requirements that must be satisfied before Darkinjung LALC's proposed residential development can proceed. It would not be reasonable for the Department to halt its assessment of the project's development application subject to completion of an undetermined and uncertain outcome in regards to a planning proposal still in its infancy. Nevertheless, the Department has assessed the amended project in consideration of potential impacts it may have on any future development in this area.

On 9 December 2016, the Department received a further submission from Darkinjung LALC outlining its concerns following WACJV's submission of its RTS2. This submission largely reiterated the issues that were raised in its previous two submissions, including not addressing the Director-General's Requirements, bushfire risk, service connections, parking facilities, road closures, road access, water management, risk assessment, the proposed 'negotiated regional planning outcome', consultation with affected landowners and the *Central Coast Regional Growth Plan 2036*.

The Department considers that these existing issues have been adequately addressed in WACJV's RTS2 and within the AR (see in particular **Table 4**). However, the Department notes that some new issues were raised that are required to be addressed. On 22 December 2016, the Department wrote to WACJV requesting it address this most recent submission, along with a number of other residual matters. WACJV provided a response to the Department on 16 January 2017 (see **Appendix C**). This response has been considered and discussed in the relevant sections of this report, being primarily **Sections 4.4.4 and 5**, and **Part 2**.

5.0 ASSESSMENT

5.1 Noise

5.1.1. Introduction

Atkins Acoustics and Associates (Atkins Acoustics) prepared a Noise and Vibration Impact Assessment Addendum (NVIAA) to assess potential impacts of the amended project at the Tooheys Road Site.

Attended and unattended noise surveys were previously undertaken in 2006, 2007 and 2012 to establish background noise levels in the vicinity of the Tooheys Road Site and Buttonderry Site. The model developed for the original project was revised in order to consider the amended project. Additional attended and unattended noise surveys were completed in 2016 at three locations (M13, M14 and M15) in order to provide background noise levels for five new assessment locations (P13 – P17) potentially impacted by the amended project (see **Figure 7**). Both the original NVIA and the NVIAA were undertaken in accordance with the *NSW Industrial Noise Policy* (EPA, 2000) (INP), *Interim Construction Noise Guideline* (DECC, 2009) (ICNG) and *Road Noise Policy* (OEH, 2011).

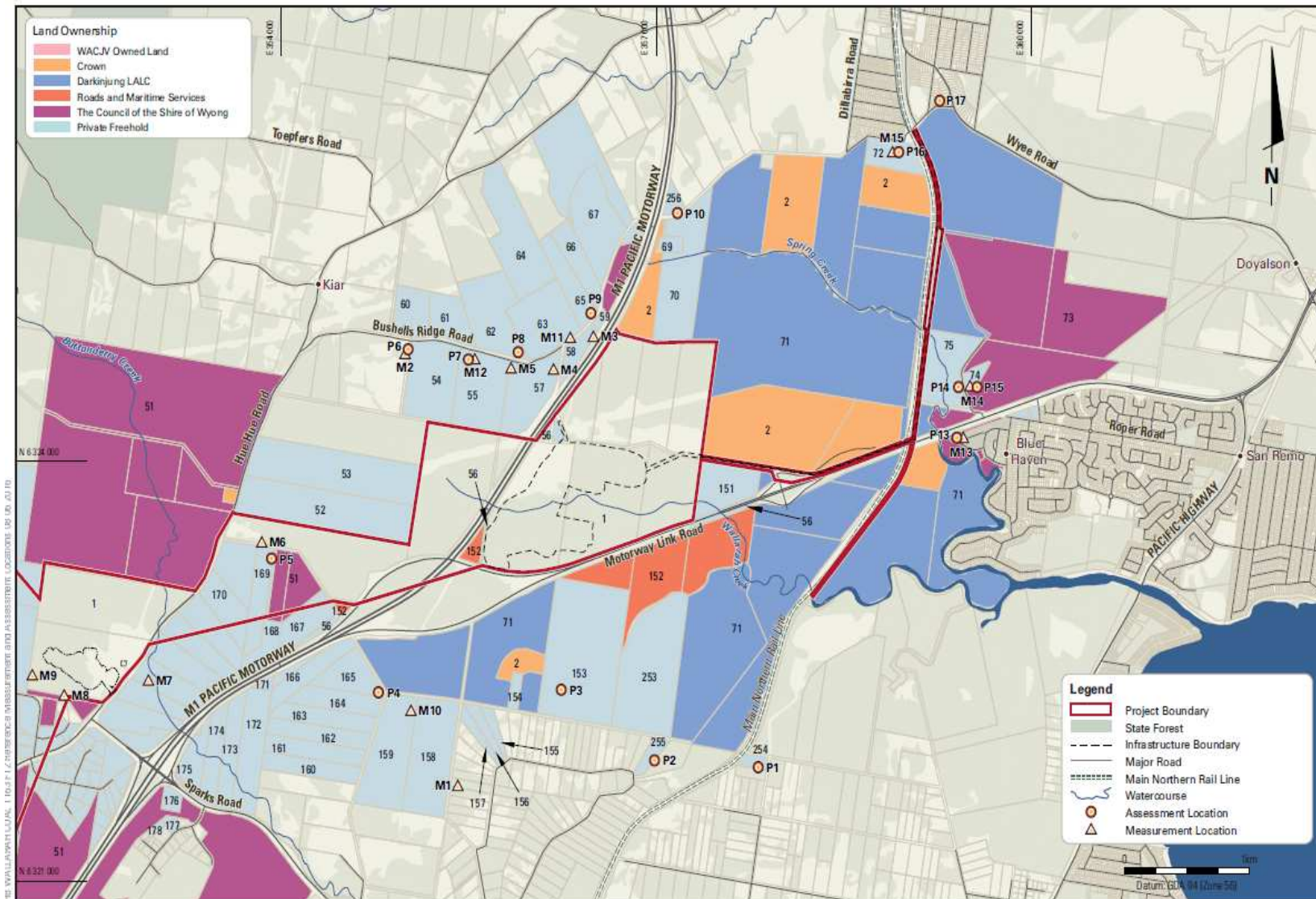


Figure 7: Location of noise monitoring and assessment locations for the amended project

As noted in the PAR, the Tooheys Road Site is “sandwiched between the F3 Freeway and the Motorway Link Road, both of which have existing high levels of noise and disturbance, while there are also already a number of industrial land uses in the vicinity of the site, including a brick clay quarry and brickworks”.

The Commission's review report noted that the impacts from the surface facilities on the local noise environment are expected to be minor and manageable and provided recommendations regarding noise mitigation (see **Section 2.3 in Part 2**).

Proposed operating hours for the mine and associated infrastructure would be 24 hours, 7 days per week, with coal from the Tooheys Road Site being transported to the Port of Newcastle via the Main Northern Rail Line.

Surface construction activities would be undertaken between 7.00 am and 6.00 pm Monday to Friday, and 7.00 am to 1.00 pm Saturday, with some works where track possession would be required occurring outside standard construction hours. WACJV notes that rail infrastructure works required to be undertaken outside standard construction hours would be the subject to a separate approval under the draft conditions of consent (see condition 10 of Schedule 2) and that any other works outside standard construction hours would only be undertaken where it could be demonstrated that noise would not impact on residential receivers.

5.1.2. Key Changes from Original Project to Amended Project

The changes proposed in the amended project with the potential to result in different noise impacts compared with those predicted for the original project relate only to changes at the Tooheys Road Site, including:

- removal of the previously proposed rail loop and spur;
- re-location of the rail siding and train load out facility to the eastern side of the Main Northern Rail Line; and
- addition of a conveyor system to deliver product coal from the product coal stockpile to the new location of the train load out facility.

The original project proposed 12 train movements per day. The amended project provides for a different train (locomotive and wagon) configuration, which would result in an overall reduction in train movements to a maximum of 6 movements per day (see **Table 3**).

5.1.3. Assessment of Noise Impacts

Construction Noise

An assessment of potential noise impacts during the construction phase was completed in accordance with the ICNG. Noise Management Levels (NMLs) are recommended in the ICNG to limit noise generated by construction activities. The amended project is predicted to exceed the NMLs for standard construction hours at two residences on Thompson Vale Road (P14 and P15) and one residence on Bushells Ridge Road (P16) for both standard work hours and hours outside work hours. It is predicted to comply with the NMLs in the Blue Haven area during standard hours but there may be exceedances for work outside standard hours.

The Department notes that the predicted NML exceedances are generally short-term and can be reasonably managed through mitigation and management strategies (see **Section 5.1.4** below).

Operational Noise

The NVIAA modelled the potential impacts predicted from the amended project. Removal of the previously proposed rail loop and spur has increased the distance between rail infrastructure and receivers P1 to P10 located to the north, south and west of the Tooheys Road Site. Predicted noise levels at these assessment locations are within the Project Specific Noise Levels (PSNLs) for these locations and show a reduction in operational noise impacts by up to 0.8 dB(A) (in calm meteorological conditions) and 1.1 dB(A) (during adverse conditions) compared with the previously proposed rail loop.

Five new locations were assessed to reflect the amended project (see **Tables 5 and 6**). Operational noise modelling assumed simultaneous operation of the conveyor system and train loading facilities. Meteorological data for the area shows prevailing winds from the south to northeast during spring and

summer and south to west during winter and autumn. Temperature inversions of E and F stability class conditions occur more than 30 % of the time.

Table 5: Project specific noise levels – amended project

Location (INP indicative noise amenity)	Assessment area	Period	Background noise level (dB(A))	PSNL		Amenity criteria (L _{Aeq} , Period)
				Operational noise (L _{Aeq} , 15 min)	Sleep disturbance (L _{A1} , 1 min)	
P13 (Urban)	Blue Haven	Day	49	54	-	60-65
		Evening	45	50	-	50-55
		Night	39	44	54	45-50
P14 (Urban)	Individual	Day	37	42	-	60-65
		Evening	39	42*	-	50-55
		Night	37	42	52	45-50
P15 (Urban)	Individual	Day	37	42	-	60-65
		Evening	39	42*	-	50-55
		Night	37	42	52	45-50
P16 (Industrial)	South Wyee	Day	33	38	-	70
		Evening	39	38*	-	70
		Night	34	38*	48	70
P17 (Suburban)	South Wyee	Day	33	38	-	55-60
		Evening	39	38*	-	45-50
		Night	34	38*	48	40-45

* Adjusted in accordance with the INP's application notes. The evening and night criteria cannot be higher than the day time criterion

Predictions in the NVIAA for noise levels at locations P14, P15 and P16 are estimated to exceed the PSNLs by up to 4 dB(A) under some meteorological conditions (see **Table 6**). These exceedances represent a 'moderate' degree of affection, based on the noise categories in the VLAMP. The VLAMP provides for these landowners the right to request acoustic treatments at their residences. WACJV notes that consultation has been undertaken with these landowners.

The predicted noise impacts at P17, which represents the Wyee South noise catchment, exceed the PSNL by up to 2 dB(A) subject to southerly wind (see **Table 6**). Mitigation for exceedances between 0 - 2 dB(A) is categorised as negligible under the VLAMP, and mitigation rights are not required under that policy.

Table 6: Predicted operational noise levels – amended project

Assessment Location	Period	PSNL (dB(A))	Predicted Operational Noise Levels (dBA)							
			Meteorological Conditions							
			Calm	NE 3 m/s	E 3 m/s	SE 3 m/s	S 3 m/s	SW 3 m/s	W 3 m/s	Temperature Inversion 3°/100 m
P13 Blue Haven	Day	54	37	39	34	34	35	39	42	-
	Evening	50	37	39	34	34	35	39	42	-
	Night	44	37	-	-	-	35	39	42	40
P14 Individual	Day	42	43	44	41	41	43	46	46	-
	Evening	42	43	44	41	41	43	46	46	-
	Night	42	43	-	-	-	43	46	46	45
P15 Individual	Day	42	42	42	39	39	42	44	46	-
	Evening	42	42	42	39	39	42	44	46	-
	Night	42	-	-	-	-	42	44	46	44
P16 South Wyee	Day	38	35	33	38	42	42	39	35	-
	Evening	38	35	33	38	42	42	39	35	-
	Night	38	-	-	-	-	42	39	35	39
P17 South Wyee	Day	38	33	30	33	38	40	38	34	-
	Evening	38	33	30	33	38	40	38	34	-
	Night	38	-	-	-	-	40	38	34	38

NB. Exceedances of the PSNLs are shown in bold type. Exceedances by >2 dB(A) are shown in bold red type.

In addition to community and SIG submissions, both NSW Health and the EPA raised concerns with ongoing noise from the amended project. The EPA and NSW Health provided comment on the NVIAA relating to the use of 'urban' amenity criteria at assessment locations P13, P14 and P15 (see

Table 5). Both authorities considered that the appropriate amenity criteria would be: P13 – ‘suburban’, and P14 and P15 – ‘rural’. Atkins Acoustics notes that the appropriate amenity criteria are dependent on the actual nature of the land use (eg rural, suburban, industrial) at the receiver locations.

The existing ambient noise at measurement locations M13 and M14 is dominated by road and rail traffic noise from the Motorway Link Road and the Main Northern Rail Line. Atkins Acoustics notes that, under the INP, “Areas near noise generators (for example roads, railways and industry) would normally be considered to be urban-receiver type for the purpose of the amenity criteria” and that ‘Urban’ areas “may be located in either a rural, rural-residential or residential zone as defined on an LEP or other planning instrument”. Atkins Acoustics concludes that under the INP, ‘Urban’ is the most appropriate receiver type for P13, P14 and P15.

In December 2016, EPA advised that it had reviewed WACJV’s RTS2 and that the issues previously raised had been adequately addressed. The Department is satisfied that the relevant guidelines and policies have been appropriately applied. In any case, the appropriate framework under the INP for determining the PSNLs is to use whichever criteria (intrusive or amenity) is more stringent taking into account the nature of existing noise and actual measurements.

Notwithstanding EPA’s acceptance of the RTS2, NSW Health noted it had residual issues relating to noise impact assessment and the proposed mitigation measures. It proposed additional (but unnamed) noise mitigation strategies at Wyee (ie the area around P14 – P17, including the Darkinjung LALC’s proposed residential development), application of continuous real time noise monitoring and requested that the Environmental Management Strategy and all Management Plans required under any consent should be reviewed by the project’s Community Consultative Committee (CCC) and relevant agencies, prior to their approval by the Department.

The Department sought further clarification from both NSW Health and EPA and gave consideration to their comments in drafting conditions of consent.

The Department notes that the NVIAA predicts that operational noise from the amended project would be within the criteria required under the INP. It also notes the extensive mitigation and management strategies to reduce noise impacts proposed by WACJV (see **Section 5.1.4**). It considers that these strategies are best-practice for the mining industry in NSW.

Atkins Acoustics also noted that the original EIS reported that the predicted noise levels for the original project exceeded the PSNLs over more than 25% of Properties 57 and 58 (located on Bushells Ridge Road immediately west of the M1 Motorway (see **Figure 7**), although noise impacts were predicted to comply with the PSNLs at the residences on these properties. Given the location of these properties adjacent to the motorway, ‘urban’ amenity criteria are again considered the most appropriate noise criteria for these properties. On this basis, under the VLAMP, operation of the Tooheys Road Site is now not expected to cause noise exceedances at these properties (see **Figure 8**). However, WACJV has noted that it would consult with these landowners to discuss management of the project’s noise impacts.

Railway Noise

Noise generated from rail transportation of coal was assessed as part of the original project and found to be within the rail noise criteria (see Section 5.6.3 of the PAR). The NVIAA modelled rail noise impacts predicted from the amended project and concluded that it would continue to meet relevant criteria in the *Rail Infrastructure Noise Guideline* (RING) (EPA 2013). Modelling also showed that the amended project train scheduling would reduce the previously-predicted noise level contributions by up to 0.4 dB(A) (day, L_{Aeq} 15 hour) and 0.7 dB(A) (night, L_{Aeq} 9 hour).

Vibration

During excavation and construction activities associated with developing access roads and trenches, it may be necessary to use plant and equipment that generate ground vibration. The main source of ground vibration identified and assessed in the NVIAA is dynamic impact rollers. Vibration levels are predicted to satisfy the structural damage assessment criteria at any distance greater than 20 m and be acceptable from a human disturbance point of view at the closest private receivers (P14 and P15).

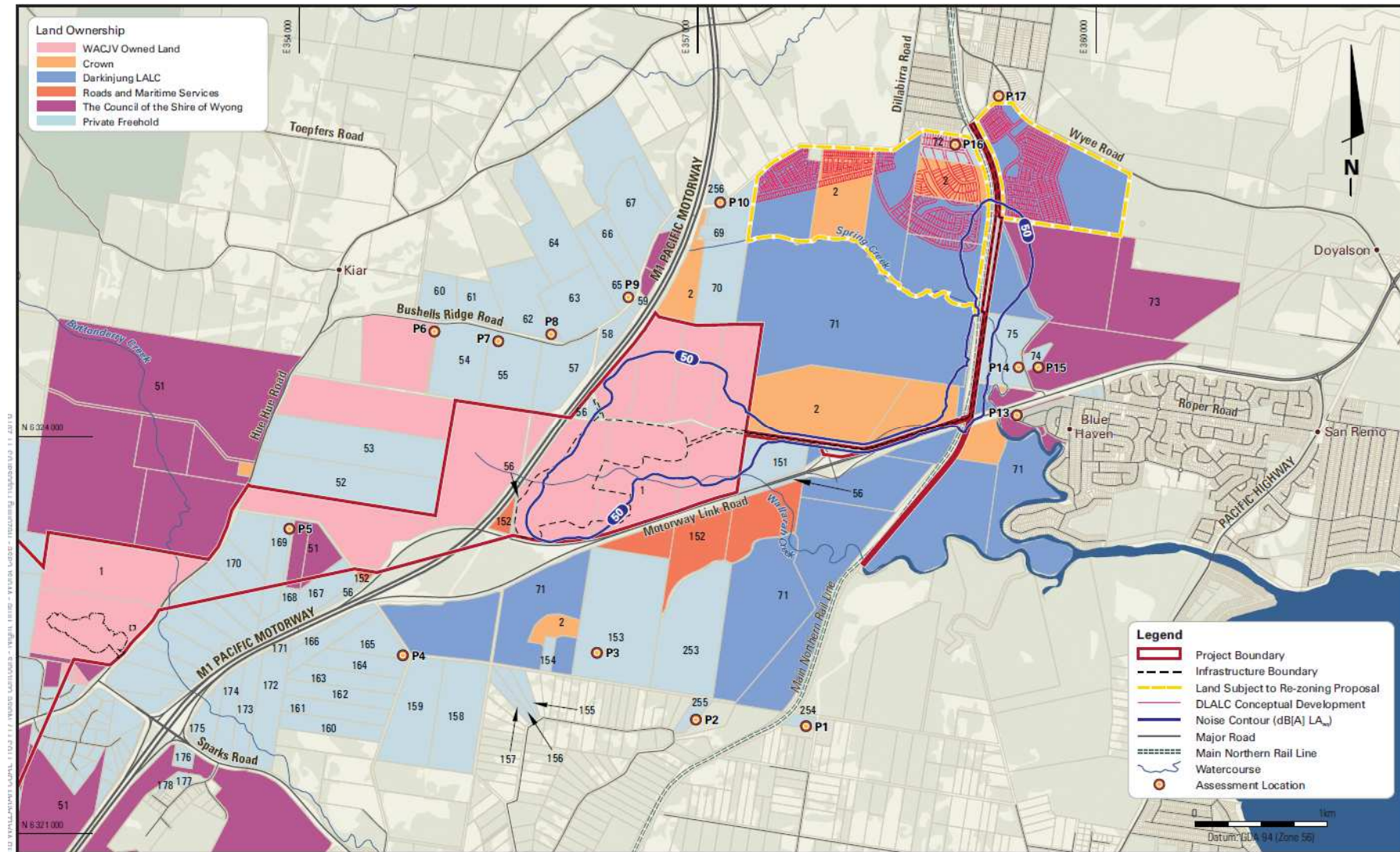


Figure 8: Predicted night time noise contours (worst-case)

Impacts to Darkinjung LALC's Proposed Residential Development

Darkinjung LALC has proposed a residential development located on land at the northern end of the proposed rail siding, as shown on **Figure 8** and described in **Section 4.4.4**.

WACJV has completed a noise assessment for this area which predicts that an area of 9.8 ha may experience noise greater than the amenity criterion of 50 dB(A), of which approximately 3.3 ha is proposed for residential development. Based on conceptual plans, WACJV notes that there are potentially 25 lots where the night-time amenity criterion is exceeded over more than 25% of the land area (**Figure 8**). WACJV also notes that there is scope for the proposed layout of this development to be modified so that the potentially noise-affected areas are reserved for Environmental Conservation (Zone E2), rather than residential development.

DPE requested a response from WACJV to Darkinjung LALC's recent submission which contained an independent noise assessment of potential impacts on its proposed development. WACJV advised in January 2017 that the assessments provided in the amended EIS and RTS2 adequately address potential noise impacts on the land subject to the LALC's development proposals.

The potential lots which may experience noise greater than the amenity criteria (see **Figure 8**) are based on the LALC's conceptual plans, which could be subject to change as the Planning Proposal and any subsequent development application progress. The Department notes that, if residential development was already approved, residential lots subject to noise levels over 50 dB(A) would receive rights under the VLAMP. However, the VLAMP does not apply to residential zonings (except where more than 25% of a lot is noise-affected) or to any proposal for residential zonings.

As discussed in **Section 4.4.4** there are still substantial regulatory requirements that must be satisfied before Darkinjung's proposed residential development can proceed. Due to the conceptual nature of these lots, the VLAMP does not provide a basis for the Department to consider providing them with either mitigation or acquisition rights. The Department is satisfied that the impacts on this land meet the non-discretionary development standard for noise set out in clause 12AB of the Mining SEPP.

In addition, the Department notes that the location of the proposed residential areas, adjacent to the Main Northern Rail Line and therefore subject to significant existing rail noise, may lead to a requirement for residential development to be constructed with noise mitigation measures in place (see clause 87 of the Infrastructure SEPP). Any such decision would be taken by the consent authority for the residential development.

Mitigation and Management

Atkins Acoustics proposed and applied noise mitigation within the NVIAA's noise modelling for the amended project which included the:

- use of low noise rated conveyors and motor drives;
- shielding of conveyors (roof and side wall);
- enclosure of conveyor drives and transfers;
- laminating transfer chutes at conveyor transfer points;
- acoustically treating the train out load bin;
- installing a product level controller in the load out bin;
- constructing a noise barrier adjacent to the southern extent of the rail siding (or an alternative measure to achieve similar noise mitigation) as indicatively shown on **Figure 2**;
- operating only two of the four locomotive units whilst the train is on the rail siding (where necessary);
- gradient design along the rail siding to maximise the length and duration of train movements while wagons are in tension;
- use of rigid dual wagon units, effectively halving the number of points where wagon impacts could occur during shunting and loading;
- avoiding tight radius curves on the rail siding to avoid wheel squeal;
- installing advanced locomotive operating systems such as 'asynchronous drive' locomotives which control and share the propulsion amongst the locomotives at the front and rear of the train for maintaining optimum tension; and
- using a telemetry loading system to control the continuous slow movement of the train throughout the automated loading operation, thereby avoiding stop-start movements.

WACJV has also been advised by Sydney Trains that there is no compliance requirement to sound the train horn for routine train movements such as entering or departing the rail siding.

To minimise potential noise impacts during construction, WACJV has committed to preferentially use contractors which are able to use low noise emission equipment. All site personnel would be inducted and educated concerning best practice work methods to minimise noise. To reduce additional road traffic noise, construction workers would drive to the Tooheys Road Site and then be transported by bus to the proposed rail siding site.

WACJV also proposes to develop and implement a Construction Noise and Vibration Management Plan and Monitoring Program to manage and monitor noise impacts. WACJV proposes:

- a Construction Noise and Vibration Management Plan, including a protocol for work outside standard hours;
- an Operational Noise Management Plan, including a Noise Monitoring Program; and
- mitigation on request for affected landowners subject to the VLAMP.

5.1.4. Conclusion

The Department notes that the amended project reduces some of the noise impacts predicted in the original project. The NVIAA shows that the operational noise impacts from the amended project are generally within acceptable limits derived from the INP. Where there are significant exceedances (ie at residences P14, P15 and P16) then, under the VLAMP, mitigation can be requested by the landowner. The Department has drafted conditions to this effect, as is standard practice.

The Department has drafted conditions of consent limiting operational noise at various receivers. In order to ensure that these limits are not exceeded, the Department also recommends that WACJV develop and implement a Noise Management Plan, including a Noise Monitoring Program. The Noise Management Plan should include best management practices to mitigate noise impacts, based on monitoring results.

The Department notes that construction NMLs may be exceeded at two residences (P14 and P15) for both work within standard hours and outside. NML exceedances are generally short-term and can usually be reasonably managed. Therefore the Department recommends that WACJV develops and implements (as required) an Out-of-Hours Work Protocol and recommends that construction noise mitigation is included in the Noise Management Plan.

The Department has considered the advice of NSW Health and EPA in assessing the amended project and in formulating draft conditions of consent.

The Department has considered Darkinjung's proposed residential developments and the potential impacts of the amended project. If residential development was already approved, residential lots subject to noise levels over 50 dB(A) would receive rights under the VLAMP. However, the VLAMP does not apply to proposals for residential zonings.

5.2 Air Quality

5.2.1 Introduction

WACJV provided an *Air Quality and Greenhouse Gas Assessment – Addendum (AQGGAA)* for the amended project, which was prepared by Pacific Environment Limited in accordance with the *Approved Methods for Modelling and Assessment of Air Pollutants in NSW*.

An environmental monitoring program commenced for the project in 1996. This data has been used to provide background concentrations for Total Suspended Particulates (TSP), PM₁₀ and dust deposition in the region in order to perform a cumulative assessment.

The model previously developed for the original project was revised to reflect the proposed changes to the coal transportation infrastructure of the amended project. An additional 10 receivers (P34 – P43) were included in the air quality assessment for the amended project to reflect the relocated rail siding, as well as all receivers included in the original EIS's Air Quality Impact Assessment (see **Figure 9**).

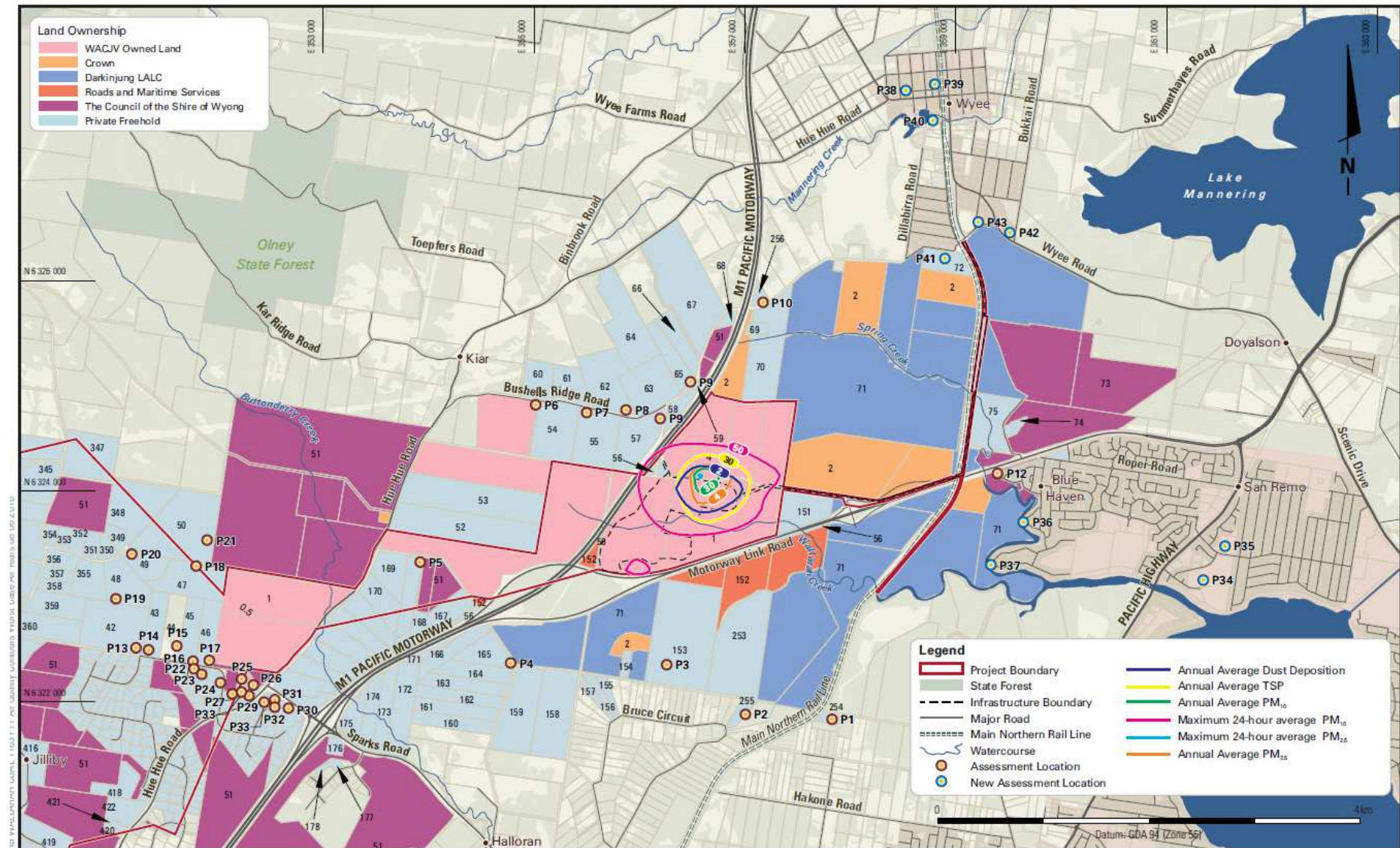


Figure 9: Air quality assessment locations and worst-case air quality contours – amended project

Meteorology inputs used in the modelling were obtained from the Tooheys Road weather station and Bureau of Meteorology weather stations at Cooranbong, Norah Head and Williamstown. Modelling of emissions was assessed against the relevant criteria from *Approved Methods for Modelling and Assessment of Air Pollutants in NSW and Ambient Air – National Environment Protection Measures*.

Emissions at the Buttonderry Site would primarily occur from a ventilation shaft. Since there is no change to the ventilation shaft, proposed flaring or use of on-site power generators odour and oxides of nitrogen, the Buttonderry Site was not reassessed in the AQGGAA. However, emission data from this site was included in the AQGGAA's modelling of the amended project. The Department's previous assessment of the Buttonderry Site is discussed in Section 5.7 of the PAR.

In its review of the original project the Commission noted that the impacts from the surface facilities on air quality are expected to be minor and manageable and provided recommendations regarding air quality mitigation as discussed in **Section 2.4 of Part 2**.

5.2.2 Key Changes from Original Project to Amended Project

The amended project results in changes in air quality impacts due to the:

- removal of the previously-proposed rail spur and loop;
- transportation of product coal from the product coal stockpile at the Tooheys Road Site to the newly-proposed rail siding via overland conveyor; and
- rail loading and dispatch from the rail siding.

The overland conveyors and transfer stations introduce new dust sources not considered in the original EIS's Air Quality Impact Assessment. The proposed conveyor system is approximately 2.3 km in length and would move coal from Tooheys Road Site to a transfer station beside the Main Northern Rail Line. From the transfer station, coal would move to the bin feed conveyor which is approximately 1.1 km long and is aligned north-south adjacent to the Main Northern Rail Line.

The overland conveyor is proposed to be a belt conveyor with a maximum belt width of 2,400 mm, driven by three 500 kW drives, the locations of which are shown in **Figure 2**. The design capacity of the conveyor system is up to 4,500 t/hour. The transfer station would be designed to industry standards. The design, known as 'hood and spoon', would generate lower dust and noise emissions compared to other transfer designs. The transfer station would be fully enclosed to further reduce dust and noise emissions. WACJV has also included dust mitigation measures in the design of the conveyors. Both the overland conveyor and bin feed conveyor would be fitted with wind shielding (roof and one side wall). The side wall would be installed on the side that faces sensitive receivers.

5.2.3 Assessment

Operations

The AQGGAA considered the impacts of the new emission sources on receivers located in Blue Haven and Wyee (see **Figure 9** and **Table 7**). Annual average concentrations of dust deposition, TSP and PM₁₀ remain generally below the relevant air quality goals. **Table 7** shows that the incremental impacts of the amended project comply with all assessment criteria and also shows predicted levels of the original project for comparison. There are only very minor changes in predicted results for the original and amended project.

Table 7: Comparison of predicted incremental air quality impacts for the original project and the amended project

Measure	Unit of measure	Criterion	Maximum Predicted Level	
			Original Project	Amended Project
Annual average PM ₁₀	µg/m ³	30	1.6	1.7
Maximum 24-hr average PM ₁₀	µg/m ³	50	27.2	29.5
Annual average PM _{2.5}	µg/m ³	8	0.46	0.47
Maximum 24-hr average PM _{2.5}	µg/m ³	25	4.9	5.3
Annual average TSP	µg/m ³	90	2.4	2.6
Annual average dust deposition	g/m ² /month	2	0.14	0.13

Project dust emissions primarily result from construction and from coal handling and stockpiling at the Tooheys Road Site. Predicted worst case air quality contours for the amended project are shown in **Figure 9**, indicating where dust concentrations may exceed the regulatory criteria. The Department notes that there are no residential receivers within the potential exceedance areas and that, in fact, these areas are almost entirely confined to land owned by the WACJV.

The AQGGAA included an assessment of the cumulative impact of the amended project when combined with other dust generating activities in the vicinity. There are no predicted exceedances of the criteria for cumulative annual average PM₁₀, PM_{2.5}, TSP and dust deposition.

Historical monitoring shows that there are days when existing background concentrations exceed the 24 hr average PM₁₀ criterion. The Department notes that these exceedances are independent of the amended project and are likely to be caused primarily by local or regional bushfires or occasional dust storms. Given the predicted PM₁₀ contributions from the project, the Department considers that the amended project would have a negligible effect on cumulative impacts and any project-specific exceedances would be adequately managed through mitigation and management strategies.

Submissions relating to air quality impacts were received from a number of community and SIG groups. The EPA, NSW Health and Council also provided comments on the air quality assessment and made recommendations for conditions of consent should the project be approved.

After considering the RTS2, NSW Health advised that it continued to hold concerns in relation to air quality impacts. It requested that consideration be given to further reducing dust emissions (notwithstanding that they are predicted to be well below existing regulatory criteria, see **Table 7**) and expressed concern at the “incremental” increase in particulate emissions near the rail load out facility. However, the EPA did not share the same concerns and the Department considers that, as predicted concentrations comply with all relevant assessment criteria, regular monitoring of operations and the implementation of mitigation and management strategies would allow operations to be undertaken in accordance with both best practice dust management measures and all air quality emission limits.

Construction

WACJV has estimated that construction works for the amended project would contribute less than 85% of the total emissions predicted during the operational phase of the project. The Department considers that, as emissions for the operational phase of the project are within all assessment criteria, then predicted emissions during construction should also meet the relevant assessment criteria.

Greenhouse Gas Management

WACJV previously committed to the development of an Energy and Greenhouse Strategy to focus on improving energy efficiency and reducing greenhouse gas emissions. The Department assessed the impacts of greenhouse gases in Section 5.7.3 of the PAR and considers that the nature and quantity of emissions has not materially changed between the original and amended project and continues to recommend the previously proposed management strategies.

Coal Transportation

In its first review, the Commission noted that peer-reviewed studies concluded there were broader implications for potential emissions from the rail transport of coal which should be investigated further. WACJV noted a recent report by the NSW Chief Scientist, titled *Final Report on the Independent Review of Rail Coal Dust Emissions Management Practices in the NSW Coal Chain*. This report states that there is currently insufficient knowledge and data about the amount and distribution of coal emissions in the coal rail corridor and therefore it is not possible to recommend any additional mitigation measures.

WACJV provided a revised assessment of potential emissions resulting from rail transportation of coal due to the relocated rail facilities. As with the original project, WACJV has committed to water spraying of the coal surface during loading. An estimate assuming that water spraying results in a 50% reduction in emissions was built into modelling. Results predict that TSP emissions from the project's train movements would account for less than 0.5% of total amended project emissions and are therefore considered by WACJV to be a negligible portion of emissions for the project. The Department considers that a 50% emissions reduction factor for wind lift-off from the surface of laden coal trains is conservative. The Department considers that the mitigation measures proposed by WACJV to reduce emissions during coal transportation are appropriate.

Impacts to Darkinjung LALC's Proposed Residential Development

WACJV has considered the impacts of air quality from the amended project on the proposed development. Air quality modelling predicts that regulatory air quality criteria would not be exceeded over any part of the proposed residential land. The Department accepts this conclusion.

5.2.4 Mitigation and Management

WACJV's design of the overland conveyors and associated rail infrastructure includes measures to reduce potential dust emissions from coal transportation by:

- spraying water on product coal prior to transportation to reduce dust during loading, conveyance and transport;
- limiting load size to ensure overfilling and spillage;
- loading coal wagons to maintain a consistent profile;
- fully enclosing the transfer station, which would have a 'hood and spoon' design; and
- fitting wind shielding to both conveyors to reduce impacts to sensitive receivers.

NSW Health, the EPA and Council made recommendations in respect of air quality monitoring and management plans. NSW Health requested continuous real time air quality monitoring and that any Air Quality Management Plan developed under the consent is reviewed by relevant agencies and the CCC prior to review and approval by the Department. Council requested permanent air quality monitoring in specific locations which include current and proposed residential developments.

The Department has recommended the preparation of an Air Quality and Greenhouse Gas Management Plan, including an air quality monitoring program, in consultation with relevant agencies and that this be approved prior to commencement of construction of the surface facilities sites.

5.2.5 Conclusion

The Commission considered that the predicted air quality impacts of the original project were both minor and manageable and recommended that the consent include air quality monitoring and management plans. The Department has prepared draft conditions to this effect.

The Department considers that the potential air quality impacts of the amended project are very similar to the predicted impacts of the original project and that these impacts are well within the relevant assessment criteria (as would be expected for an underground coal mine). Additionally the Department notes that WACJV has proposed several significant mitigation features into the design of its conveyors, transfer station and rail load out facility. The Department is satisfied that conditions requiring the preparation, implementation and regular review of an Air Quality and Greenhouse Gas Management Plan, including an air quality monitoring program, would ensure the application of best practice air quality management and limit any potential air quality impacts to the surrounding area.

5.3 Visual

5.3.1 Introduction

Design Partnership prepared a *Visual Impact Assessment – Addendum (VIAA)*, which evaluates the visual impacts of the amended project. The VIAA did not consider the potential impacts associated with the Buttonderry Site or the Western Ventilation Shaft Site as the layout of these sites and their visual impacts are unchanged from the original project. They are discussed in Section 5.9 of the PAR.

Design Partnership completed a desktop assessment and site visit in order to identify and assess potential visual impacts that the amended project may have on surrounding receivers. The visual limits of the proposed infrastructure were identified. A series of photomontages showing potential views from sites close to the conveyor and rail siding path were developed for each assessment location. Design Partnership also constructed a 3-D model of the amended project. **Figure 10** shows the locations of the VIAA's ground-level Visual Assessment Locations 4, 5, 6, 7, 9, and 10, as well as its elevated 3-D 'fly-by' Model Viewpoints 5, 6, 7, 9 and 10, which correspond to separate locations.

5.3.2 Key changes from Original Project to Amended Project

Elements of the amended project relevant to the assessment of visual impacts are the proposed:

- conveyor system including gantry sections over Tooheys Road and the Motorway Link Road;
- transfer station north of the Motorway Link Road bridge;
- noise barrier adjacent to the southern extent of the rail siding; and
- train load out facility.

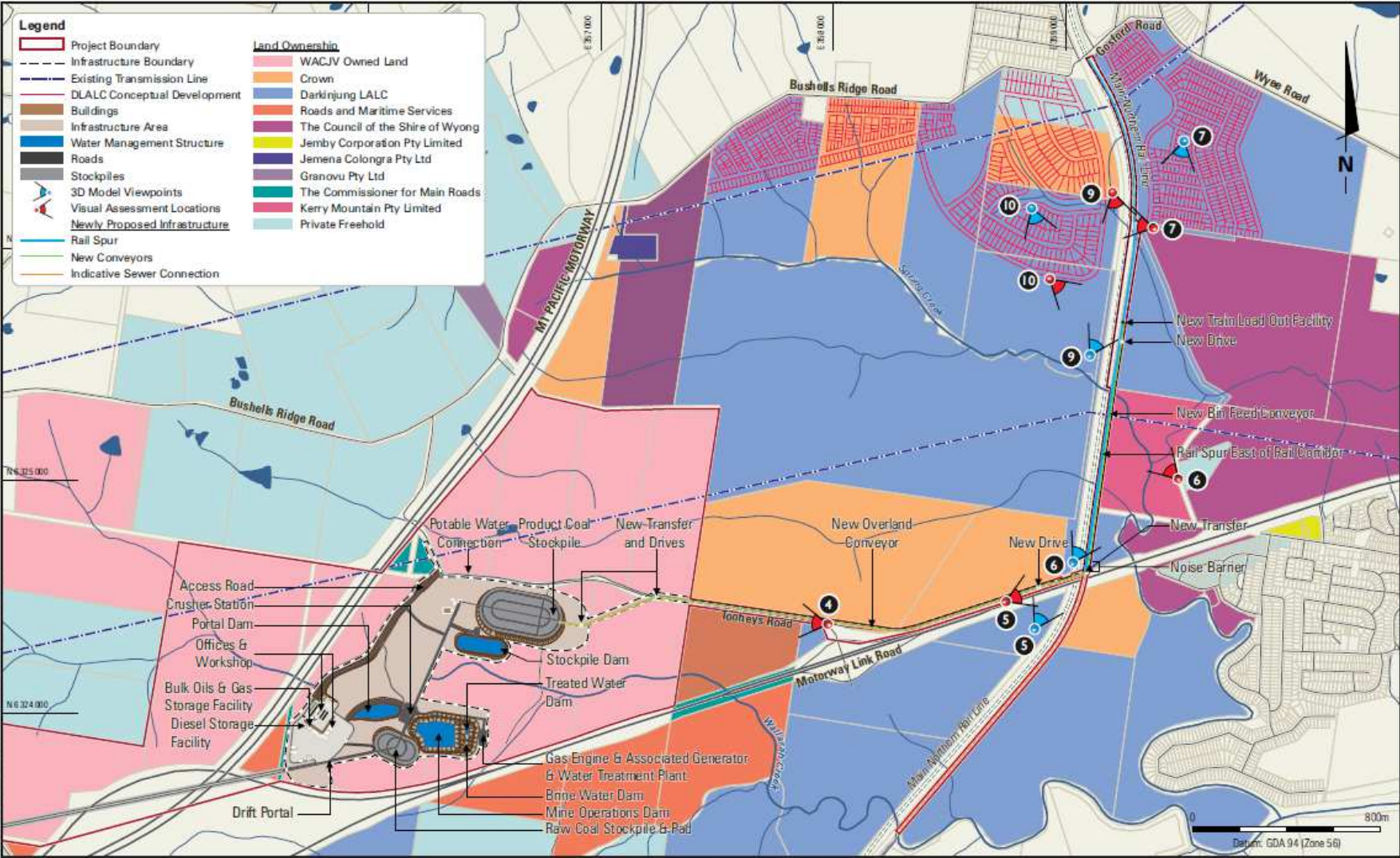


Figure 10: Visual assessment locations - amended project

The conveyor extends from the product coal stockpile along Tooheys Road to the Motorway Link Road which it then follows before turning north along the eastern side of the Main Northern Rail Line. An elevated gantry allows the conveyor system to cross the Main Northern Rail Line. The proposed transfer station is approximately 8 m high and would be located adjacent to the Motorway Link Road.

The train load out facility would be approximately 28 m high and 13.5 m wide. The noise barrier would be approximately 50 m long and 4.5 m high.

5.3.3 Assessment

Visual Assessment Location 4 – Tooheys Road

The existing view at Location 4 (see **Figure 10**) on Tooheys Road is characterised by a thin strip of roadside vegetation with an existing earth bund approximately 1 m high on the northern side of the road. Within the vicinity is the Boral Montoro quarry and tile factory, Motorway Link Road and an approved development application for a 17 lot industrial subdivision.

Potential views would be limited to local motorists on Tooheys Road, which has a default speed limit of 80 km/hour. **Figure 11** shows the predicted view for motorists with the conveyor only intermittently visible through the existing vegetation and partially hidden behind the earth bund.

Visual Assessment Location 5 – Motorway Link Road

The Motorway Link Road is elevated above the surrounding topography which slopes toward the Main Northern Rail Line. There is existing vegetation on the northern side of the Link Road (see **Figure 12**). The conveyor would be constructed on the northern side of the Link Road with the existing vegetation providing some screening (see **Figure 12**). Potential views would be restricted to motorists travelling on the Link Road, which has a speed limit of 100 km/hour. These views are therefore likely to be limited. Motorists would also have limited glimpses of the exiting Boral Montoro tile factory and the Main Northern Rail Line.

Figure 13 shows an elevated 3-D view from southeast of Location 5, approximately 300 m west along the Motorway Link Road from the road overpass across the rail line (location shown in **Figure 10**). The overland conveyor, Main Northern Rail Line, proposed rail siding and transfer station are all visible due to the elevated viewing position modelled. However, they would not be visible from ground level at Location 5, except for limited views of the conveyor through the screening vegetation.



Figure 11: Location 4 on Tooheys Road, showing indicative views of overland conveyor, looking west

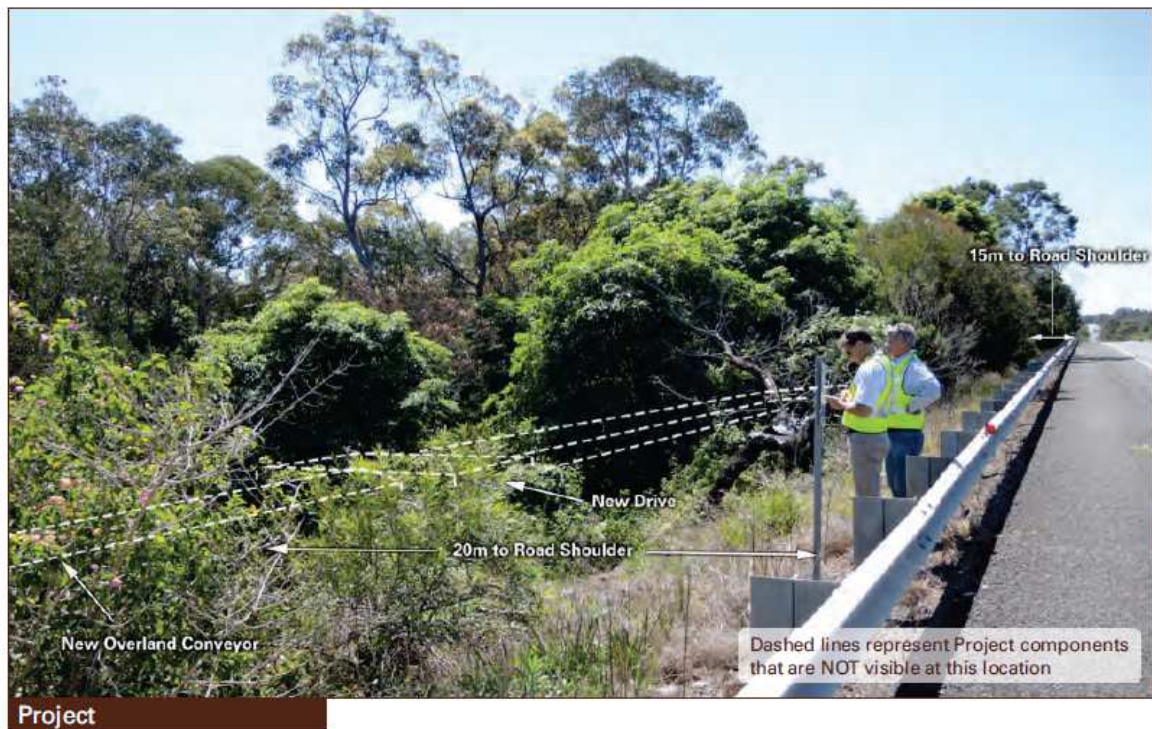


Figure 12: Location 5 on Motorway Link Road, showing indicative views of overland conveyor, looking northeast

Figure 13 also indicates that, where the conveyor system crosses the Main Northern Rail Line via the elevated gantry, that gantry would be visible from locations along the Motorway Link Road, Tooheys Road and the Main Northern Rail Line. The gantry and the adjacent transfer station would be visible to both train passengers and motorists on the Motorway Link Road.

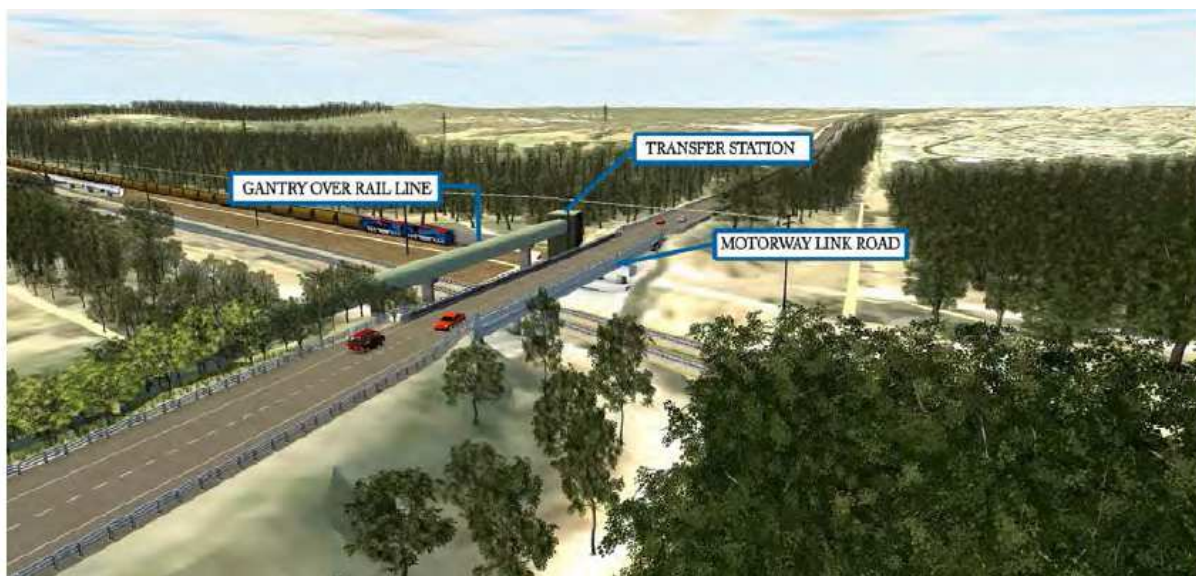


Figure 13: 3-D Model Elevated Viewpoint 5, located southeast of Location 5 and looking northeast

Visual Assessment Location 6 – Thompson Vale Road

This location is situated to the east of the proposed rail siding (see **Figure 10**). Existing views towards the northwest consist of dense vegetation and limited glimpses of a ridge line at a distance of approximately 2.5 km. The rail siding and bin feed conveyor would be located at a lower elevation about 300 m to the west. The resulting predicted view (which is very limited) is shown in **Figure 14**.

The rail siding, train load out facility and conveyor would not be visible from Location 6. However, intermittent views through vegetation may be possible along parts of Thompson Vale Road some hundreds of metres further to the north. WACJV noted that much of this section of road is currently inaccessible to normal traffic and generally used only by local motorists.

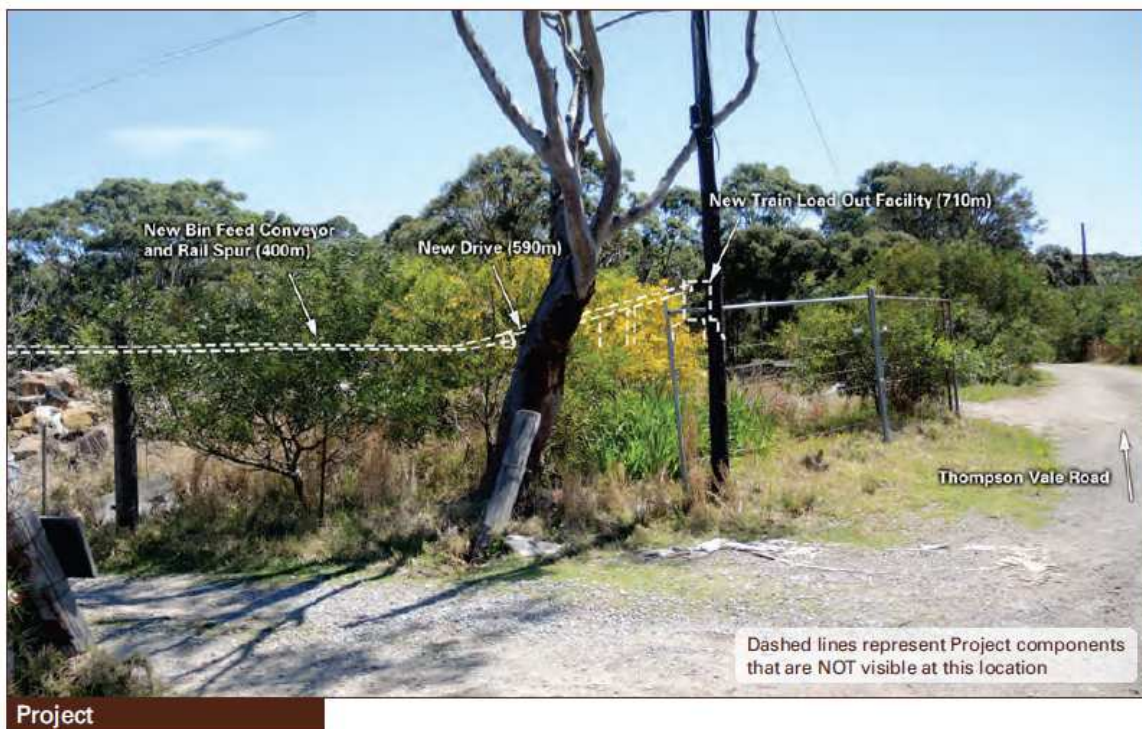


Figure 14: Location 6 on Thompson Vale Road, showing indicative view of rail infrastructure, looking northwest

Figure 15 shows views from an elevated position at 3-D Model Viewpoint 6 (located just north of the Motorway Link Road) of the existing Main Northern Rail Line and the proposed rail siding, Nikko Road and noise barrier.

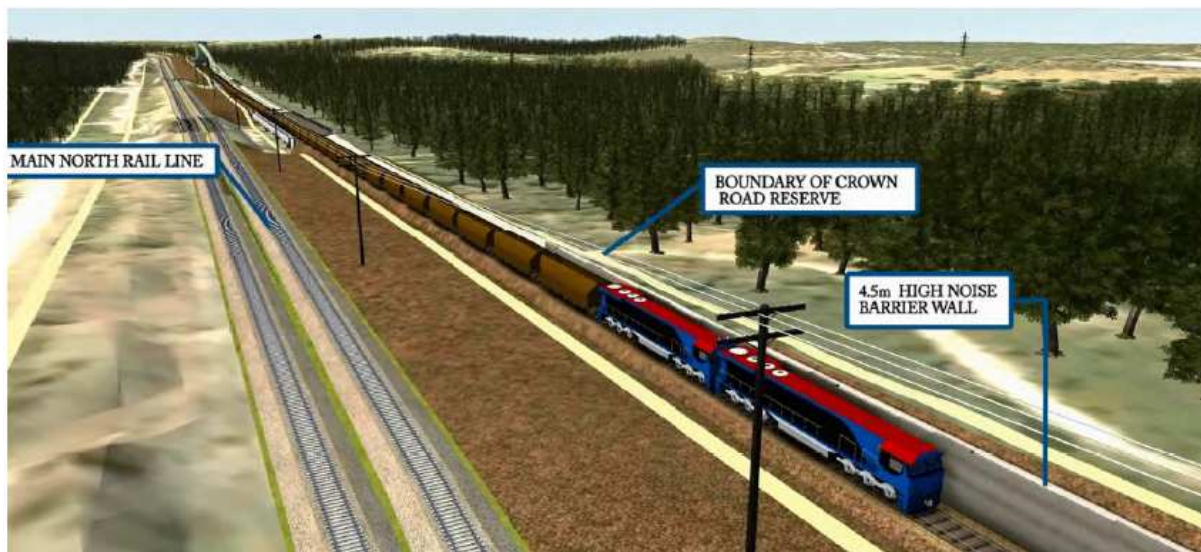


Figure 15: 3-D Model Elevated Viewpoint 6, located north of the Motorway Link Road and looking northeast

Visual Assessment Location 7 – Darkinjung LALC's Proposed Doyalson Residential Development

This location lies at the southern extent of Darkinjung LALC's proposed residential development at Doyalson, east of the proposed rail siding and accessed via Wyee Road (see **Figure 10**). Existing views from Location 7 are dominated by multi-storey vegetation and views of the amended project would be very limited (see **Figure 16**). Such views are likely to be limited to trains on the rail siding, located some 100 m to the west. However, these views would also contain trains on the Main Northern Rail Line, which is only 120 m to the west. Views of the overland conveyor and train load out facility from this location are unlikely, since this infrastructure would be 450 m to the south.

However, WACJV notes that the design for Darkinjung LALC's proposed development is not finalised. Depending on the extent of future vegetation clearance, intermittent views of shunting and loading trains may be possible. Passing passenger and freight trains would also be potentially visible on the Main Northern Rail like from Location 7.

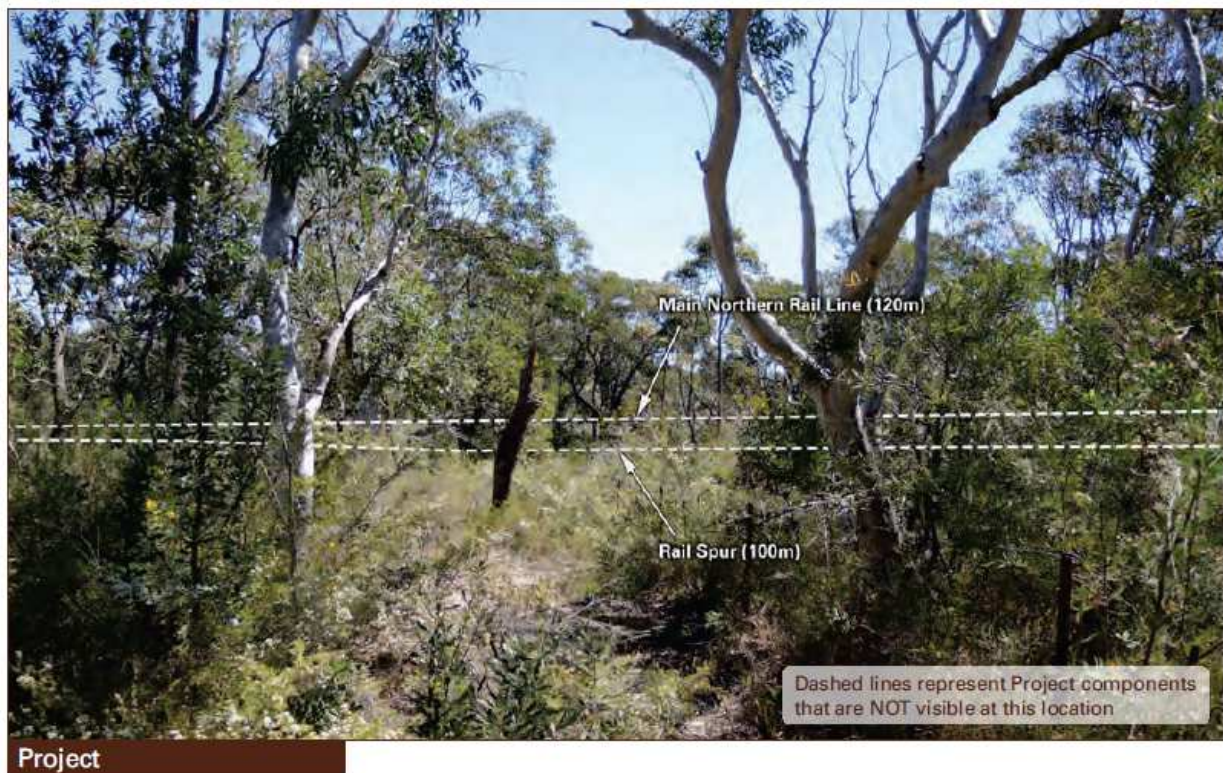


Figure 16: Location 7 at southern end of proposed Doyalson residential development, showing indicative view of rail infrastructure, looking west

Figure 17 shows an elevated 3-D view from a central location within the proposed development. It illustrates the predicted view from the roof of a fictional house. The Department notes that this view presumes extensive clearance of the existing vegetation, but without construction of other housing.

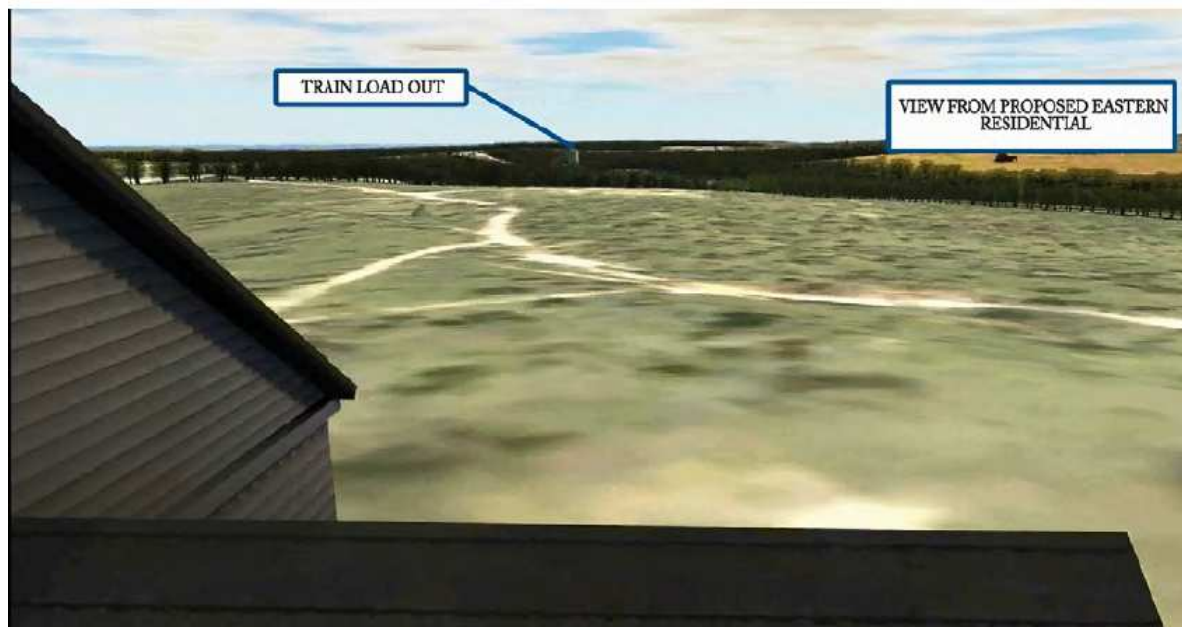


Figure 17: 3-D Model Elevated Viewpoint 7, located on proposed Doyalson residential development and looking southwest

Visual Assessment Location 9 – Darkinjung LALC's Proposed Bushells Ridge Residential Development

Existing views from this location towards the project infrastructure generally consist of multi-storey foreground vegetation and some parts of the Main Northern Rail Line, as shown in **Figure 18**. The viewing direction of Location 9 is towards the south-southeast (see **Figure 10**).

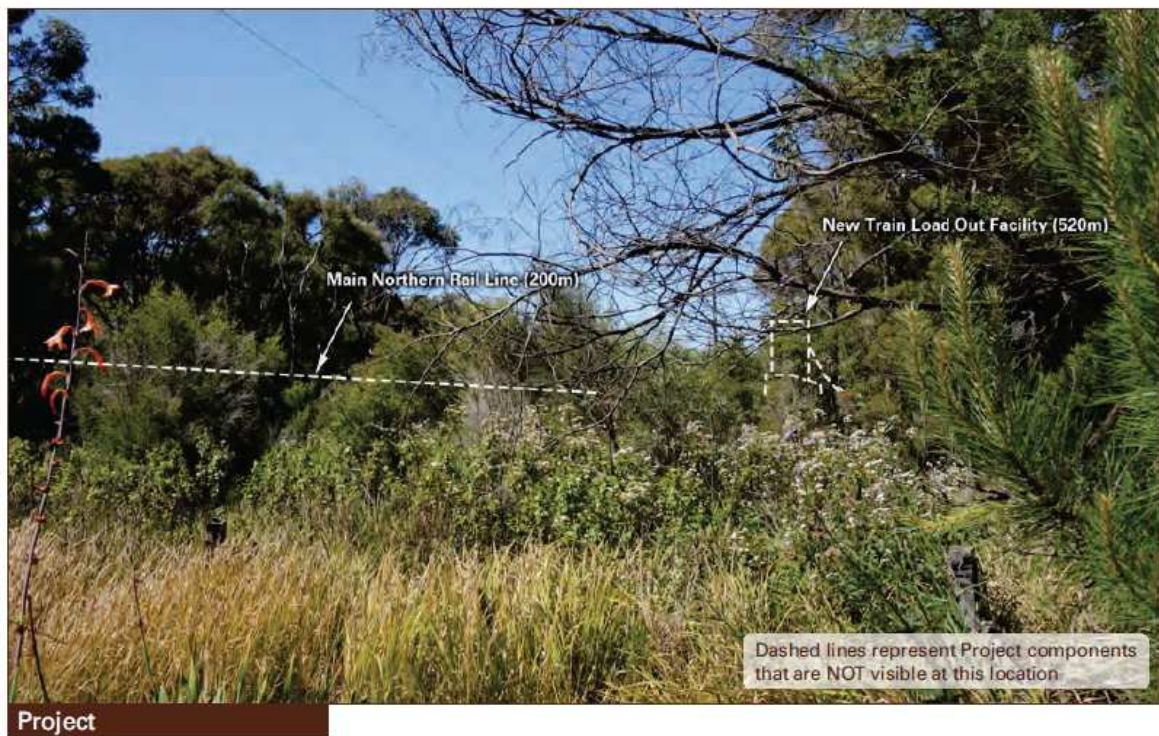


Figure 18: Location 9 on eastern edge of proposed Bushells Ridge residential development, showing indicative view of rail infrastructure, looking south-southeast

Visual impacts from Location 9 would occur where views of the train load out facility, which is higher than the level of the existing Main Northern Rail Line, are glimpsed through or above vegetation screening. The views at this location would clearly be dependent on the extent of vegetation clearance undertaken in conjunction with the proposed residential development.

Figure 19 shows an elevated 3-D view of the train load out facility, drive station and rail siding from south of the proposed development (see **Figure 10**). This viewpoint is generally closer and more elevated than potential viewing locations in the proposed development site. It also is above existing vegetation which would provide some screening.



Figure 19: 3-D Model Viewpoint Location 9, located on Darkinjung LALC land and looking northeast

Visual Assessment Location 10 – Darkinjung LALC's Proposed Bushells Ridge Residential Development

This location provides a south-easterly view from the southern edge of the amended project infrastructure (see **Figure 10**). The existing views in this orientation consist of open woodland vegetation and ridgelines to the east of the Main Northern Rail Line.

Figure 20 shows that there are potentially limited views of the train load out facility and conveyor drive from this location. The train load facility would be located approximately 400 m from Location 10 and within a zone of excavation below the current ground level of Nikko Road.



Figure 20: Location 10 on proposed Bushells Ridge residential development, showing indicative view of rail infrastructure and looking southwest

WACJV notes that the form and outlines of the train load out facility and conveyor drive would contrast with the existing foreground vegetation and longer distance views of vegetated ridgelines, if the infrastructure extends above the tree line, as is expected.

Discussion of Overall Visual Impacts

The Department considers that the overall visual impact of the proposed infrastructure would be limited. The visual receiving environment is already significantly impacted by a railway line and major and minor roads, as well as the industrial environment of the Boral Montoro complex. The great majority of existing viewers that may be impacted by the proposed infrastructure would be either motorists travelling on the Motorway Link Road or train passengers travelling on the Main Northern Rail Line. Considering the speed at which both motorists and train passengers would pass the infrastructure, the Department considers that these impacts would be limited and acceptable.

It is also appropriate that some consideration is given to potential *future* viewers of the infrastructure, in particular potential residents of Darkinjung LALC's two proposed residential developments. Importantly, it must first be noted that this land is not yet zoned for residential development. The Bushells Ridge site is currently zoned IN1 (General Industrial) and E2 (Environmental Conservation). Darkinjung LALC has submitted a re-zoning proposal for this land to be re-zoned to R2 (Low Density Residential) and R5 (Large Lot Residential). The Doyalson site is proposed to be rezoned from RU6 (Transitional) and E2 (Environmental Conservation) to R2 (Low Density Residential) and B1 (Neighbourhood Centre). Portions of both sites are expected to be rezoned to E2 Conservation. Further, there is no current certainty that residential development will be approved or developed on this land, or clarity about the layout of any such development.

The proposed train load out facility is the most visually-intrusive element of the proposed new infrastructure, with a proposed height of approximately 28 m and a width of 13.5 m (see **Figure 5**). However, the proposed location is some 380 m southeast of the southern extent of the proposed residential blocks on the Bushells Ridge site and some 450 m south-southwest of the southern extent of the Doyalson site, with substantial intervening vegetation.

The Department also considers that significant opportunities remain for fine-scale design of the proposed residential development (eg the retention or planting of appropriate vegetation screening) to limit potential views of both the proposed infrastructure and existing rail traffic on the Main Northern Rail Line. Such opportunities are likely to be pursued by any potential developer, since these factors would affect the eventual sale price for the affected blocks.

Based on this consideration, the Department concludes that the visual impacts of the amended project on neighbouring land owned by the Darkinjung LALC are limited and acceptable.

5.3.4 Mitigation and Management

WACJV has proposed a series of mitigation strategies to lessen any potential visual impacts from the proposed infrastructure. This includes:

- use of existing vegetation and earth bunds to screen infrastructure where possible;
- planting new vegetation screens where vegetation is removed for construction or is not present;
- using a colour palette which allows infrastructure to integrate with the surrounding landscape;
- using the natural topography in design to reduce the height of structures; and
- limiting external lighting and reduce light spill away from public roads, directing lights downward and using low lux lamps.

The Department considers that WACJV's proposed mitigation strategies in the design of the amended project would adequately mitigate its visual impacts.

5.3.5 Conclusion

While parts of the conveyor and rail facilities would be visible to passing motorists and train passengers the Department considers the overall visual impact to existing road and rail users would be low. The Department has also carefully considered the potential for the amended project to affect future residents in Darkinjung LALC's two proposed residential developments at its Bushells Ridge and Doyalson sites. Overall, these potential visual impacts are considered to be limited and acceptable.

The Department recommends conditions to manage any potential impacts by requiring vegetation screens to be constructed, external lighting to be minimised and infrastructure to be constructed so that it blends in as far as possible with the surrounding landscape. The Department has also recommended other appropriate visual impact mitigation measures to be implemented for private residences located within 2 km (and with direct views) of the Tooheys Road Site.

5.4 Transport

5.4.1 Introduction

WACJV proposes to transport all its product coal to export port facilities in Newcastle via train on the Main Northern Rail Line. No product coal would be transported via road networks. Existing line crossovers are located on the Main Northern Rail Line approximately 500 m north of the Gosford Road rail overbridge. WACJV trains would use these crossovers, which have a speed restriction of 25 km/hour, when re-joining the Main Northern Rail Line. The potential impacts of train movements associated with the original project were assessed in Section 5.9 of the PAR.

GHD has completed a Rail Study to assess the changes to the rail network and train configurations for the amended project. TfNSW was engaged by GHD to undertake train path modelling to confirm the ability of the amended project to access the Main Northern Rail Line and to assess any impacts of the project on the rail network efficiency.

5.4.2 Key Transport Changes from Original to Amended Project

Changes to the amended project that alter the Department's previous transport assessment and recommendations include:

- geometry and length of the rail siding;
- removal of the previously proposed rail loop;
- changes to the number of coal wagons per train; and
- fewer train cycles per day.

In order to avoid locating infrastructure in Darkinjung LALC owned land, WACJV proposes to establish a rail siding on the Nikko Road reserve (a Crown road) which is on the eastern side of the Main Northern Rail Line. The rail siding would run beside the southbound line between Gosford Road and Motorway Link Road rail overbridges for 2.3 km. The rail siding would be a single track and would have the ability to hold one train of 1,084 m in length with a single mainline connection just south of the Gosford Road rail overbridge. The train load out facility on the rail siding would be approximately 1.1 km north of the Motorway Link Road rail overbridge and about 1.2 km south of the Gosford Road rail overbridge.

5.4.3 Assessment

The Rail Study incorporated train path modelling undertaken by TfNSW which determined the availability of train paths on the Main Northern Rail Line. Further modelling using RailSys was completed by TfNSW to simulate train schedules including consideration of the Northern Sydney Freight Corridor and assumptions of future passenger requirements.

Based on estimates of coal production and design specifications of the rail siding, the Rail Study determined that the amended project would require an average of three to four train cycles per day, using 25 tonne axle load (TAL) wagon trains with a maximum speed of 80 km/hour. In consultation with rail and port providers and based upon modelling work completed by TfNSW, the Rail Study determined that these configurations provide the required available paths and are suitable from a network efficiency perspective. These train cycles can be accommodated without additional rail infrastructure requirements and would not require the use of passing loops that are proposed to be constructed at Awaba.

This represents a reduction of train cycles compared to the original project, as the configurations for the amended project use additional wagons (see **Tables 3 and 8**).

Table 8: Train size, carrying capacity and coal production

Mine Life Year	Estimated Coal Production Rate (Mtpa)	Train Size (25 TAL wagons)	Train capacity (t)	Estimated Train Cycles per day
Years 4 - 6	2	44 x 100 t wagons	3,212	3
Year 7 - 28	4.8	60 x 100 t wagons	4,380	3-4

Community submissions expressed concerns at the congestion the amended project might add to the Newcastle rail network. WACJV noted that, while there may be a potential increase in rail traffic over the duration of the project, there may also be revisions in network modelling and resultant upgrades to the network. The Department considers that the information provided by WACJV shows that there is capacity in the rail network for the proposed coal train schedules and notes that WACJV would need to continue to consult with TfNSW and RailCorp to manage train scheduling.

The removal of the previously proposed rail loop would lead to four crossings of Spring Creek and its tributaries compared to a total of seven crossings required by the original project. The Spring Creek crossings for the amended project are directly adjacent to the existing crossings for the Main Northern Rail Line (see **Section 5.6** for further discussion).

Level Crossings

Trains transporting coal from the project would pass through level crossings at St James Road, Adamstown and Clyde Street, Islington. Concerns were raised in community submissions regarding the duration of road closures at these level crossings.

The Rail Study referred to level crossing closure times calculated in the 2012 Cobbora Coal Project Environmental Assessment. Closure of St James Road and Clyde Road were then calculated to be 432 minutes and 463 minutes per day, respectively. WACJV notes that the closures resulting from the amended project represent less than 3% of the existing closure times. WACJV indicates that the majority of train cycles are unlikely to affect peak morning and afternoon traffic on St James Road and Clyde Street. The amended project requires fewer train cycles per day and this would reduce predicted closure times at each crossing by up to 11 minutes per day. The Cobbora Coal Project is no longer proposed to be developed and WACJV notes that this may result in a further reduction to cumulative closure times.

Roads

To accommodate the amended project conveyor and rail infrastructure, WACJV requires to use parts of the road reserve for Nikko Road. At the northern end, the rail siding would be within the existing rail corridor. The rail siding then angles east into Nikko Road, continuing to the south along Nikko Road. All train loading infrastructure would be located on Nikko Road.

WACJV has lodged with the RMS a road closure application for a section of Nikko Road. Closure would be followed by purchase of the land from DPI Crown Lands. Together, this would constitute a change in the status of the land from a Crown road to private land owned by WACJV. The community raised concerns in respect of this road closure commenting that it would impact upon property access particularly during flooding events or bushfire evacuations (see **Section 4.4** and **Section 5.9**).

Darkinjung LALC also raised concerns over the project's dependence on a successful road closure application for Nikko Road (see **Table 4**). WACJV maintains that the road closure application is not relevant to the determination of the amended project as the consent authority has no involvement in the road closure process and there are alternative options to secure Nikko Road should the closure application be unsuccessful. As stated in **Section 3.4** and **Table 4**, the Department agrees that the road closure application does not limit determination of the project and that conditions of consent would require all other necessary approvals to be in place before any works commenced.

The Department notes that the proposed infrastructure on Nikko Road has been designed so that existing physical and legal access is maintained to all privately-owned lots with frontages to Nikko Road. WACJV has committed to developing an all-weather road with a minimum width of six metres along the section of Nikko Road subject to the closure application (see **Figure 21**).

The road would be adjacent to the proposed rail siding and bin feed conveyor and would allow for safe access to adjoining landowners, emergency services, Council and railway staff and utility providers. The Department notes that the lots to the north of the Motorway Link Road are legally accessible via Thompson Vale Road, Spring Creek Road and Wyee Road. Thompson Vale Road is a formed road and is therefore considered to be the primary access road to these lots, as opposed to the largely unformed Nikko Road and Spring Creek Road.

Development by WACJV on Nikko Road to the south of the Motorway Link Road would involve installation of a sewage pipeline. The pipeline would be installed so as not to impede access to the lots with frontage along Nikko Road. To provide third parties with legal access to this section of road, WACJV has committed to registering an easement over this land.

The Department notes that the proposed all-weather access road would in fact provide improved access to adjacent landowners as Nikko Road is currently unformed and vegetated. The existing road is also intersected by Spring Creek and may be impassable during times of high creek flow or flooding. The proposed bridges and culverts over Spring Creek and its tributaries would also improve access.

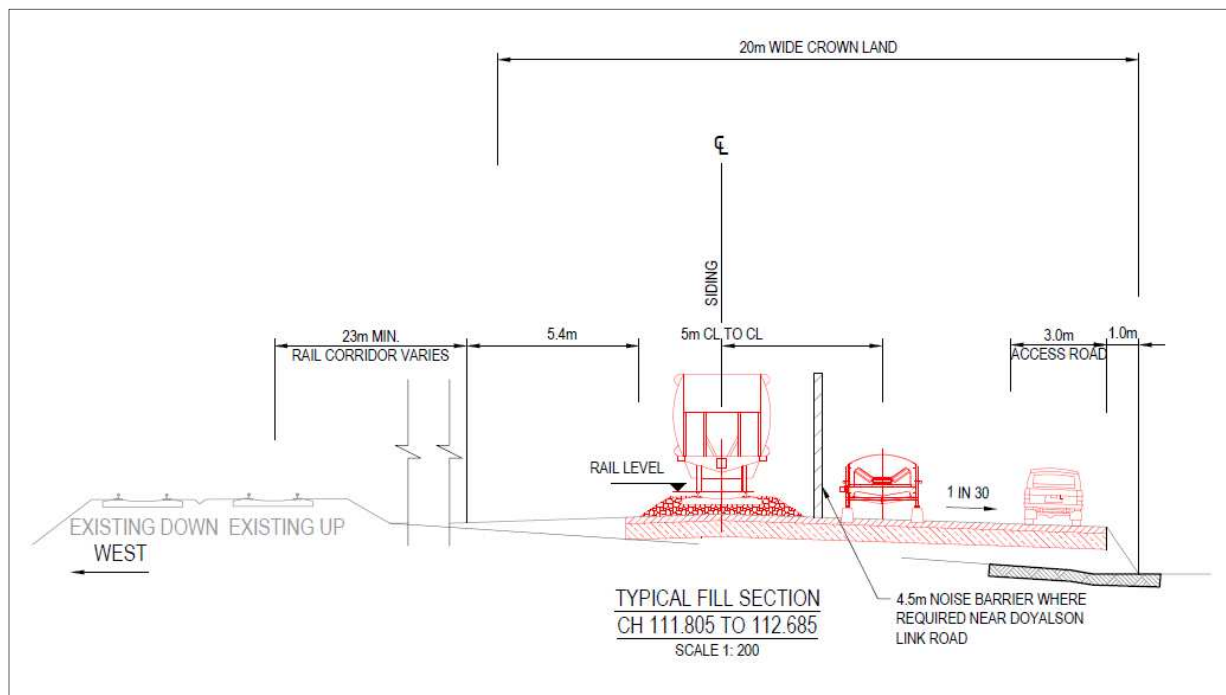


Figure 21: Rail siding section showing proposed access road

WACJV also requires access to a section of the Motorway Link Road reserve to construct the overland conveyor, which would pass over the Main Northern Rail Line beside the Motorway Link Road Bridge. WACJV has been consulting with RMS over access to this road reserve.

Parking Facilities at Nikko Road

Darkinjung LALC raised concerns about parking facilities and accommodating maintenance and emergency vehicle access at Nikko Road (**Table 4**). The Amended EIS states that, during construction, workers would be transported to the Nikko Road site by bus, thereby reducing traffic on local roads and eliminating the need for on-site parking. During operations, the conveyor at this

location would be controlled remotely and therefore permanent parking would not be required. Parking for maintenance and emergency vehicles would be accommodated by a six metre wide area immediately north of the train load out facility. The Department is satisfied that there would be adequate space to accommodate the site's limited ongoing parking requirements.

Gosford Road Access

During construction at Nikko Road, WACJV proposes to access the site via Gosford Road (see **Figure 22**) at the northern end of the rail siding. Darkinjung LALC is concerned with the viability of this proposal due to existing structures and limited space available (see **Table 4**). Access from Gosford Road during construction is proposed by WACJV for a variety of reasons. Preliminary construction assessments completed by WACJV have identified Gosford Road as the best entry point for Nikko Road. Construction workers would be transported to Nikko Road via Gosford Road to reduce traffic impacts on local roads and the requirements for on-site parking. WACJV notes that sites with tighter access and restrictions (eg in Metropolitan Sydney) are successfully controlled by implementing various straightforward traffic management measures. WACJV would ensure all licences, permits and approvals for construction are obtained.

The Department considers that using Gosford Road as an access point would provide a reduction in traffic on local roads and the preparation and implementation of a Traffic Management Plan would adequately manage site access.

Access to Darkinjung LALC-owned Land

Darkinjung LALC has repeatedly stated that the amended project would have 'serious adverse impact' on its economic development opportunities, particularly resulting from the proposed closure of Nikko Road and potential loss of access to its lands. The RTS2 specifically discusses the options for access to Darkinjung LALC land. WACJV has advised that the proposed infrastructure on Nikko Road has been designed so that physical access to these lots is maintained (see **Figure 22**). Further, it notes that the lots to the north of the Motorway Link Road are legally accessible via Thompson Vale Road, Bushells Ridge Road, Spring Creek Road and Wyee Road.

As discussed above, WACJV proposes to construct an all-weather access road over a 1.5 km length of Nikko Road to the north of the Link Road overbridge, which would replace an existing dirt track less than 300 m in length. The Department considers that this new road would in fact provide a connection between Darkinjung LALC lands that does not currently exist.

It is also noted that access to the south of the Link Road Bridge would remain restricted by the current envelope between the bridge supports. In this respect, access to these particular lands would neither increase nor decrease as a result of the project. Further, as set out in **Table 4**, TfNSW has advised that the construction of a rail loading facility to the east of the Main Northern Railway Line would also not preclude further rail connections to Darkinjung LALC's industrial land to the west of the railway.

5.4.4 Mitigation and Management

WACJV has conceptually designed the rail siding in accordance with Sydney Trains' and ARTC's train loading guidelines and would continue to consult on the detailed design of the rail siding to ensure all safety requirements are met.

WACJV has also committed to preparing a Signalling Functional Specification to the satisfaction of TfNSW, RailCorp and Sydney Trains and acknowledges that approval from RailCorp and Sydney Trains is required for all third party connections to the Main Northern Rail Line.

WACJV has committed to a request from RMS that it undertakes a risk assessment in accordance with the requirements of the draft RMS *Technical Guide to Mine Risk Assessment IAM-AM-TP1-160-G01* for works within the road corridors.

5.4.5 Conclusions

The Department acknowledges that continued consultation between WACJV and Sydney Trains, TfNSW, ARTC and RMS is required but is satisfied that the operational transport requirements of the amended project could be suitably managed. The amended project would maintain and provide improved access to adjacent landowners through the construction of an all-weather road adjacent to the rail siding. It would have a minimal impact on level crossing road closures. The Department is satisfied that adequate access would continue to be available to all land adjacent to Nikko Road (including the Darkinjung LALC's landholdings) and that the works proposed by WACJV would actually improve access conditions compared with current conditions.

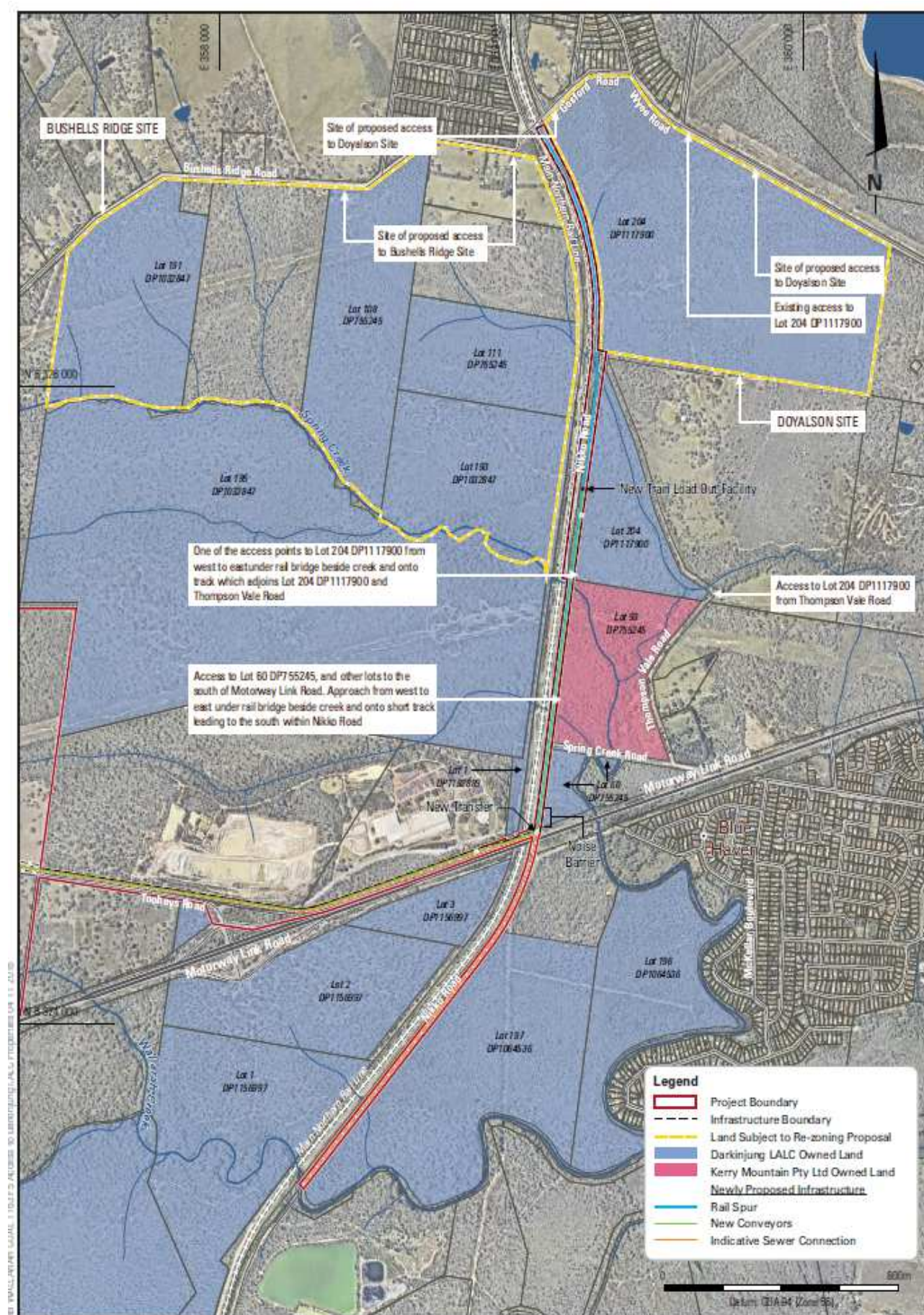


Figure 22: Access to Darkinjung LALC properties as proposed under the amended project

The Department recommends conditions of consent requiring monitoring of coal volumes transported from the site and times of coal train movements, in addition to preparation and implementation of a Traffic Management Plan to minimise traffic impacts during construction of the surface facility sites and the infrastructure proposed as part of the amended project.

5.5 Biodiversity

5.5.1 Introduction

The vegetation in the overall project area generally consists of a mixture of mature and regenerating forest and woodland communities, and cleared floodplain lands comprising grassland with some areas of wetland and riparian vegetation. The cleared floodplain lands have been substantially altered by clearing for agricultural uses, and are dominated by exotic agricultural species.

The EIS for the original project included an Ecological Impact Assessment (EIA) undertaken by Cumberland Ecology, which included a desktop review of previous studies and detailed flora and fauna surveys within the project area and surrounds. The amended development application included an Addendum EIA also undertaken by Cumberland Ecology. The amended development application assesses the ecological impacts of the amended project and where necessary recommends additional management and mitigation measures to ameliorate these impacts. Aspects of the project that remain unchanged have not been reconsidered.

Consequently, the Department's assessment focuses on the potential ecological impacts associated with the amended project. The Addendum EIA study area commences with WACJV's lands at the original project, continues eastward through land managed by Boral before turning north onto a Crown road (Nikko Road) and continuing along the rail corridor north of Nikko Road. Additional lands within the study area occur to the south of Nikko Road and are also within the application area for the amended project (see **Figures 23 and 24**).

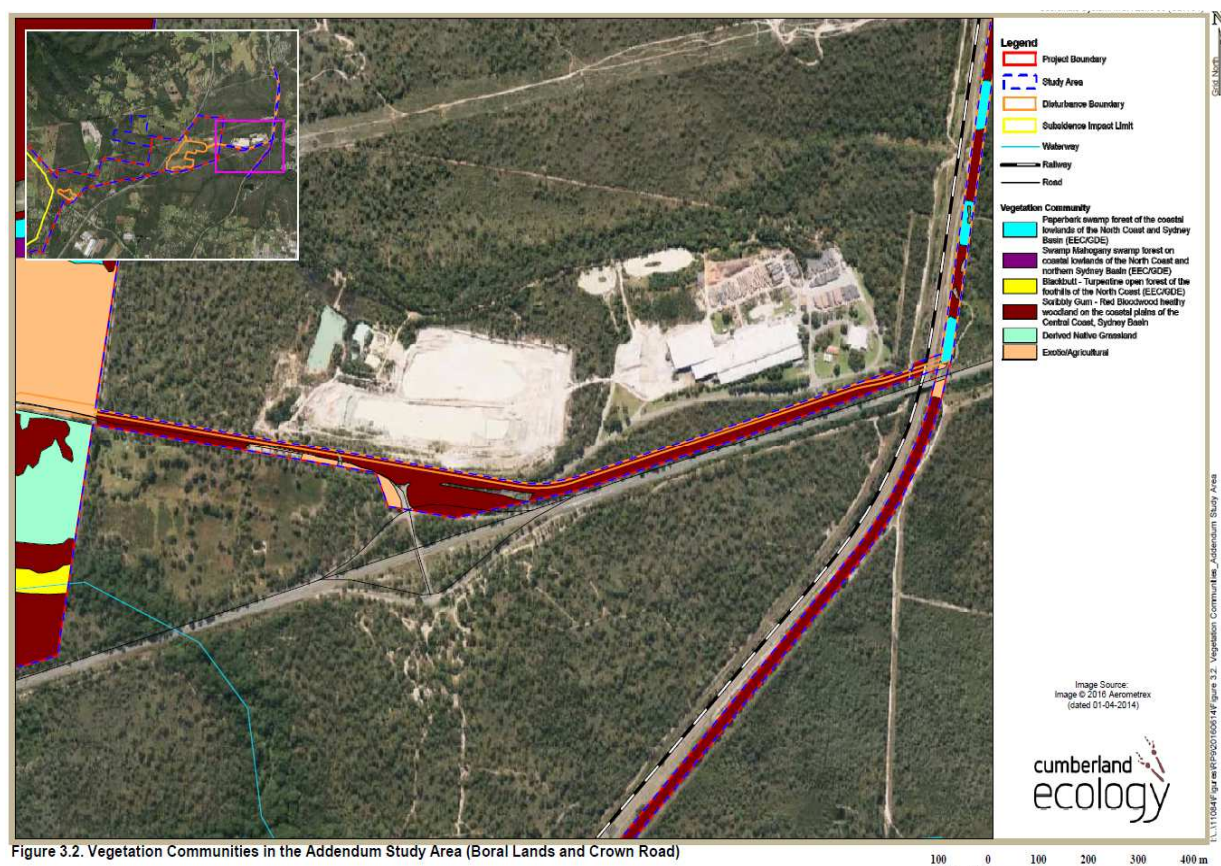


Figure 3.2. Vegetation Communities in the Addendum Study Area (Boral Lands and Crown Road)

Figure 23: Vegetation communities in the addendum study area (Boral lands and Crown road)

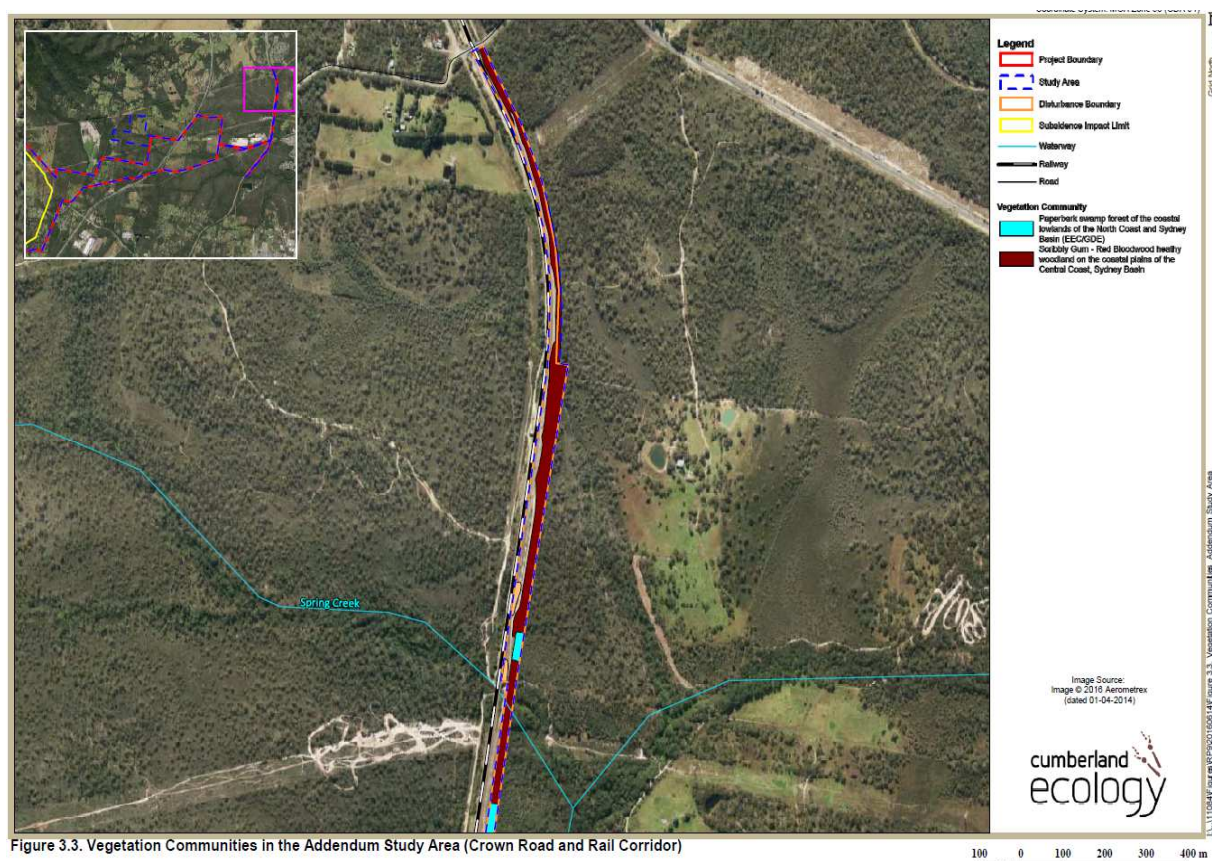


Figure 3.3. Vegetation Communities in the Addendum Study Area (Crown Road and Rail Corridor)

Figure 24: Vegetation communities in the addendum study area (Crown road and rail corridor)

5.5.2 Assessment of Impacts

Threatened Flora

The EIA for the original project identified over 450 flora species within the overall project area, with six of these being listed as threatened species under the *Threatened Species Conservation Act 1995* (TSC Act) and/or the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). These comprise Bynoe's Wattle, Charmhaven Apple, Leafless Tongue Orchid, Small-flower Grevillea, Biconvex Paperbark and Black-eyed Susan.

The Addendum EIA identified approximately 210 flora species within its study area, with the Charmhaven Apple being the only threatened species recorded. Black-eyed Susan, Bynoe's Wattle and Leafless Tongue Orchid were not recorded but are considered likely to occur within the amended project study area as they have previously been recorded within the Scribbly Gum Woodland which is the dominant vegetation community in the vicinity of the amended project. There are two endangered ecological communities (EECs) listed under the TSC Act present at the proposed Tooheys Road Site.

Two biometric vegetation communities (*Paperbark swamp forest of the coastal lowlands of the North Coast and Sydney Basin* and *Swamp Mahogany swamp forest on coastal lowlands of the North Coast and northern Sydney Basin*) conform to the *Swamp Sclerophyll Forest on Coastal Floodplains EEC* listed under the TSC Act. The EIA and Addendum EIA both consider that the local Riparian Blackbutt community present at the Tooheys Road site is best described as the *Blackbutt – Turpentine open forest of the foothills of the North Coast* biometric vegetation community. While this community as a whole is not associated with any EEC, the local Riparian Blackbutt community (which is considered regionally significant) nonetheless does conform to the TSC Act's definition of *River-flat Eucalypt Forest on Coastal Floodplains EEC*. Therefore the two EIAs took a conservative approach and this local community was treated as this EEC (see **Table 9**).

Council's submission raised concerns that surveys in the Addendum EIA were not completed during the optimal survey period and did not follow its *Council Flora and Fauna Survey Guidelines* (2014). All flora species referred to in Council's submission are listed under the TSC Act. WACJV informed of its proposed survey effort and desktop assessments for such threatened flora species during a meeting in March 2016. The Department notes that OEH did not raise similar concerns in its submission. Furthermore, DoEE also did not raise concerns about the survey effort and is satisfied with the

assessments conducted for threatened species, including threatened orchid species, listed under the EPBC Act.

Threatened Fauna

A suite of native fauna species have been recorded during surveys for the original project (see Appendix G of the original project EIS). No additional native fauna species were recorded during surveys for the amended project.

Aquatic Species and Habitat

No threatened or protected aquatic species have been recorded in the locality of the project; however the lower reaches of Spring Creek, including the location of the proposed rail siding, are mapped as key fish habitat.

5.5.3 Avoidance, Mitigation and Management

Reduced Impacts

The total surface disturbance required for the overall project would decrease from 103 ha to 76 ha as a result of the amended project, which represents a reduction of 26%. The amended project would reduce disturbance associated with the Tooheys Road Site from 89 ha to 63 ha, which represents a reduction of 29%.

Of the two EECs present at the Tooheys Road Site, the amended project would significantly reduce disturbance to the *Swamp Sclerophyll Forest on Coastal Floodplains EEC* from 2.85 ha to 0.63 ha, which represents a reduction of 78%. The amended project would also reduce disturbance to the *River-flat Eucalyptus Forest on Coastal Floodplains EEC* from 5.86 ha to 5.42 ha, which represents a reduction of 8%. The removal of the previously proposed rail loop results in the avoidance of impacts to areas containing high densities of Charmhaven Apple.

The changes in disturbance areas to vegetation communities as a result of the amended project are outlined in **Table 9**.

Table 9: Reduction in vegetation disturbance due to the amended project

Vegetation community	Area of disturbance (ha)		
	Original project	Amended project	Difference
<i>Blackbutt – Turpentine open forest of the foothills of the North Coast**</i>	5.86	5.41	-0.45 (7.7%)
<i>Paperbark swamp forest of the coastal lowlands of the North Coast and Sydney Basin*</i>	1.08	0.63	-0.45 (41.7%)
<i>Swamp Mahogany swamp forest on coastal lowlands of the North Coast and northern Sydney Basin*</i>	1.77	0.00	-1.77 (100%)
<i>Phragmites australis and Typha orientalis coastal freshwater wetlands of the Sydney Basin *</i>	0.00	0.00	0.00 (0%)
<i>Rough-barked Apple – red gum grassy woodland of the MacDonald River Valley on the Central Coast, Sydney Basin *</i>	0.00	0.00	0.00 (0%)
<i>Spotted Gum – Broad-leaved Ironbark grassy open forest of dry hills of the lower Hunter, Sydney Basin *</i>	4.47	4.47	0.00 (0%)
<i>Woollybutt – Paperbark sedge forest on alluvial plains of the Central Coast, Sydney Basin *</i>	0.00	0.00	0.00 (0%)
<i>Coachwood – Crabapple warm temperate rainforest of the North Coast and northern Sydney Basin</i>	0.00	0.00	0.00 (0%)
<i>Mountain Blue Gum – Turpentine moist shrubby open forest of the coastal ranges of the Central Coast, Sydney Basin</i>	1.69	1.69	0.00 (0%)
<i>Scribbly Gum – Red Bloodwood heathy woodland on the coastal plains of the Central Coast, Sydney Basin</i>	33.81	28.13	-5.68 (16.8%)
<i>Smooth-barked Apple – Red Bloodwood open forest on coastal plains on the Central Coast, Sydney Basin</i>	3.77	2.26	-1.50 (39.8%)
<i>Spotted Gum – Grey Ironbark open forest on the foothills of the Central Coast, Sydney Basin</i>	0.81	0.81	0.00 (0%)
Derived Native Grassland	7.25	6.01	-1.24 (17.1%)
Exotic/Agricultural/Low Diversity Grassland	27.99	25.64	-2.22 (7.9%)
Water/Farm Dam	0.58	0.51	-0.07 (12.1%)
Cleared	13.89	0.69	-13.21 (95.1%)
Total EEC vegetation	13.18	10.51	-2.67

			(20.2%)
Total native vegetation	60.51	49.42	-11.10 (18.3%)
Total vegetation	88.51	75.19	-13.32 (15.0%)
Total area	102.98	76.38	-26.60 (25.8%)

* Conforms to EEC listed under the TSC Act

** Local expression (Riparian Blackbutt community) conforms to EEC listed under the TSC Act

There are no other changes in the proposed areas of disturbance for the other EECs within the project boundary. Overall, the Department is satisfied that the amended project results in less or equal disturbance for all vegetation communities. This has the consequent effect of less impact to potential habitat for flora and fauna species, including threatened and migratory species.

Furthermore, as discussed in **Section 5.6**, the amended project no longer requires crossings of Wallarah Creek and its tributaries, thereby avoiding the removal of 0.45 ha of riparian vegetation along Wallarah Creek. The proposed location of the rail siding on the eastern side of the Main Northern Rail Line would also avoid impacts to 0.45 ha of riparian vegetation along the reaches of Spring Creek west of the Main Northern Rail Line (when compared to the original project).

The Department notes that the amended project would still require four crossings of Spring Creek and its tributaries (see **Section 5.6**); however the creek channels at these locations have previously been modified due to the existing rail crossings. The Department is satisfied that the impacts of re-locating the rail siding are substantially outweighed by the benefits of avoiding the previously proposed crossings of Wallarah Creek and Spring Creek.

Regardless of these reduced impacts, WACJV proposes to implement the following mitigation and management measures:

- pre-clearance surveys, including translocation of fauna where practicable;
- vegetation clearance protocols;
- ecological monitoring;
- weed and pest control; and
- rehabilitation.

The Department notes that a number of indirect impacts on biodiversity were assessed as part of the original project, including subsidence, noise, light, vehicle strike, erosion, drainage to Wallarah Creek, and weeds and feral animals. The Department does not consider that the amended project would significantly change the nature of these indirect impacts, and some of them are likely to be reduced as a result of the different footprint of the amended project.

5.5.4 Offsets

WACJV has previously proposed a Biodiversity Offset Strategy to compensate for the project's residual impacts on biodiversity. The offsets proposed for the original project have been largely retained for the amended project, with the exception of a small area (parts of Lot 102 DP 755245 and Lot 103 DP 755245) within the Tooheys Road Southern Offset Area, which would now be required for the amended project. The Department notes that vegetation in this area is predominantly derived native grassland.

Of greater significance is that the offset ratios for all vegetation communities have increased as a result of the lower areas of disturbance, as discussed in **Section 5.5.3**. The Department is satisfied that, due to the reduced area of disturbance, offset ratios for flora and fauna habitat would improve under the amended project. A comparison of the offset ratios for the original and amended projects is provided in **Table 10**.

Table 10: Improvements in offset ratios for vegetation communities

Formation	Vegetation community	Original project			Amended project		
		Impact area (ha)	Offset area (ha)	Offset ratio	Impact area (ha)	Offset area (ha)	Offset ratio
Wet Sclerophyll Forests (Grassy sub-formation)	Blackbutt – Turpentine open forest of the foothills of the North Coast	5.9	16.9	2.9	5.4	16.9	3.1
Wet Sclerophyll Forests	Mountain Blue Gum – Turpentine moist shrubby	1.7	0.0	0.0	1.7	0.0	0.0

(Shrubby sub-formation)	open forest of the coastal ranges of the Central Coast, Sydney Basin						
Subtotal for Wet Sclerophyll Forests		7.6	16.9	2.2	7.1	16.9	2.4
Dry Sclerophyll Forests (Shrubby sub-formation)	Scribbly Gum – Red Bloodwood heathy woodland on the coastal plains of the Central Coast, Sydney Basin	33.8	39.8	1.2	28.1	39.5	1.4
Dry Sclerophyll Forests (Shrubby sub-formation)	Smooth-barked Apple – Red Bloodwood open forest on coastal plains on the Central Coast, Sydney Basin	3.8	74.0	19.6	2.3	74.0	32.7
Dry Sclerophyll Forests (Shrubby sub-formation)	Derived Native Grassland	7.3	11.0	1.5	6.0	10.6	1.8
Dry Sclerophyll Forests (Shrub/grass sub-formation)	<i>Spotted Gum – Broad-leaved Ironbark grassy open forest of dry hills of the lower Hunter, Sydney Basin *</i>	4.5	55.4	12.4	4.5	55.4	12.4
Dry Sclerophyll Forests (Shrub/grass sub-formation)	<i>Spotted Gum – Grey Ironbark open forest on the foothills of the Central Coast, Sydney Basin</i>	0.8	0.0	0.0	0.8	0.0	0.0
Subtotal for Dry Sclerophyll Forests		50.1	180.2	3.6	41.7	179.5	4.3
Forested Wetlands	<i>Paperbark swamp forest of the coastal lowlands of the North Coast and Sydney Basin*</i>	1.1	3.9	3.6	0.6	3.9	6.2
Forested Wetlands	<i>Rough-barked Apple – red gum grassy woodland of the MacDonald River Valley on the Central Coast, Sydney Basin *</i>	0.0	0.4	N/A	0.0	0.4	N/A
Forested Wetlands	<i>Swamp Mahogany swamp forest on coastal lowlands of the North Coast and northern Sydney Basin *</i>	1.8	6.3	3.6	0.0	6.3	N/A
Subtotal for Forested Wetlands		2.9	1.6	3.7	0.6	10.6	16.8

*listed under the TSC Act

Similar improvements can be seen in offset ratios for flora and fauna habitat.

5.5.5 Matters of National Environmental Significance

The proposed action (ie the project) has been deemed as a Controlled Action under the EPBC Act by DoEE for the Charmhaven Apple and Black-eyed Susan (listed as vulnerable), and Spotted-tailed Quoll and Giant Barred Frog (listed as endangered).

The original project EIA addresses potential impacts to Matters of National Environmental Significance, as listed under the EPBC Act, including Assessments of Significance, in accordance with the EPBC Act's Significant Impact Criteria. These tests were undertaken as a risk assessment tool to determine which listed threatened flora and fauna species may be most at risk from the project.

Charmhaven Apple (*Angophora inopina*) was recorded in large numbers in the eastern area of the proposed action, with this species likely to be affected by means of vegetation clearing for surface infrastructure (ie the original project). Black-eyed Susan (*Tetratheca juncea*) was also recorded in the eastern area of the proposed action in areas marked for vegetation clearance.

The amended project would result in an approximately 30% decrease in the area of vegetation to be cleared from the Tooheys Road Site (from 89 ha to 63 ha). This includes a reduction of 0.45 ha of *River Flat Eucalypt Forest EEC* and 2.22 ha of *Swamp Sclerophyll Forest EEC* to be cleared. The reduction in vegetation clearing also results in an approximately 30% decrease in the loss of habitat for native flora and fauna, including threatened species. More specifically, the amended project would result in a decrease in direct disturbance from 40.4 ha to 31.0 ha for the Charmhaven Apple and from 48.7 ha to 41.1 ha for the Black-eyed Susan.

Overall the Department is satisfied that the amended project has resulted in a significant reduction in the numbers of Charmhaven Apple and Black-eyed Susan individuals to be removed. Subsequently, the amended project would also result in an increase in the ratio of the two species to be conserved in the proposed offset areas.

The Spotted-tailed Quoll was not recorded during fauna surveys but has been historically recorded within the project area. The species is likely to occur in low densities throughout forest and woodland areas and could be affected by vegetation clearing. The original project would have resulted in removal of approximately 48.4 ha of habitat for this species, mostly comprising *Scribbly Gum – Red Bloodwood Woodland* and *Spotted Gum – Broadleaved Ironbark Woodland*. In addition, approximately 2725.8 ha of potential habitat could be impacted by subsidence. The impacts of subsidence are considered to be minor and have been previously assessed in the PAR.

The Assessment of Significance concluded that, with the implementation of the proposed mitigation and offset measures, the proposed action would not result in a significant impact to the Spotted-tailed Quoll. **Table 10** indicates that direct disturbance to potential habitat of the Spotted-tailed Quoll would be reduced, or remain similar to, that under the original project (ie 43.4 ha compared to 48.4 ha). Regardless of the reduction in disturbance area, large areas of known and potential habitat remain in close vicinity to the proposed action, including the Jiliby State Conservation Area, Wyong State Forest and Ourimbah State Forest. The Department also notes that the subsidence impact area would continue to provide potential habitat for this species and that the small area proposed to be cleared is unlikely to place the species at risk of local extinction. The proposed Biodiversity Offset Strategy would also result in the further protection of approximately 118.8 ha of potential habitat for this species.

The Giant Barred Frog is known to occur within the proposed action area. The species would not be greatly directly impacted by the proposed action. Direct impacts include the removal of approximately 1.7 ha of *Mountain Blue Gum – Turpentine Moist Shrubby Open Forest* that is known to provide habitat for this species (see **Table 10**). A further 1040.7 ha of this community occurs in the potential subsidence impact zone and may be subject to minor levels of subsidence; however this is not expected to directly impact on habitat for this species. The Department notes that impacts expected to occur on waterways as a result of the project would be minimal (see Section 5 of the PAR) and that therefore breeding habitat for this species is highly unlikely to be affected. Furthermore, no fragmentation of habitat is expected to occur, with significant areas of suitable native vegetation being provided in the proposed offset areas.

The adequacy of the Biodiversity Offset Strategy was assessed in accordance with the *EPBC Act Environmental Offsets Policy* (DSEWPaC, 2012). The policy requires that direct offsets must satisfy at least 90% of the offset requirement for listed species under the EPBC Act. As shown in **Table 11**, the proposed Biodiversity Offset Strategy satisfies the offset requirements for all listed species that have potential to be impacted by the project.

Table 11: Adequacy of offsets for impacts to EPBC Act listed species

Listed species	Percentage of required offsets provided by the Biodiversity Offset Strategy	
	Original project	Amended project
Charmhaven Apple	137.0%	192.8%
Black-eyed Susan	202.8%	248.3%
Giant Barred Frog	91.5%	122.2%
Spotted-tailed Quoll	101.6%	186.9%

Other listed species of interest to DoEE include Bynoe's Wattle (Vulnerable); Leafless Tongue Orchid (Vulnerable); Small-flower Grevillea (Vulnerable); Biconvex Paperbark (Vulnerable); Australasian Bittern (Endangered); Grey-headed Flying Fox (Vulnerable); Large-eared Pied Bat (Vulnerable); Littlejohn's Tree Frog (Vulnerable); and Stuttering Frog (Vulnerable). Assessments of Significance for these species were provided in the original project EIS. Overall, it was concluded that the proposed action is unlikely to have a significant impact on these species and it is highly unlikely to place any of these species at risk of local extinction.

The Department notes that this remains a preliminary assessment report, albeit an addendum report, and is not a final report for the Commission's determination. The Department's final assessment report to be submitted to the Commission and the Commonwealth Minister for the Environment for determination may address Matters of National Environmental Significance in further detail.

5.5.6 Conclusion

Overall, the Department is satisfied that the amended project results in equal or reduced disturbance to all affected vegetation communities. This has the consequent effect of less impact to potential habitat for flora and fauna species, including threatened and migratory species. The Department is also satisfied that the impacts of re-locating the rail siding are substantially outweighed by the benefits of avoiding the previously proposed crossings of Wallarah Creek.

Nevertheless, the Department has proposed a condition of consent requiring WACJV to prepare and implement a Biodiversity Management Plan for the development prior to the construction of the surface facilities sites. The Biodiversity Management Plan must:

- describe how the implementation of the biodiversity offset strategy would be integrated with the overall rehabilitation of the site;
- establish baseline data for the existing habitat in the offsite biodiversity offset area, including vegetation condition and threatened species habitat;
- describe the short, medium, and long term measures that would be implemented to:
 - o manage impacts of clearing vegetation, including pre-clearance surveys;
 - o manage remnant vegetation and habitat in the offset areas and on the site; and
 - o implement the biodiversity offset strategy, including detailed performance and completion criteria;
- include a detailed description of the measures that would be implemented to minimise the impacts to fauna on site, control weeds and feral pests, manage salinity, control erosion, control access and manage bushfire risk; and
- include a seasonally-based program to monitor and report on the effectiveness of these measures, and progress against the detailed performance and completion criteria; and
- identify the potential risks to the successful implementation of the biodiversity offset strategy, and include a description of the contingency measures that would be implemented to mitigate these risks.

The Department has also proposed a condition of consent requiring that the offsets are permanently protected by an appropriate mechanism such as a BioBanking Agreement, incorporation into a nearby State conservation area, or a Voluntary Conservation Agreement under the *National Parks and Wildlife Act 1974*.

5.6 Water Resources

5.6.1 Introduction

The amended project does not involve any changes to the underground mining aspects of the project or the proposed water management system at either surface facility. The amended project would not alter the predicted rates of mine inflow or seepage from shallow groundwater systems. Consequently, the focus in this section is the potential water-related impacts of the amended project.

The proposed infrastructure for the amended project is predominantly located within the catchment of Spring Creek. The amended development application included a Spring Creek Flood Impact Assessment, undertaken by G Herman & Associates, to assess the potential flooding impacts that may result from the construction of the rail siding.

Hydrological modelling using the DRAINS software model was used to determine flood flows in Spring Creek. Flows were calculated for both the 1% Annual Exceedance Probability (AEP) storm event (ie 1 in 100 year flood) and the Probable Maximum Flood (PMF). Hydraulic modelling was undertaken using the HEC-RAS model to determine flood levels based on modelled flows for the 1% AEP and PMF events. The hydraulic modelling was undertaken for Spring Creek under existing conditions (ie without the rail siding) and after construction of the rail siding.

5.6.2 Water Licensing

The amended project is located within the Sydney Basin-North Coast Groundwater Source. The *North Coast Groundwater Water Sharing Plan* applies to most groundwater in the project area. However, the alluvial aquifers associated with Jilliby Jilliby Creek and Wyong River are subject to the *Central Coast Unregulated Water Sharing Plan*, which covers alluvial aquifers in unconsolidated sediments of Quaternary and Tertiary age.

As discussed in **Section 4.3**, the Department has proposed a condition of consent requiring WACJV to ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of mining operations to match its available water supply. In addition, under the *Water Act 1912* and/or the *Water Management Act 2000*, WACJV is required to obtain all necessary water licences for

the development. WACJV would therefore be required to obtain all necessary water licences to account for any water take from the amended project.

5.6.3 Assessment of Impacts

Spring Creek has a total catchment area of 11.5 km² upstream of the Motorway Link Road. The rail siding would cross over Spring Creek and two of its tributaries. The four creek crossings would be immediately adjacent to the corresponding bridges along the Main Northern Rail Line. The Motorway Link Road acts as a hydraulic control for Spring Creek, meaning that the amended project would not have any flooding impacts on Spring Creek downstream of the Motorway Link Road.

The modelling predicts that the amended project would not result in any measurable changes to flood flows in the Spring Creek catchment. The potential impacts of the amended project would occur through impediments to flow, rather than changes to flow volumes. The key locations within the Spring Creek catchment are therefore the locations of the interactions of Spring Creek and its tributaries with the existing and proposed rail infrastructure. DRAINS modelling determined that the critical storm duration is 2 hours for all key locations. The modelled flows for the 1% AEP flood and PMF at these key locations are presented in **Table 12**.

Table 12: Predicted flood flows

Location	1% AEP Flow (m ³ /s)	PMF Flow (m ³ /s)
Bridge 1 (southern tributary)	59.10	310.0
Bridge 2 (Spring Creek)	61.10	278.0
Culvert 1 (northern tributary)	25.80	93.1*
Culvert 2 (northern sub-tributary)	8.71	30.4*
Motorway Link Road	204.00	1,228.0

*includes flow over rail embankment

The hydraulic model used to predict potential flooding impacts found that construction of the rail siding could result in very minor increases in flood levels at the two bridge crossings over Spring Creek and its southern tributary. For a 1% AEP event, the height of the flood levels at the two bridges are predicted to increase by 0.01 m and 0.03 m. The assessment concludes that the freeboard to the existing rail infrastructure is sufficient to accommodate these minor increases in flood levels. For this reason, the Department is satisfied that the construction of the rail siding would not result in inundation of the Main Northern Rail Line during a 1% AEP event.

The modelling also showed that the two northern culverts have sufficient capacity to convey the 1% AEP flows. However, the modelling results indicate that the culverts do not have sufficient capacity to convey the PMF flows. The Department notes that such inundation would occur regardless of whether or not the rail siding is constructed adjacent to the Main Northern Rail Line. In other words, the Main Northern Rail Line would experience significant inundation during a PMF under existing conditions.

A small section of the proposed conveyor system is located within the Wallarah Creek catchment. The proposed conveyor system would not affect the volume of runoff in the Wallarah Creek catchment. The previously proposed rail loop also required four crossings of Wallarah Creek and its tributaries, whereas the amended project removes the requirement for these crossings, thus avoiding these potential impacts to Wallarah Creek.

Council noted that WACJV did not provide any specific details on the proposed bridge designs, making it difficult for Council to gauge the robustness of the flood modelling. Nevertheless, Council noted that it appears that the amended project would not significantly affect the flood patterns in the area and recommended that the final design of any structure be prepared in consultation with DPI Water to ensure limited impact on the riparian corridor. WACJV has committed to designing the crossings of Spring Creek and its tributaries so that the impacts on flood regimes are within the predictions of the flood modelling. It has also committed to consulting with the appropriate regulatory authorities during the detailed design phase. Overall, the Department is satisfied that the creek crossings for the rail siding would be designed so that there is minimal impact on the flood regime of Spring Creek.

5.6.4 Avoidance, Management and Mitigation

Firstly, the Department notes that the re-design of the rail infrastructure has resulted in fewer interactions with watercourses and associated riparian vegetation. The rail loop and spur for the original project required four crossings of Wallarah Creek and its tributaries and three crossings of Spring Creek (and its tributaries). By comparison, the rail siding for the amended project only requires

four crossings of Spring Creek and its tributaries, which are located directly adjacent to the existing crossings for the Main Northern Rail Line.

The predicted increases in flood levels during a 1% AEP flood are very minor, and would not result in inundation of the railway line. The Department is satisfied that the freeboard to the existing rail infrastructure is sufficient to accommodate these minor increases in flood levels. As such, specific measures to manage flood levels are not considered necessary for the amended project. Nevertheless, WACJV notes that re-grading or lining of the stream can be implemented (if necessary) to counterbalance the potential minor increases in flood levels.

WACJV has also committed to implementing appropriate erosion and sediment controls during construction and operation of the proposed rail infrastructure. This would include installation of diversion bunds and swales so that all runoff is directed to sediment basins and pollution control devices. This would ensure that there are no opportunities for untreated discharges to Spring Creek.

5.6.5 Conclusion

The Department has recommended a number of comprehensive water-related conditions which would be applicable to both the unchanged components of the original project and the amended project. This has included a new recommendation for an Erosion and Sediment Control Plan as part of the Water Management Plan for the site.

Under the draft conditions of consent, WACJV would be required to prepare a Water Management Plan in consultation with DPI Water, Fisheries NSW and the EPA. This plan must be prepared and approved prior to the commencement of construction of the surface facilities sites, including the rail siding and conveyors.

The Department has also recommended specific performance measures for the construction and operation of linear infrastructure (including the conveyors and rail siding) that WACJV would have to comply with. These performance measures require WACJV to:

- design, install and maintain erosion and sediment controls generally in accordance with the series *Managing Urban Stormwater: Soils and Construction* including *Volume 1*, *Volume 2A – Installation of Services* and *Volume 2C – Unsealed Roads*;
- design, install and maintain the infrastructure within 40 m of watercourses generally in accordance with the *Guidelines for Controlled Activities on Waterfront Land* (DPI 2007), or its latest version; and
- design, install and maintain creek crossings generally in accordance with the *Policy and Guidelines for Fish Friendly Waterway Crossings* (NSW Fisheries, 2003) and *Why Do Fish Need To Cross The Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003), or their latest versions.

DPI Water recommended that WACJV ensure all works on waterfront land are consistent with its *Guidelines for Controlled Activities on Waterfront Land*. WACJV notes that the project, being SSD, is exempt from requiring a controlled activity approval under Section 89J of the EP&A Act. Nevertheless, as the proposed conveyor and rail infrastructure under the amended project would be developed within 40 m of Wallarah Creek and Spring Creek, the Department has recommended an additional performance measure to this effect (as compared to the original project).

Subject to the conditions above, the Department is satisfied that the amended project would have minimal, if any, impacts on flooding behaviour and surface waters within the vicinity of the proposed amended project.

5.7 Socio-Economic

5.7.1 Original Project – Overview

The Department's PAR included a discussion of the socio-economic assessment completed for the original project. The PAR noted that the original project would result in a range of very significant economic benefits to the Wyong LGA, the Central Coast region, the State of NSW and to Australia. The EIS's Economic Impact Assessment contained an Input-Output Model (IOM) which predicted the following benefits to the regional economy:

- \$625 million in direct and indirect regional output;
- \$79 million in household income; and
- 805 direct and indirect jobs.

The IOM also predicted the following benefits to the NSW economy:

- \$900 million in direct and indirect output;

- \$154 million in household income.

Considering the benefits and the costs, the net community benefit (NCB) of the original project was calculated to be \$531 million, which comprised:

- \$207 million in mining royalties;
- \$134 million in taxes; and
- \$186 million in social/economic values of employment.

The PAR noted the Department's view that these were significant benefits which should be given significant weight in assessing the development's overall merits. The Department also notes that WACJV has undertaken extensive consultation with the previous Wyong Shire Council over a proposed Voluntary Planning Agreement (VPA) that would benefit the Wyong LGA. The terms of the VPA were agreed between the parties on 7 July 2014 and address various water, sewerage and road/intersection upgrade works, as well as a \$4 million towards community, cultural, social and environmental programs. The total value of the VPA, including both works-in-kind and monetary contributions, is \$17 million.

The project's potential socio-economic costs include direct impacts on rural and residential buildings and other built infrastructure, due to mine subsidence, and possible minor impacts on agricultural and forestry uses as a result of clearing and increases in flooding arising from mine subsidence. The project would also give rise to a number of indirect socio-economic benefits and costs, such as costs associated with impacts on ecology, groundwater, surface water, air quality, heritage and traffic.

Some submissions on the original project were critical of the methodologies used in its Economic Impact Assessment and the conclusions that resulted from this assessment. The Department noted in its PAR that the estimation of NCB is not a precise science, and varies from one expert to another or in response to any sensitivity analysis. Nevertheless, it was satisfied that the findings of the CBA were sufficiently robust that any criticisms of it would not materially change the broad conclusion that the project would result in a net benefit to the community.

The criticisms of the Economic Impact Assessment in SIG and public submissions were considered and given considerable weight by the Commission in its First Review Report (**Appendix E**). The Commission accepted these criticisms despite the response provided by WACJV in its RTS. Some of the key criticisms of the Economic Impact Assessment have since been discredited (see **Section 2.7** of **Part 2**).

The Commission recommended that the significance of the resource is limited to the creation of 300 direct jobs, royalty payments of between \$100m and \$200m and capital investment significantly less than \$800m. The Commission also recommended that a new economic analysis was undertaken and subjected to external rigorous independent review before the project is determined.

5.7.2 Amended Project

The amended development application includes a revised Economic Impact Assessment (revised EIA) for the overall project undertaken for WACJV by Gillespie Economics and peer reviewed by BDA Group. The revised EIA was undertaken in accordance with the Department's *Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals* (the Economic Guidelines) which were released in December 2015, after completion of the Commission's First Review.

The Economic Guidelines require that the Cost Benefit Analysis (CBA) of a project is assessed in terms of the net benefit to NSW. The CBA was initially undertaken from a global perspective and then refined to include only the benefits that would accrue to NSW. The revised EIA's CBA estimate was that the amended project as a whole would have total net production benefits to NSW of \$275 M (present value), comprising \$200 M in royalties, \$70 M in company tax and \$5 M in voluntary contributions.

The revised EIA reported that the employment and expenditure generated by the amended project would stimulate economic activity in the region (Central Coast and Lake Macquarie LGAs), including the direct employment of 300 persons during the mine's operational phase. WACJV remains committed to a target of 70% local employment, which equates to 210 locally-recruited direct employees. WACJV also has committed to a target of at least 10% Indigenous employment, which equates to a minimum of 30 Indigenous employees during the operational phase.

The amended project is also expected to generate both market and non-market employment benefits. Market employment benefits represent the increase in employee income as a result of a project.

Assuming that 50% of the workforce would otherwise be employed at a reservation wage of \$52,000, the revised EIA estimated that the amended project would result in market employment benefits of approximately \$25 M (present value).

Non-market employment benefits are the values that the community attributes to employment, such as the existence values that people hold for the employment of others. The non-market employment benefits of the amended project are estimated at \$186 M (present value). Therefore, the amended project is predicted to generate employment benefits valued at approximately \$211 M (present value).

The environmental impacts (ie costs) of the amended project are estimated to have a present value of \$1 M. The net social benefit of the amended project is predicted to range from \$274 M to \$485 M (present value), depending on whether employment benefits are considered.

The revised EIA included a Local Effects Analysis (LEA), as also required by the Economic Guidelines. The LEA calculates the contribution of the amended project to the region as a result of labour and non-labour related expenditure. Assuming that all future employees residing in the local area are already employed and that job vacancies created by these people moving employment to the project's construction and mining positions remain unfilled, the incremental disposable wages accruing to the region is \$4.8 M during the peak year of construction and between \$7.6 M and \$12.9 M during project operations. This is equivalent to 72 direct full time equivalent (FTE) jobs during the peak year of construction and between 79 and 134 direct FTE jobs during operations. This is a minimum estimate, as it assumes full local employment and no in-migration of labour. The EIA calculates the total annual non-labour expenditure (operating costs of the project after subtraction of wages to employees) to be in the order of \$188 M annually during high production years, of which \$65 M annually is estimated to accrue to the local area.

Incremental expenditure by employees and non-labour expenditure within the local area also provides flow-on economic activity to the local economy. Gillespie Economics applies an employment and income multiplier to calculate that during operations the amended project would contribute between \$13 M and \$22 M annually in total net local income and between 224 and 381 net local jobs.

The revised EIA also included a 'supplementary LEA' using the IOM to estimate the potential flow-on effects for the region and state. The supplementary LEA uses different assumptions than those applied in the LEA under the strict application of the Economic Guidelines. It considers divergence from full employment (ie that those employed by the amended project may not currently be employed), job chain effects and immigration of labour to the region. The IOM analyses were undertaken for both the construction phase and the operational phase of the project.

Using this approach it is estimated that during the project's operational phase it would make the following contributions to the regional economy:

- \$593 M in annual direct and indirect regional output or business turnover;
- \$342 M in annual direct and indirect regional value-added;
- \$69 M in annual direct and indirect household income; and
- 853 direct and indirect jobs.

The supplementary LEA also calculated the impacts of the amended project on the NSW economy during its operational phase as follows:

- \$707 M in annual direct and indirect output;
- \$398 M in annual direct and indirect regional value added;
- \$104 M in annual direct and indirect household income; and
- 1,179 direct and indirect jobs.

In addition to the contribution to the regional and NSW economy from the operation phase, the supplementary LEA also includes calculations of the further benefits that the construction phase of the project and purchase of equipment would contribute to the regional and State economies.

The revised EIA also noted that, from a regional economic perspective, the approach required by the Economic Guidelines is likely to understate effects since it does not account for spending by persons who migrate to the region as a result of being employed by the project.

The revised EIA considers that the predictions of the LEA are likely to represent the lower bound of potential economic impacts. Conversely, the predictions of the supplementary LEA are likely to

represent the upper bound of potential impacts. The actual impacts on the regional economy are likely to fall between the predictions of the LEA and supplementary LEA.

Submissions from The Australia Institute and other parties suggested that there were a number of errors and incorrect information in the revised EIA, including overestimates for construction employment figures, royalty payments and company tax. These criticisms were addressed by WACJV and Gillespie Economics in the RTS2 (see **Appendix C**). WACJV clarified that the employment figures quoted related to the whole project, not just construction, as the EIA included in the amended application was a fully revised EIA which considered both the economic conditions since the original EIA was completed and the new Economic Guidelines. The RTS2 included a discussion of the basis for the royalty estimates used in the EIA and disputed the submission's key criticisms of royalty estimates. The RTS2 included a description of an analysis of Australian Taxation Office data of company tax paid by the Australian mining industry which concluded that the industry paid company tax close to 30% of taxable income. The Department has considered the RTS2's responses to submissions and is satisfied. Further to this the Department commissioned its own peer review as discussed below.

The peer review conducted by BDA Group found that the revised EIA had been completed in accordance with the Economic Guidelines. BDA Group considered that Gillespie Economics had *"prepared a sound report, employing methods and an approach to the presentation of results consistent with best practice economic assessment principles"*. BDA Group concluded that *"based on the assumptions, data and analyses presented, Gillespie Economics appropriately concludes that the project offers net economic benefits to the local community, State and more broadly to Australia, and therefore relative to the no project scenario, is desirable from an economic efficiency perspective"*.

As discussed in the PAR, the Department accepts that estimation of net benefits is not a precise science, and will vary from one expert to another or in response to the assumptions made and sensitivity analysis. However, the Department is satisfied that the findings of the CBA are robust in this instance, and that sensitivity analysis would not materially change the broad conclusion that the project would result in a net benefit to the community.

Centre for International Economics Review

In line with the Commission's recommendation in its review report, the Department commissioned the Centre for International Economics (CIE) to undertake an independent review of the revised EIA.

The CIE review tested the reasonableness of the CBA undertaken by Gillespie Economics and its consistency with the Economic Guidelines and NSW Treasury's 2007 *Government Guidelines for Economic Appraisal*. CIE concluded that the CBA had been undertaken *"in a manner that is broadly consistent with the 2015 NSW Government guidelines for conducting mining related applications and the 2007 Guidelines for economic appraisals."*

However, CIE did note that, while the approach is broadly consistent, some of the individual components and parameter estimates warranted further examination and testing. CIE accepted that testing of some parameters is difficult where the available data is limited (eg the cost of operations). In addition to this, Gillespie Economics had to make some assumptions for some inputs to the CBA, such as future coal prices, which CIE acknowledged could vary. CIE focussed its review on the key factors that drive the results and on the inputs that it considered could be readily tested.

From this analysis, CIE, identified that the amended project is expected to deliver net benefits in the order of \$32 M to \$229 M to NSW, compare to Gillespie Economics' previous estimate of between \$274 M and \$485 M. CIE acknowledged that there will be benefits in addition to this, but that these are unlikely to be as high as estimated by Gillespie Economics. In particular, CIE noted that:

- benefits associated with company tax are difficult to test without additional information,
- 'wage benefits to employment' is higher than can be expected, and
- inclusion of 'non-market benefits to employment' is inconsistent with the Economic Guidelines and, even if it was included, is higher than can be expected. CIE recommends that these be excluded from the EIA. Gillespie Economics acknowledges that the inclusion of 'non-market benefits to employment' is contentious and presents the assessment with and without them.

The EIA's CBA estimate was that the amended project as a whole would have total net production benefits to NSW of \$275 M (present value), comprising \$200 M in royalties, \$70 M in company tax and \$5 M in voluntary contributions. In terms of the estimate for royalties, CIE used an upper and lower bound for coal prices of AUD\$80-\$117 to estimate royalties at \$156 M to \$259 M. Regarding company

tax, CIE acknowledged the complexities associated with estimating and verifying the likely company tax that will flow on to NSW and therefore did not test this parameter. CIE suggests that the Gillespie Economics estimate should be treated as an upper bound.

In terms of market employment benefits, the EIA estimated that the amended project would result in benefits of approximately \$25 M (present value). CIE acknowledged that, in order to accurately test this estimate, further detailed information is required, for example information on current unemployment rates in the area and evidence that the project would draw labour from the currently unemployed. However, based on its analysis, CIE estimated that the market employment benefits would be more in the order of \$3.7 M to \$7.4 M.

CIE also had some concerns with the method used by Gillespie Economics to estimate the non-market benefits to employment but did not attempt to provide an alternative estimate. The use of non-market employment benefits in the CBA is not consistent with the Economic Guidelines. On this basis, CIE recommended that it be excluded from the assessment. As outlined above, Gillespie Economics acknowledge this issue and provided an assessment both with and without the inclusion of non-market benefits to employment.

In verifying Gillespie Economics' estimate of costs associated with the amended project, CIE focussed its review on the costs associated with greenhouse gas emissions. Based on a review of the EIS documentation, CIE noted that other issues would be adequately mitigated such that the costs would not be material. CIE noted that the approach taken by Gillespie Economics to estimate the cost of greenhouse gas emissions is not consistent with the Economic Guidelines, which requires that the full cost of the impacts from greenhouse gas emissions be allocated to NSW. CIE recognises that there is debate regarding the extent to which the global social cost of carbon is appropriate for use in a NSW-based CBA. However under the strict application of the Economic Guidelines, CIE estimated this cost to be between \$27 M and \$121 M, compared with Gillespie Economics' estimate of between \$25,000 and \$114,000.

In reviewing Gillespie Economics' LEA, CIE noted that it was not clear how the multipliers were applied to determine benefits to the region. CIE provided comment on the methods to be applied when using multipliers, the use of an employment multiplier as opposed to using the net change in income to estimate benefits to the region, the potential double counting of construction-related expenditure, and the average income figures used. Ultimately, CIE concluded that the multipliers are likely to overstate the economic benefits of the amended project and that, due to the difficulty of verifying how the estimates have been derived, the regional economic analysis (or LEA) should be used with caution.

The Department is satisfied that a detailed EIA has been completed by Gillespie Economics and reviewed by BDA and CIE. While there is some dispute regarding particular inputs to the CBA and the methods used, CIE's conclusion that the EIA is broadly consistent with the Economic Guidelines and will result in a net benefit to NSW is a substantive conclusion that should be given due weight.

Impacts on Residential Development, Tourism and Agricultural Businesses

A number of submissions objected to the proposed development of the amended project (particularly the conveyor and stockpile) due to its proximity to the Blue Haven residential area. They considered that the amended project would have potential adverse impacts on tourism, agriculture businesses and future residential development in a growing residential area.

The assessments completed for noise and air quality (as discussed in **Section 5.1** and **5.2**) demonstrate that the amended project would meet all relevant criteria at the Blue Haven residential area, with the exception of some exceedances during the construction of site infrastructure. These would be short term and managed through appropriate conditions of consent, including a Noise Management Plan and Air Quality and Greenhouse Gas Management Plan.

The potential impacts of the amended project on tourism was raised by a small number of submissions. The Department accepts the response contained in the RTS2 which noted that the amended project would not impact on any of the Central Coast's tourist attractions, primarily being the beaches, waterways and lakes, national parks, other recreational areas and urban centres.

The potential impacts of the original project on agricultural businesses was assessed in the Agricultural Impact Statement contained in the original EIS. The amendment to the project does not affect any land used for agriculture. The Department is satisfied that the assessment of impacts on agricultural business was adequately addressed in the PAR.

5.8 Aboriginal Heritage

5.8.1 Introduction

An assessment of Aboriginal cultural heritage impacts for the amended project was prepared by OzArk Environmental & Heritage Management (OzArk). Consultation with Aboriginal stakeholders was undertaken and stakeholders were involved in the archaeological survey completed in March 2016.

Aboriginal cultural heritage impacts for the original project were described in Section 5.5.3 of the PAR. One artefact scatter site 45-3-3584 (also referred to as WC-052) would be directly impacted by surface facilities at the Tooheys Road Site (see **Figure 25**), with five other sites potentially being impacted by subsidence. WACJV committed to protecting site 45-3-3584 during construction and operation of the surface facilities, through fencing and other management strategies.

The Department assessed the potential impacts to this site in the PAR and proposed a draft condition of consent requiring an Aboriginal Cultural Heritage Management Plan (ACHMP) to be approved prior to construction. In addition to the ACHMP, WACJV committed to preparing a Land Disturbance Protocol, which would include appropriate induction information for employees and contractors involved in ground-disturbing works as well as an unanticipated finds protocol. The Department prepared draft conditions of consent to this effect.

5.8.2 Key Changes from the Original Project to Amended Project

Changes to the original project which potentially affect Aboriginal cultural heritage include:

- removal of the previously proposed rail loop; and
- re-location of the rail siding and train load out facility to the eastern side of the Main Northern Rail Line.

Removing the rail loop from the Tooheys Road Site is expected to have a beneficial result by reducing the potential impacts to site 45-3-3584 (WC-052) and to both Wallarah and Spring Creeks which are archaeologically sensitive landforms.

5.8.3 Assessment of the Amended Project

The assessment area for the amended project is shown in **Figure 25** and follows the proposed rail siding. Desktop and field surveys were completed for the amended area. However, the area within the existing rail corridor was not surveyed due to safety considerations. OzArk notes that, as land within the rail corridor is highly modified, it is unlikely for heritage items to be identified.

OzArk completed a search of the AHIMS database and did not identify any previously registered sites within the amended study area, although four sites are located within the area surrounding the amended project (see **Figure 25**). The fifth site (45-3-3584) was considered in the original project assessment and (see Section 5.5.3 of the PAR).

Field surveys did not identify any additional Aboriginal sites or areas likely to contain subsurface archaeological deposits. It is noted that the survey areas lack the fertile soils, major hydrological features and topographical features which would have attracted occupation.

The Department notes that a previous study completed for the RTS, identified the banks of Spring Creek as an area that could potentially be categorised as archaeologically sensitive, specifically the area to the west of the Main Northern Railway Line as it is elevated and overlooks the creek. However, this potential was not verified by a test excavation program, due to the high degree of existing disturbance from vehicle access and use, motocross tracks and construction of the rail line and bridge. Nonetheless, the relocation of the rail siding from the western to the eastern side of the Main Northern Rail Line would eliminate impacts to the western reaches of Spring Creek.

The section of Spring Creek to the east of the Main Northern Rail line has shallow banks and is less likely to have been favourable as a camping spot. Additionally both banks of Spring Creek within the amended area have been heavily modified by vehicle access tracks and construction of the Main Northern Rail Line. Consequently, the assessment no longer considers the banks of Spring Creek (either west of or east of the Main Northern Rail Line) to represent a sensitive archaeological landform.

5.8.4 Mitigation and Management

WACJV proposes to survey the area within the rail corridor for Aboriginal heritage values once the necessary safety precautions are in place and prior to any construction activity. WACJV considers that, since no Aboriginal sites were discovered within the amended project area, the Department's previously proposed conditions of consent remain appropriate.

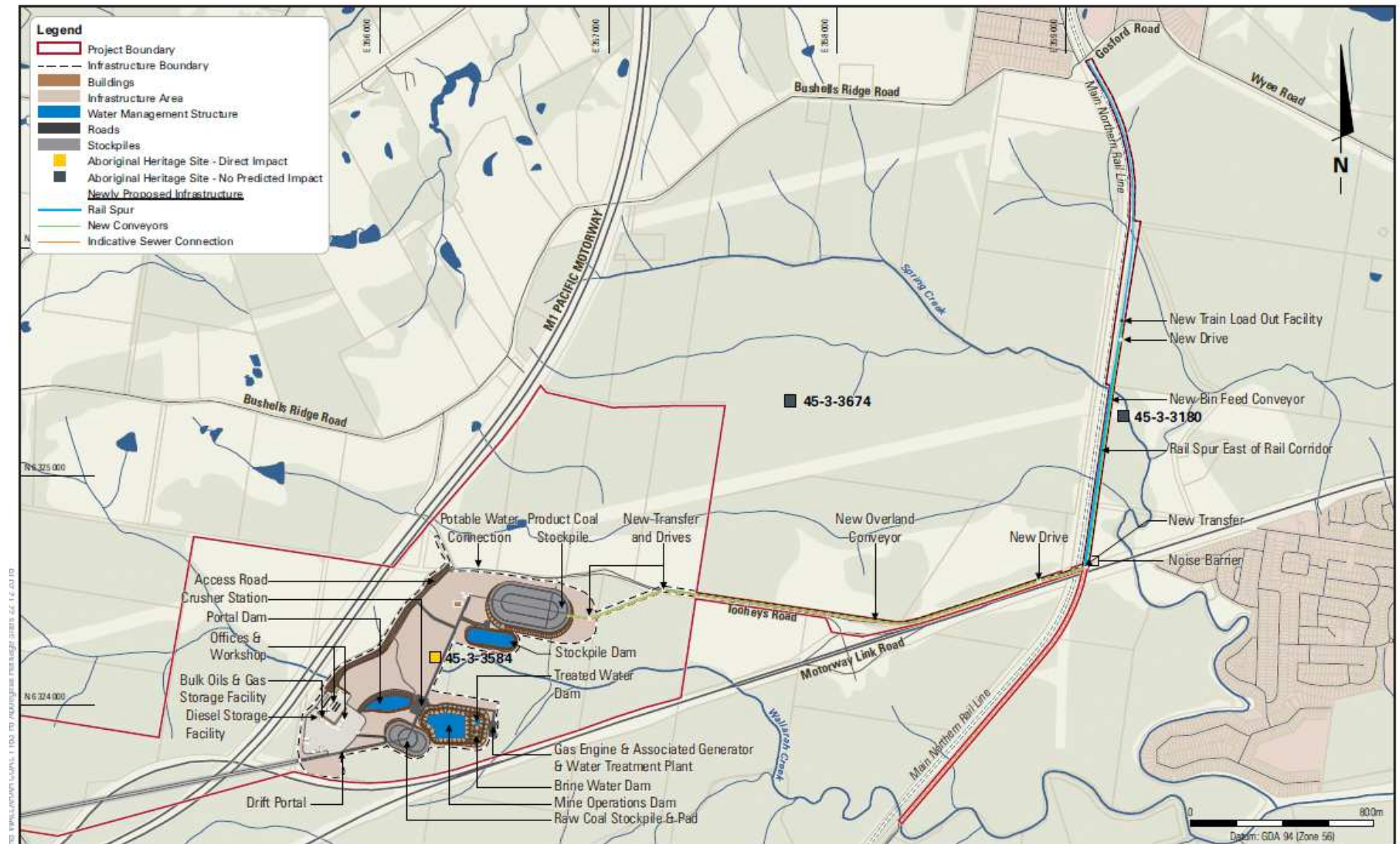


Figure 25: Aboriginal Heritage sites Walarah 2 Amended project

The Department notes that OEH recommended standard conditions of consent to manage Aboriginal cultural heritage for the amended project which include ongoing consultation with local Aboriginal parties, developing an ACHMP and ground disturbance and accidental discovery protocol.

5.8.5 Conclusions

The Department acknowledges the comments and recommendations provided by Darkinjung LALC, Guringai Tribal Link Aboriginal Corporation and Mr Duncan (Traditional Awaba Custodian) after participating in heritage surveys of the amended project area and considers that the development of an ACHMP addresses these recommendations.

The Department notes that the mitigation strategies proposed by WACJV are consistent with OEH's recommendations and the draft conditions of consent prepared for the original project. Nevertheless, the Department has taken the opportunity to strengthen these conditions and bring them up-to-date with contemporary best practice. In its First Review, the Commission recommended that a Trigger Action Response Plan (TARP) is included within Extraction Plans to manage unexpected subsidence impacts on heritage sites and that any dispute in relation to impacts on Aboriginal heritage sites should be referred to OEH for a final determination (see **Section 2.6 of Part 2**).

5.9 Other Issues

Other issues associated with the amended project relate to land contamination and bushfire risks. **Table 13** summarises the Department's assessment of these impacts.

Table 13: Other issues

Issue	Impact and Consideration	Recommendation
Land contamination	- The amended EIS includes a Contamination Impact Assessment (CIA) undertaken by DLA Environmental which assessed the potential risk of land contamination within the amended site. - The amended project site contains three freeholdings which were privately owned prior to acquisition by WACJV and previously used for chicken farming. Two lots of Crown land within the amended project site have been occupied by the Boral Montoro quarry and tile manufacturing plant since 1985. - The CIA found higher concentrations for copper than the Site Acceptance Criteria (SAC) located at Tooheys Road near a burnt out vehicle and not likely to be indicative of the general area. - One fragment of Asbestos Containing Materials (ACM) along with building material was located next to the Motorway Link Road. The CIA considered it likely to have been dumped and not representative of the general area. - Three sediment and three water samples were collected from Spring Creek and two tributaries which cross the site. Two of the three sediment samples registered exceedances of the low risk SAC for lead and zinc but were within the high risk SAC. All three water samples exceeded the low risk SAC for zinc. One of these samples also exceeded the criteria for chromium, copper and lead. - WACJV considers that elevated concentrations of heavy metals in the water and sediment samples reflect existing industry in the immediate area. - The CIA found no evidence of soil contamination within the amended project site, however noted that a bund located within the Boral Montoro premises should be assessed by a contamination specialist if excavation is required.	- The Department is satisfied that previous land uses on the site have caused low levels of land contamination, and that the project is not in itself a hazardous or offensive development. - WACJV has committed to management procedures to ensure that any potential hazards are minimised in accordance with relevant legislation, regulations and guidelines, including water and sediment sampling of Spring Creek which would be included in the recommended Water Management Plan.
Bushfire risk	- Bushfire risk for the amended project was addressed in RTS2 after being raised in submissions by both Darkinjung LALC and the broader community (see Section 4 and Table 4). A further WACJV response on bushfire risk was received in January 2017. - Primarily Darkinjung LALC is concerned over bushfire risks at the coal loading facilities and section	Bushfire risk was assessed for the original project and a draft condition proposed which would require WACJV to ensure that the site is suitably equipped to respond to bushfire emergencies and to assist emergency services in the event of

	of the overland conveyor located within Nikko Road. • Nikko Road is positioned between the Main Northern Rail Line and privately-owned land, including Lot 204 DP1117900 owned by Darkinjung LALC which has a large canopy of vegetation overhanging Nikko Road. • WACJV notes that the provisions of section 79 BA of the EP&A Act requiring adherence to <i>Planning for Bush Fire Protection</i> do not apply to SSD. • WACJV also considers that bushfire risk has been adequately accommodated in project design by: - designing the conveyor to allow for firefighting infrastructure; - ensuring that the width of Nikko Road is consistent with <i>Planning for Bush Fire Protection</i> guidelines and would accommodate emergency vehicles; - constructing the conveyor with non-flammable materials; and - including fire detection and suppression systems to meet health and safety and industry standards. • Furthermore, the existing railway corridor is described as a buffer zone under the Wyong LEP's Bush Fire Prone Land Map. The closure of Nikko Road and vegetation clearance would reduce the current fuel load and provide improved access.	a fire. • The Department is satisfied that this condition and the mitigation measures featured in the design of the amended project would not increase bushfire potential. • Vegetation clearing and construction of the all-weather access road on Nikko Road would reduce the potential fuel load in this location, provide improved access for RFS and other emergency vehicles.
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PART 2

CONSIDERATION OF THE COMMISSION'S FIRST REVIEW

1.0 OVERVIEW OF COMMISSION'S FIRST REVIEW

1.1 Overview of the First Review's Findings

The Commission's First Review Report (see **Appendix E**), completed in June 2014, generally concurred with the Department's assessment of the project's key impacts and most recommendations contained in the PAR. However, the Report provided 35 recommendations it considered would enhance the determination of the project and ensure that potential impacts are avoided, minimised or mitigated. The Commission's recommendations for further consideration of issues and consultation were primarily in relation to:

- conditions of consent regarding subsidence management, water management and monitoring;
- provision of further information regarding potential losses of baseflow from impacts on groundwater and conditions of consent to manage such impacts; and
- WACJV commissioning a new economic assessment and having it peer reviewed.

The Commission's First Review Report concluded that *"if the recommendations concerning improved strategies to avoid, mitigate or manage the predicted impacts of the project are adopted then there is merit in allowing the project to proceed."* The Department has carefully noted the Commission's comments that, if the recommendations are either not adopted, or adopted only in part, then the Commission's position would probably change in favour of a precautionary approach.

The Department considers that the Commission's first report balances a broad range of strategic considerations, including the protection of the natural environment and human amenity, and the economic recovery of the State's mineral resources.

A full list of the Commission's recommendations and a summary of the Department's consideration of these recommendations is provided in **Table 14**. Overall, the Department supports the great majority of the Commission's recommendations. The Department has some concerns over aspects of the implementation of a limited number of recommendations. The actions proposed by the Department to ensure the recommendations are given effect are provided in summary form in the second column of **Table 14**.

Based on this consideration, the Department has also prepared revised draft conditions of approval for the project, which are provided in **Appendix G**. The Department also notes that, since the Commission's First Review was completed in June 2014, the Department's standard conditions for underground coal mining projects have continued to be advanced and refined. A number of matters identified by the Commission have been addressed by way of improvements to standard conditions. As such, the Department considers that these revised standard conditions satisfy a number of the Commission's requests. The Department has also given consideration to the Commission's more recent merit reviews of underground coal mining applications (particularly the Mandalong Southern Extension Project, Airly Mine Extension Project and Springvale Mine Extension Project).

Table 14: Commission recommendations and summary of the Department's responses

Commission Recommendation	Department's Consideration and Action
Conventional Subsidence	
1) That a rigorous set of performance measures be included in any consent. Rigorous in this context means able to be measured or assessed in a scientifically and legally sound manner and be capable of enforcement. These performance measures must be supported by: (i) a requirement that the Extraction Plan for each longwall contains revised subsidence predictions based on experience from previous mining on the site and that these revised predictions will not allow the performance criteria to be exceeded; (ii) a requirement that the Extraction Plan for each longwall contains: (a) appropriate triggers to warn of the development of an increasing risk of exceedance of the performance criteria (eg the subsidence predictions themselves and/or other relevant subsidence-related measurements); (b) specific action plans to respond to increased risk of exceedance that will ensure the criteria	Refer to Section 2.1. The Department supports the Commission's position. A number of the Commission's recommendations are satisfied by existing standard conditions of consent. The Department has strengthened its proposed draft conditions of consent regarding both performance measures and the required content of Extraction Plans. The draft consent's performance measures are linked to the significance of features and the likelihood of severity of impacts. The performance measures are similar to those applied in recent approvals for other underground coal mines, including in sensitive areas.

are not exceeded (eg cessation of mining, narrowing of the longwall, altering seam height etc; and (c) an assessment of remediation measures that may be required if exceedance does occur and the capacity to implement the measures.	
2) Although the risks to the significant public infrastructure such as the M1 Motorway and the Buttonderry Waste Management Facility appear small, the necessary steps to prevent impacts should be included in any consent and the consent authority should be satisfied that these steps will in fact, ensure the safety and/or integrity of the infrastructure.	Refer to Section 2.1 . The Department considers that the requirement to include TARPs for all built features (including key public infrastructure) within Extraction Plans satisfies this recommendation. The required content for TARPs has been strengthened.
3) That at least two formal reviews of the predicted subsidence impacts should be required: one after the first 5 longwalls have been completed (LW 1N-5N) and one after the next four have been completed (LW 6N-9N).	Refer to Section 2.1 . The Department has recommended independent audits of subsidence impacts within six months of the completion of Longwalls 5N and 9N and at any other time required by the Secretary. The auditor must conduct an independent audit of the subsidence, surface water, and ground water impacts of the development, assess the significance of these impacts (if any), investigate measures to minimise any impacts.
Non-conventional Subsidence	
4) That appropriate monitoring of non-conventional subsidence effects be included as a requirement in any consent and that the relevant Extraction Plan be required to contain appropriate measures to control the risks from non-conventional subsidence so as to ensure that the environmental performance criteria are not exceeded.	Refer to Section 2.1 . The Department agrees that the prediction of non-conventional subsidence effects is a relatively young and imprecise science, particularly in the field of predicting non-conventional subsidence effects. The Department has recommended strengthening and making explicit the condition requiring monitoring of both conventional and non-conventional subsidence.
Potential Losses of Baseflow from Impacts on Groundwater	
5) Before submission of the project for determination the consent authority be provided with revised estimates by year for: (b) increased storage in the alluvium as a result of subsidence; (c) losses to the alluvium from near-surface cracking of bedrock and movement of water into fracture zones; (d) losses to the alluvium from leakage through the constrained zone to the zone of depressurisation; (e) losses to baseflow from any changes to catchment flows (ie loss of catchment area) for streams potentially supplying the CCWS; and (f) any other potential sources of loss of water from subsidence-induced changes to either the streams or the alluvial aquifers. These estimates must indicate whether the losses are expected to be temporary or extend beyond the life of the mine. The estimates should also have been reviewed by NOW (<i>now DPI Water</i>).	Refer to Section 2.2 . As requested by the Commission, revised estimates of baseflow losses were provided in WACJV's response to the Commission's review report (see Appendix F) and subsequently reviewed by DPI Water. The Department has undertaken a further assessment of the potential losses of baseflow on the Central Coast Water Supply (CCWS). The Department has clarified the performance measures for 3 rd , 4 th , 5 th and 6 th order streams to specifically include their alluvium. The Department has recommended new conditions for a comprehensive water monitoring program which would include monitoring of surface water, groundwater, flooding and the CCWS.
6) Given the sensitivity of the CCWS to drought, both temporary and permanent potential losses of baseflow are to be treated as potential impacts on the CCWS.	
7) Potential impacts on shallow groundwater systems be included in the performance criteria in Schedule 3 of any consent, particularly in relation to potential losses that could contribute to decreases in baseflow to streams supplying CCWS. The maximum predicted impacts of 300 ML/y should not be allowed to be exceeded unless the environmental impacts remain within existing	

predictions and any loss can be compensated.	
8) Appropriate monitoring arrangements, satisfactory to NOW (now DPI Water), be incorporated into the conditions of any consent to ensure that all potential losses of baseflow be accounted for.	
Subsidence Impacts on Privately-owned Bores and Wells	
9) Pre-mining testing of privately owned registered bores and wells be required to establish their performance characteristics.	Refer to Section 2.2. The Department has recommended new conditions for a comprehensive water monitoring program which would include monitoring of, groundwater and specifically requires the program to monitor and report on mine-induced changes in groundwater yield/quality against background, in particular, on groundwater bore users in the vicinity of the site.
10) The burden of proof that any declines in performance were not due to mining impacts rest with the Proponent (<i>Applicant</i>).	Refer to Section 2.2. The Department has included a note to this effect in the draft conditions of consent.
Potential Impacts on the Central Coast Water Supply (CCWS)	
11) The project be required to meet a no net impact performance outcome on catchment water resources during the life of the mine.	Refer to Section 2.2. The Department has proposed a condition of consent requiring WACJV, prior to the extraction of Longwall 6N and in consultation with DPI Water and the Central Coast Water Authority, to develop and be in a position to implement a compensatory mechanism to compensate for the measured losses of water to the CCWS. This must include a consideration of all reasonable and feasible measures to compensate for the measured losses of water, including the supply by return of treated minewater.
12) Consideration be given to augmentation of CCWS supply by return of sufficient minewater treated to the required standards for raw water supply to compensate for the estimated losses during the life of the mine.	
13) The principles governing this augmentation of CCWS supply be as described in section 3.3.1.4 of this review report.	
14) That mining beyond LW 5N not be permitted until the mechanism to compensate for potential impacts on water availability for CCWS is operational.	
15) That no compensation be required beyond mine closure for the predicted 36.5 ML/y loss <u>provided</u> that a review prior to mine closure confirms that the loss does not exceed 36.5 ML/y.	Refer to Section 2.2. The Department has included this in the draft conditions of consent.
Potential Impacts on Water Availability for Users Other than CCWS	
16) Specific provision be made in the conditions of any consent to ensure that landholders whose access to surface waters is negatively affected by the project have compensatory supply provided within 24 hours and that the Proponent (<i>Applicant</i>) be responsible for restoring access as soon as practicable.	Refer to Section 2.2. The Department has reviewed the most recent underground coal mine determination by the Commission (ie Springvale Coal Project) and has recommended minor updates to the wording of the compensatory water supply condition to reflect this determination.
17) The Proponent (<i>Applicant</i>) bear the onus of proof in the event of a dispute over subsidence-induced impacts on surface water access.	Refer to Section 2.2. The Department has included a note to this effect in the draft conditions of consent.
Potential Impacts on Stream Morphology	
18) Before the project is submitted to the consent authority, the risks to stream morphology of interaction between significant rainfall event(s) and the interface between subsided and unsubsidised sections of a stream be assessed with a view to properly describing the risk (and quantifying if possible), and providing a detailed assessment of the options available to deal with any such eventuality and an assessment of the capacity to implement any such options on the Project Area streams.	Refer to Section 2.2. Further information as requested by the Commission was provided in WACJV's response to the Commission's review report. The Department has undertaken further assessment of this matter.
19) That the performance criteria for stream morphology for streams in the Project Area underlain by alluvium be: (g) no more than minor consequences in any part of the stream at any time; and (h) post-subsidence, stream sections be returned to a condition equivalent or better than their pre-subsided condition.	Refer to Section 2.2. The Department has recommended changes to the performance measures and rehabilitation objectives within the draft conditions of consent to reflect this recommendation.

20) Rigorous conditions be included in the Extraction Plan for each longwall to ensure that: (i) the previous experience of impacts on stream morphology are incorporated; (j) there are appropriate triggers to warn of developing problems; (k) there is a clear response plan to prevent exceedance of the criteria; and (l) clear strategies are identified to address any exceedance that might occur despite the adaptive management requirements.	Refer to Section 2.2. The Department has reviewed the most recent underground coal mine determination by the Commission (ie Springvale coal project) and has recommended updates to the Extraction Plan condition to reflect this determination, including the requirement for TARPs and contingency strategies.
Water Quality Monitoring in Response to Subsidence Impacts	
21) That before extraction of longwall 6N commences a program of water quality monitoring that can differentiate subsidence-induced impacts from background variation be implemented. The program is to be developed in consultation with the Water Supply Authority, EPA and NOW (<i>now DPI Water</i>) and be approved by the Director-General (<i>now Secretary</i>) before implementation.	Refer to Section 2.2. The Department has recommended new conditions for a comprehensive water monitoring program which would include monitoring of surface water, groundwater, flooding and the CCWS.
22) That the program be subject to independent audit each year at least until the Director-General (<i>now Secretary</i>) is satisfied that longer intervals can provide appropriate safeguards.	Refer to Section 2.2. The Department has recommended independent audits of subsidence impacts (including those on water resources) within six months of the completion of both Longwalls 5N and 9N and at any other time required by the Secretary.
Porters Creek Wetland	
23) That a performance measure of negligible consequences should be specified for Porters Creek Wetland in any consent and that this should be supported by a monitoring regime sufficient to alert the Proponent (<i>Applicant</i>) and regulators to any change that may cause greater than negligible consequences to the wetland.	Refer to Section 2.2. The Department considers that the Commission's recommendation was based in a desire to validate WACJV's assessment of the unlikelihood of any impact on the Wetland, rather than reflecting any real fear that such impacts would eventuate. In the Department's view, an efficient and achievable measure to achieve this outcome would be to monitor catchment flows and water quality within the section of Hue Hue Creek subject to subsidence impacts.
Water Monitoring Generally	
24) That the consent authority review water-related monitoring requirements carefully to ensure that they will provide (a) the information necessary to assess performance of the project against performance criteria in any consent and (b) also provide the information necessary to support the adaptive management requirements in Extraction Plans for individual longwalls.	Refer to Section 2.2. The Department has recommended new conditions for a comprehensive water monitoring program which would include monitoring of surface water, groundwater, flooding and the CCWS.
Flooding	
25) That an Emergency Evacuation Management Plan be prepared. This plan should include clearly identified secondary access routes for those properties that will be adversely impacted by the 1% AEP flood. For those properties that do not have either a primary or secondary access route as a result of flooding, the Proponent (<i>Applicant</i>) must consult/negotiate with the individual landowners to reach a mutually agreed resolution for emergency evacuations before extraction of any longwalls that could create altered flood conditions for these properties occurs. In the situation where no agreement can be reached, either party may refer the matter to the Director-General (<i>now Secretary</i>) for resolution.	Refer to Section 2.2. The Department has recommended a flood management protocol be developed as part of the Extraction Plan process which would identify access routes, include regular consultation with landowners, Council and emergency services and provide up-to-date subsidence information to relevant emergency planning authorities.
Infrastructure and Improvements Impacted by Subsidence	
26) That before granting any consent, the consent authority satisfy itself that proposed compensation measures for subsidence-related damage to privately-owned built features will deliver a fair and reasonable outcome for	Refer to Section 2.2. The Department is satisfied that existing proposed compensation measures for

affected property owners. If the consent authority cannot be satisfied that the outcomes will be fair and reasonable than the consent authority will have to consider whether the residual impacts make the project unacceptable within the terms of s79C of the Act.	subsidence-related damage to privately-owned built features would deliver fair and reasonable outcomes for affected property owners.
Noise	
27) That the predicted noise levels be re-assessed for properties 57 and 58 and a condition be attached to any consent that provides for noise mitigation or acquisition for privately owned properties when noise is predicted to exceed the PSNL on more than 25 percent of privately owned land. (Note that the requirement for mitigation or acquisition should depend on the degree of exceedance of the noise criteria consistent with normal practice).	Refer to Section 2.3 . Noise levels have been assessed for the amended project (see Section 6.4 and Appendix E of the amended development application and Section 5.1 of Part 1). This includes an assessment for properties 57 and 58 as requested by the Commission.
28) That a requirement for monitoring of wheel squeal noise from use of the rail loop be included in any consent and that additional mitigation measures be implemented if the noise becomes an on-going issue.	Refer to Section 2.3 . Removal of the rail loop from the amended project significantly reduces the likelihood of wheel squeal noise. The Department therefore considers it unnecessary to include a specific condition for wheel squeal noise.
Air Impacts	
29) That a condition be added requiring the implementation of methane gas capture and flaring within a specified timeframe and that a proposal be developed for beneficial use of the captured gas within three years of the commencement of longwall operations and to be implemented within a timeframe as required by the Director-General (<i>now Secretary</i>).	Refer to Section 2.4 . The Department has proposed a condition to this effect.
Impacts Associated with the Surface Facilities	
30) That the water treatment system, including the reverse osmosis and brine treatment plants be designed to meet the discharge criteria specified by the EPA.	Refer to Section 2.5 . The Department has proposed a condition stating that <i>"unless an EPL authorises otherwise, the Applicant must comply with section 120 of the POEO Act"</i> . The Department is satisfied that this condition is appropriate and requires that WACJV comply with any EPL as granted to it, including meeting discharge criteria.
31) That a requirement for construction of a reverse osmosis plant be inserted in 15(c) of Schedule 3 of the proposed conditions of consent.	Refer to Section 2.5 . Draft conditions of consent require preparation and implementation of a Water Management Plan which would detail the water management systems for the three surface facilities sites, including operation of the Water Treatment Plant. The Department is satisfied that the Water Management Plan is the appropriate mechanism for detailing the approach to water management for the project. This plan must be in general accordance (or conformity) with the EIS, which commits to the operation of a Water Treatment Plant.
Aboriginal and Non-Aboriginal Heritage	
32) That the Heritage Management Plan included in the Department's draft recommended conditions (condition 5(k), Schedule 3) should include a trigger action response plan to manage unexpected subsidence impacts (similar to condition 21, Schedule 4).	Refer to Section 2.6 . The Department has updated the relevant Extraction Plan condition to include the requirement for a TARP.
33) That a note should be included in condition 1, Schedule 3 that any dispute in relation to impacts on Aboriginal heritage sites should be referred to the OEH for a final determination, and dispute in relation to impacts on historic sites should be referred to the Secretary for the Department of Planning and Environment for final determination.	Refer to Section 2.6 . The Department has recommended that consultation with OEH is undertaken in this regard.
Estimates of Project Benefits	
34) That, for the purposes of assessment under cl.12AA of	Refer to Section 2.7 .

the Mining SEPP, the significance of the resource is limited to the creation of 300 direct jobs, royalty payments of between \$100m and \$200m and capital investment significantly less than \$800m. If this becomes crucial in the consent authority's task of assessing the project under s.79C of the Act, then the Commission recommends that the consent authority require that a new economic analysis be undertaken and subjected to external rigorous independent review before a decision is made.	A revised Economic Impact Assessment was undertaken for the amended project (Appendix J) and has been assessed and peer reviewed (see Section 5.7 in Part 1).
Agricultural Businesses	
35) That the performance measures included in the Department's draft conditions of consent for built features (condition 3, Schedule 3) be amended to include a wider range of improvements relevant to agriculture that may be impacted by subsidence (eg those relevant to the turf farm) and that the relevance of the listed performance measures to each of the categories of other infrastructure that might be impacted by subsidence be reviewed.	Refer to Section 2.8. The Department notes that the definition applies to <i>all</i> 'other privately-owned built features and improvements' and includes a list of examples. This list is <i>inclusive</i>, not exclusive. The Department also notes that there are a number of other avenues available in relation to compensation to landowners affected by subsidence, including: • compensation under the <i>Mine Subsidence Compensation Act 1961</i>; and • compensable loss under the <i>Mining Act 1992</i>.

1.2 WACJV's Response to the Commission's First Review Report

On 1 July 2014, WACJV provided a response to the Commission's review report (see **Appendix F**). This response addressed each of the Commission's recommendations and also provided additional information in regards to various issues, including:

- estimates of the temporary and long-term impacts on the CCWS;
- potential compensatory water supply measures;
- an assessment of the risk of impacts at the interface of subsided and unsubsidised stream sections during heavy rainfall events;
- clarification on the operational noise criteria at particular residences; and
- clarification on the figures used within the socio-economic assessment in the EIS.

WACJV considers that the response to the Commission's recommendations and the additional information that it has provided are adequate to address and resolve the key merit-based issues raised in the Commission's review. The Department is satisfied that WACJV's response (in conjunction with information contained in the amended development application – see **Section 2** in **Part 1**) contains sufficient information to adequately inform final consultation with Government agencies and to enable the Department to complete its assessment.

WACJV also provided comments on the draft conditions of consent which mainly focused on the operational practicality of these conditions. The Department has considered WACJV's responses in preparing the AR.

2.0 DETAILED CONSIDERATION OF COMMISSION'S FIRST REVIEW

2.1 Subsidence

Commission Recommendations 1 and 2

- 1) That a rigorous set of performance measures be included in any consent. Rigorous in this context means able to be measured or assessed in a scientifically and legally sound manner and be capable of enforcement. These performance measures must be supported by:
 - (i) a requirement that the Extraction Plan for each longwall contains revised subsidence predictions based on experience from previous mining on the site and that these revised predictions will not allow the performance criteria to be exceeded;
 - (ii) a requirement that the Extraction Plan for each longwall contains:
 - (a) appropriate triggers to warn of the development of an increasing risk of exceedance of the performance criteria (eg the subsidence predictions themselves and/or other relevant subsidence-related measurements);
 - (b) specific action plans to respond to increased risk of exceedance that will ensure the criteria are not exceeded (eg cessation of mining, narrowing of the longwall, altering seam height etc; and
 - (c) an assessment of remediation measures that may be required if exceedance does occur and the capacity to implement the measures.
- 2) Although the risks to the significant public infrastructure such as the M1 Motorway and the Buttonderry Waste Management Facility appear small, the necessary steps to prevent impacts should be included in any consent and the consent authority should be satisfied that these steps will in fact, ensure the safety and/or integrity of the infrastructure.

Performance Measures

The Department accepts the intent of the Commission's recommendation. It agrees that performance measures should be rigorous, scientifically and legally sound, and therefore be capable of enforcement. It also agrees that all underground mining consents (particularly those that authorise longwall mining) need to support a robust adaptive management framework.

It is also important to note the Commission's conclusion that the draft conditions of consent attached to the PAR "go a long way towards meeting the requirements outlined in the above" recommendations. Nonetheless, the Commission considered that some of the performance measures in Table 1 (condition 1 of Schedule 3) were unenforceable and that the Extraction Plan provisions could be strengthened by including:

- triggers to warn of potential impending exceedances of the performance criteria and related action and response plans; and
- specific assessment of remediation options and demonstrated capacity to implement these.

The Commission identified that this recommendation was based on the perceived need to provide for a robust adaptive management framework over the 28-year life of the project. The Commission quoted the views of the Land and Environment Court regarding adaptive management, relevantly as follows:

"Adaptive management is not a "suck it and see", trial and error approach to management, but is an iterative approach involving explicit testing of the achievement of defined goals. Through feedback to the management process, the management procedures are changed in steps until monitoring shows that the desired outcome is obtained. The monitoring program has to be designed so that there is statistical confidence in the outcome. In adaptive management the goal to be achieved is set, so there is no uncertainty as to the outcome and the conditions requiring adaptive management do not lack certainty, but rather they establish a regime which would permit changes, within defined parameters, to the way the outcome is achieved."

The substantive argument made by the Commission in favour of this recommendation was included in the First Review Report for the Wallarah 2 Coal Project. However, given the time that has elapsed since this report was finalised, the Department has looked to more recent Commission reviews and determinations of underground mining applications for further clear discussion and conclusion on these matters, including those for Mandalong, Airly and Springvale.

In its review of the Springvale Mine Extension Project, the Commission considered that conditions containing performance measures "need to have clear outcomes that must be met that are measurable and enforceable, assisted by an adaptive management system that monitors and modifies operations in advance, based on predetermined triggers to achieve the outcomes." A similar recommendation is contained in the Commission's merit review report for the Mandalong Southern

Extension Project. The Commission's Mandalong Southern Extension Project review report also considered that that project “presents a sensible and necessary opportunity to adopt the same recommendations to improve the conditions”.

The Department does note the differences between the proposed project and the approved Springvale Mine Extension Project and Mandalong Southern Extension Project. Most particularly, Springvale and Mandalong are existing underground coal mines which have been conducting longwall operations and producing coal for many years, whereas the Wallarah 2 Coal Project is a ‘greenfield’ coal mine proposal with no history of longwall production. Even so, the Mandalong Coal Mine is located just to the north of the Wallarah 2 Coal Project, and extracts coal from the same coal seam as is proposed to be mined by the current project (the Wallarah-Great Northern Seam), using a reasonably similar range of longwall widths (125 to 200 m) and with a similar depth of cover (180 m to 480 m).

The long history of production at Mandalong and Springvale means that there is a much better body of existing subsidence data at these mines on which to base future subsidence predictions. Consequently, the risks associated with mine design not satisfactorily achieving the proposed performance measures are substantially reduced.

In its review report, the Commission pointed to a single example of the Department's draft subsidence impact performance measures which it considered to be not sufficiently strict and unenforceable. This draft measure was based on limiting the intensity of impacts on particular watercourses to a percentage of the stream length to be undermined. No such similar performance measure exists in the conditions for the approved Springvale and Mandalong projects. The Department has carefully reviewed the performance measures against the surface features relevant to the project and other recent Commission determinations and removed this reference to ‘percentage performance’. The Department has also recommended a number of minor changes to the recommended performance measures for watercourses in Table 1 of the draft conditions (see **Table 15** below).

The performance measures are drafted so that individual impact limits apply to groups of similar and related features. The performance measures are targeted toward management regimes based not only on the significance and sensitivity of the feature being protected, but also the risk profile, likelihood and severity of potential impacts occurring at the particular feature. The terms used in the proposed performance measures are generally subject to definitions set out in the consent.

Table 15: Subsidence Impact Performance Measures

Watercourses	Performance Measure
6 th Order Streams and their alluvium	Negligible subsidence impacts and environmental consequences.
3 rd , 4 th and 5 th Order Streams and their alluvium	- No subsidence impact or environmental consequence greater than minor. - No connective cracking between the surface, or the base of the alluvium, and the underground workings.
1 st and 2 nd Order Streams	- No subsidence impacts or environmental consequences greater than predicted in the EIS. - No connective cracking between the surface and the underground workings.
Water Supply	
Central Coast Water Supply, including Wyong River and Jilliby Jilliby Creek and their tributaries	- Combined water loss of equal to or less than 300 megalitres/year. - No greater environmental consequences greater than predicted in the EIS or as permitted under the performance measures for watercourses above.
Land	
Minor cliffs	Environmental consequences (including occasional rockfalls, displacement or dislodgement of boulders or slabs, or fracturing) that are neither: - greater than ‘minor’ (as defined); nor - when summed together, impact on more than 3% of the total face area of such features within the mining area.
Rock face features	Environmental consequences (including occasional rockfalls, displacement or dislodgement of boulders or slabs, or fracturing) that are neither: - greater than ‘minor’ (as defined); nor - when summed together, impact on more than 5% of the total face area of such features within the mining area.
Biodiversity	
Threatened species, threatened populations, or endangered ecological	Negligible environmental consequences.

communities	
Heritage sites	
Aboriginal heritage sites listed in Table 1 of Appendix 4	Negligible subsidence impacts or environmental consequences
Historic heritage sites listed in Table 2 of Appendix 4	Negligible loss of heritage value.
Other Aboriginal and historic heritage sites	Negligible subsidence impacts or environmental consequences.
Mine workings	
First workings beneath any feature where performance measures in this table require negligible subsidence impacts or negligible environmental consequences	To remain long-term stable and non-subsiding.
Second workings	To be carried out only within the approved mine plan, in accordance only with an approved Extraction Plan

The subsidence impact performance measures in the draft conditions of consent are now well-established for underground coal mining projects in NSW and generally accepted by the community and Government, and by the Commission in other recent assessments. The Department considers the recommended performance measures, as modified, fully address the Commission's review report and other more recent Commission reviews of other similar projects, and represent current best practice for underground mining projects.

Extraction Plans

The performance measures are not intended to act in isolation; rather, they operate to provide an umbrella framework under which a range of other considerations and assessments are undertaken either prior to, during or following the extraction of each longwall panel to avoid and minimise subsidence impacts. In particular, these assessments relate to the preparation and approval of Extraction Plans.

The Extraction Plan process provides a detailed assessment process which supports the achievement of the performance measures. This process already addresses, to a significant degree, the issues raised by the Commission's recommendation. For example, each Extraction Plan requires a new and detailed assessment of impacts, ensuring the most up-to-date data is available as to the likelihood of impacts and to inform decisions regarding suitable management strategies. The Department therefore considers that the intent of paragraph 1(i) of the Commission's recommendation is achieved by the Department's standard condition that:

Each Extraction Plan must

- (e) provide revised predictions of the potential subsidence effects, subsidence impacts and environmental consequences of the proposed second workings, incorporating any relevant information obtained since this consent;*

Generally speaking, the Department also considers that its Extraction Plan process supports a robust adaptive management framework. The preparation of an Extraction Plan for each group of longwall panels allows an iterative assessment of impacts to all built and natural features to be focussed at the local level, ensuring that impacts are regularly re-assessed and impact management regimes further refined during the life of the project in response to the results of subsidence monitoring and recorded impacts.

As management plans which are entirely subordinate to the requirements and other provisions of the development consent, Extraction Plans are assessed by the Department in close consultation with other affected agencies. The form of the recommended consent is such that subsidence predictions, whether revised or otherwise, cannot be used to allow the performance measures to be exceeded. This is also the case with all other key management plans. The Department would be pleased to provide the Commission with examples of current Extraction Plans (otherwise available on company websites), if it would like to further consider them.

In regard to paragraph 1(ii) of the recommendation, the Department notes that it has standard conditions regarding subsidence monitoring, contingency planning and adaptive management. These are also considered to be generally sound. However, the Department agrees with the Commission that these can and should be updated and strengthened. The Department has looked to Extraction Plan conditions recently approved by the Commission to ensure consistency across the sector and provide certainty to WACJV that it is receiving fair and transparent conditions that are in line with similar mines in the State.

The Department recommends the following specific paragraph is included in the condition of consent setting out the components of Extraction Plans:

Each Extraction Plan must ... include ...

- (ix) *Trigger Action Response Plan/s addressing all features in Tables 1 and 2, which contain:*
- *appropriate triggers to warn of increased risk of exceedance of any performance measure; and*
 - *specific actions to respond to high risk of exceedance of any performance measure to ensure that the measure is not exceeded;*
 - *an assessment of remediation measures that may be required if exceedances occur and the capacity to implement the measures;*
 - *adaptive management where monitoring indicates that there has been an exceedance of any performance measure in Tables 1 and 2, or where any such exceedance appears likely; and*
 - *an assessment of remediation measures that may be required if exceedances occur and the capacity to implement those measures;*

The requirement for Trigger Action Response Plan/s (TARP/s) has effect for all performance measures in both Tables 1 and 2 of the draft consent. It therefore has effect for significant public infrastructure such as the M1 Motorway, electricity transmission lines and towers and the Buttonderry Waste Management Facility. Consequently, the Department considers that these paragraphs also satisfy the Commission's Recommendation 2.

Compliance and Enforcement

In terms of ensuring that the performance measures have full legal enforceability, the Department has included a condition which specifically requires WACJV to undertake the assessment and management of development-related risks to ensure that performance measures are not exceeded. The recommended condition is as follows:

The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedule 3 and 4. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation, notwithstanding actions taken pursuant to the offsets condition (condition 2 of Schedule 3) below.

Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity:

- (a) *take all reasonable and feasible steps to ensure that the exceedance ceases and does not reoccur;*
- (b) *consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and*
- (c) *implement remediation measures as directed by the Secretary, to the satisfaction of the Secretary.*

Furthermore, should WACJV exceed the performance measures in Table 1 and the Secretary determines that it is not reasonable or feasible to remediate the subsidence impact or environmental consequence, or if remediation measures have failed to satisfactorily remediate the subsidence impact or environmental consequence, then WACJV must provide a suitable offset to compensate for the subsidence impact or environmental consequence to the satisfaction of the Secretary.

Lastly, the Department notes that there are a number of reporting requirements under Schedule 6 of the draft conditions of consent, including for the reporting of non-compliances, meaning that the Department and in particular its Compliance Team would be made aware of potential issues in a timely manner that would also allow for the implementation of adaptive management.

Commission Recommendation 3

- 3) *That at least two formal reviews of the predicted subsidence impacts should be required: one after the first 5 longwalls have been completed (LW 1N-5N) and one after the next four have been completed (LW 6N-9N).*

The Department first notes that there is a general acceptance by the relevant Government bodies (ie the Department and DRE), technical experts and the Commission that the subsidence modelling and predictions for the Wallarah 2 Coal Project are best practice and adequate for the proposed mining of a 'greenfield site'.

However, as the Commission notes, the independent peer review by Professor Bruce Hebblewhite concluded that *"it will be absolutely essential that a comprehensive Wallarah site-based validation of*

the predictions and hence the prediction methodologies is carried out, once data is collected from subsidence associated with the initial longwall panels, to provide an even better level of confidence in the prediction techniques and the underlying assumptions and findings”.

WACJV has previously accepted these comments and committed to a process of continual improvement and adaptive management, which aligns with the underlying philosophy of the Extraction Plan process. Nonetheless, it is perfectly reasonable that the early years of longwall mining at an important and sensitive greenfield site are given special attention and are subject to a deliberate process of audit and review. Such audits would provide confidence to regulators and the community that the project is operating in accordance with its consent and not causing impacts beyond those approved. They also lend further support to the implementation of an adaptive management framework.

As such, the Department supports the Commission’s recommendation and has drafted a condition of consent to reflect it, as follows:

Within six months of the completion of Longwall 5N, and then again within six months of the completion of Longwall 9N, and at any other time directed by the Secretary, the Applicant must commission a suitably qualified person, whose appointment has been approved by the Secretary, to conduct an independent audit of the subsidence, surface water, and ground water impacts of the development. This audit must:

- (a) review the monitoring data for the development;*
- (b) identify any trends in the monitoring data;*
- (c) examine the subsidence, surface water, and ground water impacts of the development;*
- (d) compare these impacts against the relevant impact assessment criteria and predictions in the EIS; and, if necessary; and*
- (e) recommend measures to reduce, mitigate, or remediate these impacts.*

If the independent audit determines that the subsidence, surface water, and/or ground water impacts resulting from the underground mining operations are greater than those predicted in the EIS, the Applicant must:

- (a) assess the significance of these impacts;*
 - (b) investigate measures to minimise these impacts, including modifying subsequent mine plans; and*
 - (c) describe what measures would be implemented to reduce, minimise, mitigate or remediate these impacts in the future;*
- to the satisfaction of the Secretary.*

Other requirements of the draft consent provide further audit, reporting and adaptive management mechanisms (see eg the conditions requiring Independent Environmental Audits (condition 10 of Schedule 6) and the reporting requirements of the Annual Review process (condition 9 of Schedule 6)). Should the Department’s review of these documents note any reasons for a further independent audit of subsidence impacts, the Department has the power to request such under the condition recommended above.

Commission Recommendation 4

- 4) That appropriate monitoring of non-conventional subsidence effects be included as a requirement in any consent and that the relevant Extraction Plan be required to contain appropriate measures to control the risks from non-conventional subsidence so as to ensure that the environmental performance criteria are not exceeded.*

Non-conventional subsidence effects have been recognised increasingly over the last 15 to 20 years, largely as a result of observations in the NSW Southern Coalfield. Prediction of non-conventional subsidence effects is therefore a relatively young science which remains somewhat inexact. For example, the development of predictive methods for upsidence and valley closure are the result of recent and ongoing research and these methods do not, at this stage, have the same confidence level as conventional subsidence prediction techniques.

The Department notes that the Commission made a similar comment and recommendation in its Springvale review. The Department supported this recommendation and non-conventional subsidence effects were included as a specific requirement in conditions governing Extraction Plans in Springvale’s consent.

The Department has accepted the Commission’s recommendation that these requirements should be made more explicit by referencing both conventional and non-conventional subsidence, and has drafted a condition of consent to reflect it, as follows:

Each Extraction Plan must ... include a ...:

- (i) Subsidence Monitoring Program which has been prepared in consultation with DRE to:
 - describe the ongoing conventional and non-conventional subsidence monitoring program;
 - provide data to assist with the management of risks associated with conventional and non-conventional subsidence;
 - validate the conventional and non-conventional subsidence predictions;
 - analyse the relationship between the predicted and resulting conventional and non-conventional subsidence effects and predicted and resulting impacts under the plan and any ensuring environmental consequences; and
 - inform the adaptive management process in paragraph (ix) below;

Commission Recommendation 26

26) That before granting any consent, the consent authority satisfy itself that proposed compensation measures for subsidence-related damage to privately-owned built features will deliver a fair and reasonable outcome for affected property owners. If the consent authority cannot be satisfied that the outcomes will be fair and reasonable than the consent authority will have to consider whether the residual impacts make the project unacceptable within the terms of s79C of the Act.

The Department has carefully considered the Commission's concerns in relation to proposed compensation measures for subsidence-related damage to privately-owned built features. It notes three specific bases for the Commission's concerns:

- the large number of houses to be undermined and the strong concerns expressed to the Commission regarding the fairness of the statutory compensation scheme operated by the Mine Subsidence Board (MSB);
- potential impacts on transmission lines; and
- potential far-field effects on the M1 Motorway bridges.

With these exceptions, the Commission was satisfied that the PAR and draft conditions of consent provided a sound scheme for dealing with potential subsidence impacts on built features.

Privately-owned Residences

The MSB is currently responsible for administering the *Mine Subsidence Compensation Act 1961* (MSC Act). The MSB has three primary functions, namely to:

- provide compensation where surface developments are damaged by mine subsidence following extraction of coal or shale in NSW;
- control surface development within Mine Subsidence Districts to minimise liabilities arising from mine subsidence; and
- manage risk associated with mine subsidence including public awareness of mine subsidence.

All 245 residences within the project's predicted subsidence impact limits are located within either the Hue Hue Mine Subsidence District (MSD) or the Wyong MSD, which were proclaimed in 1985 and 1997, respectively. The MSDs are managed under the MSC Act. The MSB is responsible for reducing the risk of mine subsidence damage to properties within MSDs by assessing the buildings and other improvements proposed to be erected in MSDs and applying particular building standards to them. All houses and other improvements built since the MSDs were proclaimed should therefore have been constructed to the building specifications set by the MSB to limit potential subsidence impacts on the structure, ie such residences have been built to avoid or minimise subsidence impacts from mining which was foreseen to be likely to take place beneath them. In turn, the project has been designed to meet the subsidence criteria that have been applied by the MSB for many years in setting building specifications within the two MSDs.

The MSB is also responsible for the repair of damage to houses and other improvements (or compensation) as a result of mine subsidence, whether or not this subsidence takes place in an MSD. All landowners should be aware of the potential for underground mining, as MSDs are identified in Section 149 Certificates attached to contracts of sale whenever a residence or land is purchased.

If a property is damaged by mine subsidence, the property owner lodges a claim for compensation with the MSB. The MSB assesses the claim and inspects the damage. The MSB may accept or reject a claim. If the claim is accepted, the MSB will generally engage contractors to repair the damage. Alternatively, the MSB may choose to provide compensation to a property owner instead of carrying out works. Where the damage renders a home uninhabitable, the MSB may choose to acquire the

property. If claimants are unhappy with the MSB's claims determination, the only avenue for independent review is to appeal the MSB's decision in the Land and Environment Court.

However, as discussed in **Section 4 in Part 1**, since the Commission's First Review Report, the NSW Government has undertaken a review which has proposed a series of measures to change the mine subsidence compensation system to make it fairer and provide better outcomes for property owners affected by subsidence. At an organisational level, the MSB is being transitioned to a newly established, citizen-focused Subsidence Advisory NSW (SA NSW), responsible for facilitating all claims and providing strategic and technical advice to Government and industry.

The most significant change is to make current underground coal mining operators directly accountable for the subsidence they cause. If a property is damaged by mine subsidence caused by an active coal mine, property owners would lodge a claim with SA NSW, which will facilitate a discussion between the mine operator and the claimant. Government will regulate the process and support claimants to ensure that mining operators are fully and directly accountable for the damages they cause. The current system requires the MSB to collect annual levies based on coal production all coal mines in NSW (including open cut mines) and then to make compensation payments out of the resulting Mine Subsidence Compensation Fund. It is intended that the purpose of the Fund will be substantially reduced and that SA NSW will only retain responsibility for processing claims arising from subsidence damage caused by abandoned mines.

These reforms require legislative change. It is currently intended that an amending Bill will be provided to Government for further consideration in early 2017. Subject to the Bill being passed in Parliament, the major changes to the levy framework will take effect in 2018. The MSB has already been rebranded as Subsidence Advisory NSW (SA NSW). All other current arrangements remain in place until 2018.

On the basis of this timetable, the Department expects that the new legislation will be in place by the time that the 3-year construction stage of the project is completed. That is, subsidence damage arising from the project would be dealt with under the new statutory regime. The Department understands that these changes are unlikely to lead to any reduced benefits and compensation for landowners, rather a different framework within which that compensation is sought directly from WACJV.

In its previously-proposed draft conditions of consent, the Department included a condition relating to subsidence impacts on privately-owned residences, including performance measures requiring that privately-owned residences:

- are always safe;
- have serviceability maintained wherever practical;
- are fully compensated in the event of loss of serviceability; and
- must be fully repairable, and must be fully repaired or else replaced or fully compensated.

The Department notes that this places a responsibility on WACJV to ensure it meets the performance measures, or it may be subject to the requirements of recommended condition 5 of Schedule 6 (see discussion under Compliance and Enforcement, above). The Department has also included a note under Table 2 of condition 3 of Schedule 3 to the effect that the performance measures for built features may be met by measures undertaken in accordance with the *Mine Subsidence Compensation Act 1961*, or any legislation which replaces it.

The Department is satisfied that, in the event of subsidence-induced damage to privately-owned residences, all outcomes would be fair and reasonable. Any dispute between WACJV and the owner of any built feature over the interpretation, application or implementation of the performance measures in Table 2, would be settled by the Secretary, following consultation with SA NSW.

The Commission (as stated in its review report) and the Department both agree that the MSB process and the draft conditions of consent allow for appropriate compensation following subsidence-related damage providing these processes are applied equitably and in a timely manner. The Department remains satisfied that the considerable value of the coal resource within the project area would significantly outweigh the cost of any repairs to residences required under the MSC Act, or any legislation which replaces it. As noted previously, such compensation payments are funded by the MSB's levies on coal mining companies, and come at no cost to either the individual property owner, or to the taxpayer.

Transmission Lines and M1 Motorway Bridges

The PAR examined the potential subsidence effects on two 330 kV transmission lines and 29 associated towers within the project's predicted subsidence impact limits. The two transmission lines (TL21 and TL22) are expected to experience maximum vertical subsidence of 2100 mm and 2500 mm respectively (see Table 7 in the PAR). Electricity transmission lines are listed as 'key public infrastructure' in Table 2 in condition 3 of Schedule 2 of the draft consent.

Both the Department and the Commission recognise that WACJV has committed to ongoing consultation with TransGrid and SA NSW, so that preventative measures and appropriate management strategies can be developed. TransGrid has confirmed with the Department and the Commission that it would work with WACJV to develop mitigation and management options, including possible transmission line relocation, structural modifications and modified transmission line designs. TransGrid has further confirmed that the appropriate options would be determined via a commercial agreement and feasibility analysis, a position to which WACJV has agreed in writing. WACJV has also agreed that the associated costs of analysis, mitigation measures, adjustments, repairs, redesign, modification or relocation of the transmission lines would be fully borne by WACJV.

The draft conditions of consent include performance measures for the TransGrid towers requiring that they are always safe and serviceable and that damage that does not affect safety or serviceability must be fully repairable, and must be fully repaired. Both the Department and the Commission remain satisfied that this is a reasonable performance standard. It is also accepted that the Built Features Management Plan, as required under the Extraction Plan, provides for the appropriate ongoing management of subsidence effects and impacts on the transmission lines and towers.

Nevertheless, the Commission noted the advice that there is an agreement by both parties for a commercial arrangement but considered that any draft conditions should provide an appropriate safeguard that a commercial agreement has been reached between WACJV and TransGrid prior to the commencement of second workings. The Department is not aware of any such condition being previously requested by the Commission, nor being recommended by the Department for any underground mining operation in NSW.

Since the Commission's review, WACJV and TransGrid have met several times leading to commitments being made by both parties, as documented in the October 2016 *Modification Processes Agreement - Wallarah 2 Coal Transmission Line 2M/22 Modification* (Transmission Line Agreement). The Transmission Line Agreement relates to work that TransGrid would undertake (should development consent be granted) to resolve issues relating to subsidence impacts on TransGrid assets.

As outlined in the Transmission Line Agreement, TransGrid would provide the following initial services;

- review and assessment of the project on TransGrid assets;
- review and assessment of technical impacts for the project, including advice in relation to clearances; and
- assessment of any access, operational or maintenance impacts of the project.

The Transmission Line Agreement then details a Feasibility Study to be undertaken by TransGrid which would include:

- an engineering design assessment of structures affected by the longwall mine in Stage 1;
- an engineering determination, based on a review of the subsidence report and the structure assessment to determine whether:
 - o it is possible to reinforce existing towers in their current locations; or
 - o it would be necessary to complete some form of line deviation for Stage 1 works; and
- a preliminary engineering assessment of the work scope, risks, timing and costs for resolution of Stage 1 impacts in regard to affected towers.

Should development consent be granted, WACJV would provide:

- detailed specifications and plans, showing property boundaries and other relevant information. Survey plans would clearly identify TransGrid's easements, any high voltage transmission lines and horizontal clearances; and
- three dimensional CAD files of the development, particularly where located within or surrounding TransGrid assets and easements.

WACJV has committed to continue to consult with TransGrid to resolve any outstanding issues and the timing for TransGrid services. Given the progress that has taken place over the past two and a half

years between TransGrid and WACJV and the fact that there is a signed agreement in place, the Department is satisfied that, in the event of subsidence-related damage, there would be mechanisms in place that would deliver a fair and reasonable outcome. The Department also notes that it is the existence and form of the performance measures limiting impacts on Transgrid's transmission towers, together with a breach of these measures being a breach of the consent and therefore subject to compliance and enforcement action (see condition 5 of Schedule 6), that would drive WACJV to establish fair and reasonable compensation measures.

On this basis, the Department does not consider it necessary to recommend further conditions requiring an agreement be reached prior to second workings commencing. Such arrangements would continue to be dealt with under the signed agreement between the two parties and the Built Features Management Plan required under the Extraction Plan process (as is standard practice for all NSW underground mines undermining TransGrid facilities).

M1 Motorway Bridges

It was noted in the PAR that the M1 Motorway is located approximately 1.1 km from the nearest proposed longwall. It is predicted to be subject to 'negligible' conventional subsidence impacts. The road pavement is also unlikely to be impacted by far-field horizontal movements; however it is possible that the freeway bridges could be sensitive to such movements.

The Commission raised concern over the potential impacts of non-conventional subsidence (ie far-field horizontal movements) as a result of the project. It was noted that the principal risks of far-field subsidence are associated with major infrastructure such as bridges that may be sensitive to differential horizontal movements.

WACJV has committed to consulting with RMS during the preparation of Extraction Plans, should development consent be granted. WACJV would provide the relevant subsidence predictions to RMS to inform a structural assessment of the bridges.

The Department notes that this is standard practice for the management of underground coal mines and potential subsidence effects and impacts within NSW. As such, the Department has provided draft conditions of consent that reflect this standard practice. The draft conditions of consent include performance measures for the M1 Motorway (including its bridges) requiring that it is always safe and serviceable and that damage that does not affect safety or serviceability must be fully repairable, and must be fully repaired or else fully compensated. Both the Department and the Commission are satisfied that this is a reasonable performance standard. It is also accepted that the Built Features Management Plan, as required under the Extraction Plan, provides for the appropriate ongoing management of subsidence on the M1 Motorway.

The Commission's advice as reported in its review of the project, was to ensure that an assessment is done by RMS prior to the commencement of longwall extraction (ie second workings). The Department is satisfied that the existing conditions cover this in that the Built Features Management Plan component of any Extraction Plan where damage to the M1 Motorway is foreseeable must be prepared in consultation with RMS and approved by the Secretary prior to second workings occurring.

In respect of the risk of non-conventional subsidence impacting on the M1 Motorway bridges, the Commission should also note the Department's response to the Commission's Recommendation 4, above.

2.2 Water Resources

Commission Recommendations 5 and 6

- 5) *Before submission of the project for determination the consent authority be provided with revised estimates by year for:*
 - (a) *increased storage in the alluvium as a result of subsidence;*
 - (b) *losses to the alluvium from near-surface cracking of bedrock and movement of water into fracture zones;*
 - (c) *losses to the alluvium from leakage through the constrained zone to the zone of depressurisation;*
 - (d) *losses to baseflow from any changes to catchment flows (ie loss of catchment area) for streams potentially supplying the CCWS; and*
 - (e) *any other potential sources of loss of water from subsidence-induced changes to either the streams or the alluvial aquifers.*

These estimates must indicate whether the losses are expected to be temporary or extend beyond the life of the mine. The estimates should also have been reviewed by NOW [now DPI Water].

- 6) *Given the sensitivity of the CCWS to drought, both temporary and permanent potential losses of baseflow are to be treated as potential impacts on the CCWS.*

Baseflow losses

WACJV, in its response to the Commission's First Review Report (see **Appendix F**), provided revised estimates regarding temporary and permanent potential losses to the water supply of the CCWS. Streamflow is essentially comprised of two components: baseflow and quickflow. Baseflow is the contribution to streamflow provided by near-stream and sub-stream aquifers, whereas quickflow is the contribution from rainfall runoff.

The key groundwater impacts that have the potential to impact the CCWS Scheme are:

- losses from the alluvium from leakage through the constrained zone to the zone of depressurisation;
- losses from the alluvium via near-surface cracking of bedrock and movement of water into fracture zones; and
- increases in alluvial groundwater storage as a result of subsidence.

WACJV's response provided estimates of the project's temporary and long-term groundwater impacts on the streams which supply the CCWS. **Table 16** sets out losses from the alluvium from leakage through the constrained zone to the zone of depressurisation (the second column), losses from the alluvium via near-surface cracking of bedrock and movement of water into fracture zones (the third column) and increased storage in the alluvium as a result of subsidence (the fourth column).

Table 16: Estimated groundwater impacts by project year

Project Year	Ongoing Vertical Leakage (ML/year)	One-off Losses to Crack Storage (ML/year)	One-off shallow alluvial transfers (ML/year)
1 - Construction	0.00	0.00	0
2 - Construction	0.00	0.00	0
3 - Construction	0.00	0.00	0
4 (Year 1 of mining)	0.00	0.00	0
5	0.00	0.00	0
6	0.00	0.00	0
7	0.00	0.00	0
8	0.37	0.52	35
9	0.66	0.63	68
10	1.06	1.00	110
11	1.61	2.15	157
12	2.19	2.40	180
13	2.92	2.45	168
14	3.65	1.72	110
15	4.45	1.85	113
16	4.96	1.13	75
17	5.18	0.50	41
18	5.26	0.19	20
19	5.33	0.18	17
20	5.40	0.00	8
21	5.48	0.00	5
22	5.58	0.00	5
23	5.66	0.00	5
24	5.77	0.00	8
25	5.95	0.20	20
26	6.39	1.76	117
27	6.79	1.60	102
28	7.12	1.04	63

It is generally accepted that down-gradient leakages from the alluvium (ie column 2 of **Table 16**) would continue to occur until groundwater pore pressures in the hardrock strata affected by mining recover to pre-mining levels. As such, these impacts would occur each year during mining and would extend well beyond the period of mining. Nevertheless, due to the low permeability of the hardrock strata, the rate of leakage is predicted to be very low (ie the maximum impacts on baseflow post-mining are estimated at 36.5 ML/year). Therefore it can be concluded that leakage from the alluvium is a long-term but minor impact on the CCWS.

Losses of water due to cracking at the base of the alluvium (column 3 of **Table 16**) are permanent in nature but are very small in scale and are 'one-off' losses. That is, once these cracks fill, there is no additional space for them to fill again. This is based on the assumptions that the fracture networks are finite, that recharge would rapidly fill voids to capacity and that the overlying alluvium would act as a

seal. All ongoing losses (ie down-gradient leakage below the level of surface cracking) are therefore expressed as vertical leakage (column 2).

The Department generally accepts that any ongoing water loss into the fracture networks would be small and of little consequence. DPI Water has also advised the Commission that the magnitude of water loss is not considered to be significant and would be addressed by monitoring and mitigation. The Commission also concluded in its review report that the loss of water from the alluvium to near-surface fracture networks would be limited in amount and duration.

Increased storage in the alluvium (column 4 of **Table 16**) occurs only when mining beneath the alluvium. During these periods, an additional volume of surface runoff (and occasional over-bank flood flows) is transferred into the alluvium, since it is now at a lower relative level than the normal (or flood) stream height. This additional stored water then becomes either available for extraction from alluvial bores or else is slowly returned to the streams as baseflow once stream levels are low enough. Increased transfer of water into the alluvium is therefore considered to be a temporary (ie 'one-off') impact on the water supply scheme (as also acknowledged in the Commission's review report).

Overall, the Commission's first review accepted that the majority of baseflow water loss would be returned to the system at a later date, as it was shed to the streams during times of average and low stream heights (ie times of lower flows). Nonetheless, in dry years, the increased storage capacity in the alluvium could decrease baseflow and must therefore be treated as a potential impact on the CCWS.

The Department agrees with the Commission that both temporary and permanent potential losses of baseflow are to be treated as potential impacts on the CCWS.

Catchment Losses

Losses to baseflow from changes to catchment flows (ie loss of catchment area) for streams supplying the CCWS are discussed in Section 2.2.1 of WACJV's response to the Commission's First Review Report (see **Appendix F**).

WACJV provided further advice for the proposed Buttonderry Site which would capture surface runoff from within the Buttonderry Creek catchment. Buttonderry Creek drains to Porters Creek wetland, which is not generally part of the CCWS but is used to supplement the water supply scheme during drought periods. Since the size of the Buttonderry Site would remain constant throughout the project life, the volume of runoff captured is dependent only on rainfall. The site would capture an estimated 30 ML/year of runoff under average rainfall conditions. This change to catchment flows to Porters Creek wetland represents a long term but very minor impact on the water supply scheme.

The Department notes that the discussion in WACJV's response focuses on construction of the Buttonderry Site. The Department accepts this as the Tooheys Road Site would reduce the catchment area of Wallarah Creek, which does not supply water to the CCWS.

Other Losses

In regards to sub-paragraph (e) of the Commission's recommendation, the Department is satisfied that there are no other impact mechanisms that may affect volumes of water within the CCWS Scheme.

Potential Impacts to the CCWS

The Department has carefully considered the Commission's review report and the submissions made in objection to the project and agrees with the Commission that the potential for the project to reduce water available for supply to residential, business and other licensed users on the Central Coast is considered by many to be the most significant issue for the project.

In total, vertical leakage, additional crack storage and alluvial transfers resulting from the project are predicted to have a negligible effect on the baseflow to affected streams that supply the CCWS. However, these impacts result in temporary reductions in quickflow in those streams until equilibrium is reached after rainfall recharges the available pore space storage in the alluvium and hydraulic gradients towards the local drainage channels are re-established.

In regards to the Jilliby Jilliby Creek catchment, the EIS conservatively estimated a maximum impact of 270 ML/year. This was derived from the predicted transfer of water into the alluvium (180 ML) during the worst case year (see **Table 15**). The actual increase in storage is dependent on the porosity of the alluvial sediments. Due to uncertainty regarding this porosity, a multiplying factor of 1.5

was conservatively applied to the predicted worst case annual impact (180 ML/year) to obtain a likely worst case (upper bound) impact of 270 ML/year. If the estimated 30 ML/year catchment loss at the Buttonderry Site is added to this figure, then a potential upper bound annual loss to the CCWS of 300 ML/year could result.

There is general agreement among the consultants, experts, agencies, the Department and the Commission that the combined maximum impacts of subsidence on baseflow of 300 ML/year is a conservative estimate and that the majority of this loss is attributed to storage increases associated with subsidence of sections of the alluvium.

Further, the Department considers that the actual impact likely to be significantly less than this conservative estimate. The first reason to take this position is the fact that a proportion of the additional stored alluvial water will return to the streams during periods of low flow (exactly when baseflow is needed to support continued stream flow). What is not known is what proportion of the increased storage will return to the streams.

In addition, it must be noted that this worst case scenario could only result in one year of the project (Year 12, see **Table 16**). If the baseflow losses predicted in **Table 16** occur in each year and the conservative multiplier of 1.5 times prediction is applied to them all, then combined baseflow and catchment losses would average a much lower 106.5 ML/year over the 28 year project life. This is less than 0.3 ML/day or 2.0 ML/week, on average, over this period.

On the other hand, the amount of water supplied each week by the CCWS currently varies seasonally between 500 ML and 700 ML. The overall storage capacity of the CCWS's three dams and three weirs is 202,700 ML and their overall catchment is about 727 km². The licensed water use from the Wyong River Water Source for irrigation is approximately 3,878.2 ML/year. For Jilliby Jilliby Creek, the licensed water use for agricultural purposes is approximately 1,061 ML/year. The overall mining area for the project is some 37 km². The maximum annual water take from the project represents approximately 0.15% of the overall storage capacity of the CCWS's three dams.

It must also be noted that water supply security for the entire Central Coast has increased markedly since total water storage dropped to just over 10% in early 2007. The CCWS's total water storage has increased steadily since that time and is currently standing at 73%, having reached record levels in early 2016. These changes have partly reflected a changed rainfall pattern, but principally result from completion of pipelines between the Mardi and Mangrove Creek Dams and between the CCWS and Hunter Water's water supply system.

WACJV provided further information on 16 January 2017 on the potential 'worse case' water loss due to the project on both surface water and baseflow in the Wyong River catchment. The analysis demonstrated that, during a dry year, the impact on flows is negligible during periods of surface runoff (ie the only impact is to baseflow). The impact during dry periods is apparent but does not change the general character of flow and has a negligible impact on the number of no-flow days.

On 17 January 2017 DPI Water provided comment on WACJV's response to all of the Commission's water-related recommendations and requested that WACJV provide further information including any data or modelling used to inform that response. WACJV's response of 19 January 2017 was provided to DPI Water, which noted on 23 February that, while it had not completed a detailed review, WACJV's responses appear to address the Commission's Recommendation 5(a)-(c). DPI Water made no detailed final comments on Recommendation 5(d)&(e). DPI Water indicated that it was prepared to meet with the Commission, the Department and WACJV further on these matters, if required.

The Department is satisfied that WACJV has provided an adequate response to the Commission's recommendations. The Department's view is that the likely losses to the CCWS, whether based on upper bound predictions or a more likely scenario, are very low, and are acceptable.

Commission Recommendation 7

- 7) *Potential impacts on shallow groundwater systems be included in the performance criteria in Schedule 3 of any consent, particularly in relation to potential losses that could contribute to decreases in baseflow to streams supplying CCWS. The maximum predicted impacts of 300 ML/year should not be allowed to be exceeded unless the environmental impacts remain within existing predictions and any loss can be compensated.*

The Department considers that its previously recommended performance measures regarding environmental consequences for key watercourses did reflect potential impacts on baseflow, since baseflow is a key component of the streams themselves and their function.

However, in response to the Commission and the public's concerns and to strengthen enforceability by regulators, the Department has amended the performance measures for 3rd, 4th, 5th and 6th order streams to include their alluvium (see **Table 15**). This requirement to specifically address alluvium has not been extended to 1st and 2nd order streams as they are less significant watercourses which generally have either little or no alluvium.

The Department also proposes a performance measure reflecting the Commission's recommendation, as follows (see also **Table 15**):

Water Supply	
<i>Central Coast Water Supply, including Wyong River and Jilliby Creek and their tributaries</i>	• Combined water loss of equal to or less than 300 megalitres/year. • No greater environmental consequences greater than predicted in the EIS and as permitted under the performance measures for watercourses above.

The Department notes that the Commission's recommendation extended to compensation. The Department has addressed this separately under Recommendations 12 and 13 below.

Commission Recommendations 8 and 24

- 8) *Appropriate monitoring arrangements, satisfactory to NOW [now DPI Water], be incorporated into the conditions of any consent to ensure that all potential losses of baseflow be accounted for.*
- 24) *That the consent authority review water-related monitoring requirements carefully to ensure that they will provide (a) the information necessary to assess performance of the project against performance criteria in any consent and (b) also provide the information necessary to support the adaptive management requirements in Extraction Plans for individual longwalls.*

As discussed under Recommendations 1, 2 and 7 the Department has recommended strengthening and clarifying the performance measures associated with water resources and water supply, and the subsequent monitoring that would need to be undertaken to ensure compliance with these performance measures. The Department has also recommended a specific condition limiting baseflow losses affecting the CCWS. The Department has recommended changes to the condition governing Extraction Plans and their component Water Management Plan (condition 6 of Schedule 3).

To support these revised conditions, the Department proposes a new condition governing a Water Monitoring Program covering the extraction areas, as follows:

Prior to longwall extraction and as part of each Extraction Plan, the Applicant must prepare a Water Monitoring Program for the areas of the development subject to underground mining, to the satisfaction of the Secretary. This program must:

- (a) *be prepared in consultation with Council, DPI Water and the EPA, by suitably qualified and experienced persons whose appointment has been approved by the Secretary;*
- (b) *be approved by the Secretary prior to the commencement of the longwall mining;*
- (c) *assess all affected sections of 6th, 5th, 4th and 3rd order streams and their alluvium;*
- (d) *assess a representative sample of affected sections of 2nd and 1st order streams (including the affected sections of Hue Hue Creek);*
- (e) *include a:*
 - (i) *surface water monitoring program to monitor and report on:*
 - *the baseline data as collected under condition 6(g)(iii) above;*
 - *stream morphology;*
 - *stream flows and quality;*
 - *any changes resulting from subsidence impacts, including potential impacts on town water extraction availability under various climatic scenarios;*
 - *stream and riparian vegetation health, including threatened species habitat, particularly within the Jilliby SCA;*
 - *channel and bank stability;*
 - (ii) *groundwater monitoring program to monitor and report on: and*
 - *the baseline data as collected under condition 6(g)(iii) above;*
 - *baseflows;*
 - *groundwater inflows to the underground mining operations;*
 - *the height of groundwater depressurization;*

- background changes in groundwater yield/quality against mine-induced changes, in particular, on groundwater bore users in the vicinity of the site; and
 - groundwater dependent ecosystems;
- (iii) flooding monitoring program to monitor and report on:
- updated flood modelling;
 - measures to minimise, manage and mitigate (whether prospectively or retrospectively) flood impacts on key public infrastructure, other public infrastructure, residences, other built features and privately-owned land; and
 - private properties where mitigation measures are not reasonable or feasible and compensation would instead be offered; and
- (f) be capable of differentiating between subsidence impacts and related environmental consequences and background variations for stream morphology, baseflows, stream flows and water quality and flooding.

The Applicant must implement the approved Water Monitoring Program as approved from time to time by the Secretary.

The condition governing a Water Management Plan across the parts of the project not subject to longwall extraction (ie the surface facility sites, see Condition 19 of Schedule 4) also includes a requirement for a Groundwater Management Plan and a similar, but more limited, groundwater monitoring program. The Groundwater Management Plan must be prepared in consultation with DPI Water, and be consistent with DPI Water's guideline *Groundwater Monitoring and Modelling Plans – Introduction for prospective mining and petroleum activities*.

Subject to these conditions, the Department is satisfied that the project would be subject to appropriate monitoring arrangements and that all potential water impacts (ie impacts on surface water, groundwater and the CCWS) are appropriately monitored and managed, in consultation with DPI Water.

Commission Recommendations 9 and 10

- 9) *Pre-mining testing of privately owned registered bores and wells be required to establish their performance characteristics.*
- 10) *The burden of proof that any declines in performance were not due to mining impacts rest with the Proponent [Applicant].*

The draft development consent prepared by the Department contains requirements to prepare and implement two separate Water Management Plans. One is a component of each Extraction Plan and only applies within areas subject to longwall extraction and associated subsidence (see condition 6 of Schedule 3). The other applies to all other areas of the development, particularly the areas affected by proposed surface facilities (see condition 19 of Schedule 4).

Privately-owned registered bores and wells bores within the areas subject to Extraction Plans would be subject to the requirement for WACJV to prepare a:

Water Management Plan which has been prepared in consultation with EPA and DPI-Water, which provides for the management of potential impacts and/or environmental consequences of the proposed underground workings on watercourses and aquifers, including:

- *detailed baseline data on:*
 - *surface water flows and quality in water bodies that could be affected by subsidence,;*
 - *groundwater levels, yield and quality in the region, including for privately owned registered bores and wells;*
- *surface and groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse impacts on water resources or water quality;*

Privately-owned registered bores and wells bores within other areas affected by the development would be subject to the requirement for WACJV to prepare a Groundwater Management Plan which includes:

- *detailed baseline data of groundwater levels, yield and quality in the region that could be affected by the development, including licensed privately-owned groundwater bores and a detailed survey/schedule of groundwater dependent ecosystems;*
- *groundwater assessment criteria including trigger levels for investigating any potentially adverse groundwater impacts;*

These conditions would require pre-mining testing of privately-owned registered bores in order to obtain baseline data and establish their performance characteristics. The Department notes that the same requirements have been included in recent Commission determinations such as those for the

Springvale, Mandalong and Airly Mine Extension Projects. The Department considers that these conditions meet the Commission's recommendation.

In regards to Recommendation 10, the Department has included a note below the recommended Extraction Plan condition that *"the burden of proof that any declines in performance of privately-owned registered bores and wells were not due to mining impacts rests with the Applicant"*.

Commission Recommendations 11 to 15

- 11) *The project be required to meet a no net impact performance outcome on catchment water resources during the life of the mine.*
- 12) *Consideration be given to augmentation of CCWS supply by return of sufficient minewater treated to the required standards for raw water supply to compensate for the estimated losses during the life of the mine.*
- 13) *The principles governing this augmentation of CCWS supply be as described in section 3.3.1.4 of this review report.*
- 14) *That mining beyond LW 5N not be permitted until the mechanism to compensate for potential impacts on water availability for CCWS is operational.*
- 15) *That no compensation be required beyond mine closure for the predicted 36.5 ML/year loss provided that a review prior to mine closure confirms that the loss does not exceed 36.5 ML/year.*

The Department agrees that any loss of stream flow (or indirect water 'take') from the CCWS should be licensed, as for all other underground mining operations. The Commission has gone further in suggesting that this loss of water should also be compensated for. In essence, this would involve the WACJV paying for this water take twice. In this respect, WACJV has previously committed to developing a compensatory mechanism to ensure that there is no net impact on the CCWS. WACJV has also previously advised that an onsite water treatment plant at the Tooheys Road Site would treat all mine water pumped from the underground workings and runoff from the stockpile area. It proposes that surplus treated water would be discharged to Wallarah Creek, which the Department notes is not part of the CCWS.

It is also feasible that WACJV could supply surplus treated water either back into the catchment, directly to a CCWS storage, or directly to various CCWS customers in the vicinity of its treatment facility, thus replacing any water otherwise lost from the water supply scheme. However, WACJV has made no firm commitments of this type.

DPI Water and the Commission have also previously suggested that WACJV could compensate for its impacts on the water supply scheme by contributing funding to the costs of bringing forward the scheduled augmentation of the CCWS's headworks. WACJV accepts this as an alternative to discharging treated water into the water supply catchment. However, it considers that, if the option of returning water to the water supply catchment is adopted, there should be no need for it to make any additional contribution to augmentation of CCWS infrastructure.

In the Department's view, there is insufficient information available to determine the most appropriate measure for compensation at this time. The best measure would be likely to be the most economically efficient and environmentally acceptable, when considered from the perspectives of both WACJV and the relevant water supply authority. The Department considers that the best measure/s for compensation should be decided by WACJV in consultation with the relevant authority, prior to mining in areas which would impact the CCWS. Since the disbanding of the Central Coast Water Authority in 2014, the relevant water supply authority is the Central Coast Council itself.

The Department has therefore proposed a condition of consent requiring WACJV to enter into a CCWS Compensatory arrangement (see conditions 15 – 16 of Schedule 3), as follows:

Prior to the approval of any Extraction Plan that authorises extraction of Longwall 6N, the Applicant must, in consultation with Council and DPI Water, develop a Central Coast Water Supply Compensatory Arrangement to compensate for the measured losses of water to the Central Coast Water Supply caused by underground coal mining on the site until the cessation of mining operations (see condition 5 of Schedule 2), to the satisfaction of the Secretary.

The Compensatory Arrangement must consider all reasonable and feasible measures to compensate for the measured losses of water to the Central Coast Water Supply, including, but not limited to the:

- (a) *purchase of appropriate water licences;*
- (b) *supply of treated mine water to Council or directly to other water users; and*
- (c) *contribution of funds to Council to assist in funding scheduled works,*
to the satisfaction of the Secretary.

Any dispute over the implementation of the Arrangement may be referred by either party to the Secretary for resolution.

In further information provided on 16 January, WACJV restated its commitment to ensuring adequate licences are in place for water take or for providing compensatory measures that may include supply of treated water to water users or contributing towards augmentation of future water supply works, with final details to be negotiated with Council and the relevant government agencies.

Commission Recommendations 16 and 17

- 16) *Specific provision be made in the conditions of any consent to ensure that landholders whose access to surface waters is negatively affected by the project have compensatory supply provided within 24 hours and that the Proponent [Applicant] be responsible for restoring access as soon as practicable.*
- 17) *The Proponent [Applicant] bear the onus of proof in the event of a dispute over subsidence-induced impacts on surface water access.*

The previously proposed draft conditions of consent already contained provisions for the provision of compensatory water supplies within 24 hours (the previous draft condition 13 of Schedule 4). The Department has noted the Commission's comments that it considered this condition to be non-specific as to how the loss would be determined and also does not deal explicitly with the issue of pumping infrastructure. The Commission further considered that it needs to be very clear that WACJV must have the capacity to determine the magnitude of the loss and must provide compensation for the loss. The Commission also considered that WACJV should bear the burden of proof in the event of any dispute.

The Department has considered the Commission position and also reviewed a more recent underground coal mine determination by the Commission (Springvale). It has recommended a number of minor changes to the wording of the condition (now condition 14 of Schedule 4), as follows:

The Applicant must provide a compensatory water supply to any owner of privately-owned land whose water supply is adversely and directly impacted (other than a negligible impact) as a result of the development, in consultation with DPI Water and to the satisfaction of the Secretary.

The compensatory water supply measures must provide an alternative long-term supply of water that is equivalent, in quality and volume, to the loss attributed to the development. Equivalent water supply must be provided (at least on an interim basis) within 24 hours of the loss being identified.

If the Applicant and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

If the Applicant is unable to provide an alternative long-term supply of water, then the Applicant must provide alternative compensation to the satisfaction of the Secretary.

Note: The burden of proof that any loss of surface water or groundwater access was not due to mining impacts rests with the Applicant.

As discussed above, the Department has also strengthened the draft conditions of consent to include stronger monitoring requirements which would allow WACJV to more readily determine the magnitude of the loss (see response to Recommendation 9 and 10 and condition 8 of Schedule 3) in order to provide appropriate compensation under condition 14 of Schedule 4.

The Extraction Plan process would also continue to apply. In this regard, the Built Features Management Plan would extend to privately-owned bores and wells and any surface water management works, such as pumps, pipelines and drains.

Commission Recommendations 18, 19 and 20

- 18) *Before the project is submitted to the consent authority, the risks to stream morphology of interaction between significant rainfall event(s) and the interface between subsided and unsubsidised sections of a stream be assessed with a view to properly describing the risk (and quantifying if possible), and providing a detailed assessment of the options available to deal with any such eventuality and an assessment of the capacity to implement any such options on the Project Area streams.*
- 19) *That the performance criteria for stream morphology for streams in the Project Area underlain by alluvium be:*
- (a) no more than minor consequences in any part of the stream at any time; and*
 - (b) post-subsidence, stream sections be returned to a condition equivalent or better than their pre-subsided condition.*

- 20) *Rigorous conditions be included in the Extraction Plan for each longwall to ensure that:*
- (a) the previous experience of impacts on stream morphology are incorporated;*
 - (b) there are appropriate triggers to warn of developing problems;*
 - (c) there is a clear response plan to prevent exceedance of the criteria; and*
 - (d) clear strategies are identified to address any exceedance that might occur despite the adaptive management requirements.*

The Commission's Recommendations 18, 19 and 20 were based on its findings in regards to the project's potential impacts on stream morphology, which can be summarised as follows:

- risks of subsidence-induced impacts on stream morphology arise from four sources:
 - o the mine plan itself (ie the risk of increased ponding and scouring associated with Longwall 6N and Longwall 15);
 - o predicted temporary changes in gradient along sections of the creek as mining progresses;
 - o failure of pillars to yield either fully or partially, causing long-term unplanned changes in gradient; and
 - o the interaction of significant rainfall events with one or more of the three situations identified in the bullet points above;
- the risk of interaction between significant rainfall events and changes in gradient between subsided and unsubsidised sections of creeks leading to much more than 'minor consequences' does not appear to have been addressed and there is no clear strategy evident for how this eventuality would be dealt with;
- the proposed performance criteria in Schedule 3 of the draft consent requiring an 80:20 split between negligible and minor is positive in its intent, but unenforceable in practice;
- for the streams in the project area underlain by alluvium, the most appropriate performance criteria are no more than minor consequences at any time and to be returned post-mining to a condition consistent with the pre-existing morphological characteristics; and
- rigorous conditions would be required in the Extraction Plan for each longwall to ensure that:
 - o the previous experience in this project of impacts on stream morphology are incorporated;
 - o there are appropriate triggers to warn of developing problems;
 - o there is a clear response plan to prevent exceedance of the criteria; and
 - o clear strategies are identified to address any exceedance that might occur despite the adaptive management requirements.

Impacts at the Interface of Subsided and Unsubsided Stream Sections

The Department has carefully considered the Commission's request for an assessment of the risk of impacts at the interface of subsided and unsubsidised stream sections during heavy rainfall events (Recommendation 18). WACJV, in its response to the Commission's review, provided the results of a preliminary analysis that was undertaken to determine stream reaches where there is a risk of changes to stream morphology. These reaches and the corresponding proposed management approaches are shown in **Figure 26**. WACJV's analysis of potential impacts on stream morphology and its corresponding remediation measures are summarised in **Table 17**.

The Department is generally satisfied with the proposed approach and notes that the usual place for identification and endorsement of detailed management measures for stream reaches is during the development and approval of Extraction Plans, which must be undertaken in consultation with relevant agencies and affected landowners.

Detailed risk assessments for streams would be included in Extraction Plans, involving identification of both risks and management strategies for specific locations along streams. Risks to stream morphology would be assessed based on revised subsidence predictions, as required under the draft conditions of consent. The Department notes that, since the first five longwall panels are not located beneath Jilliby Jilliby Creek, there is a substantial opportunity to validate the mine's subsidence predictions using subsidence monitoring data prior to mining beneath the creek.

Given that the existing alluvial stream systems are dynamic, the Department agrees that baseline and ongoing monitoring is a key element of identifying subsidence-related impacts to stream morphology. The recommended water monitoring program (condition 8 of Schedule 3) would include measurements and inspections of ground levels, vegetation, ecology, water quality and groundwater.

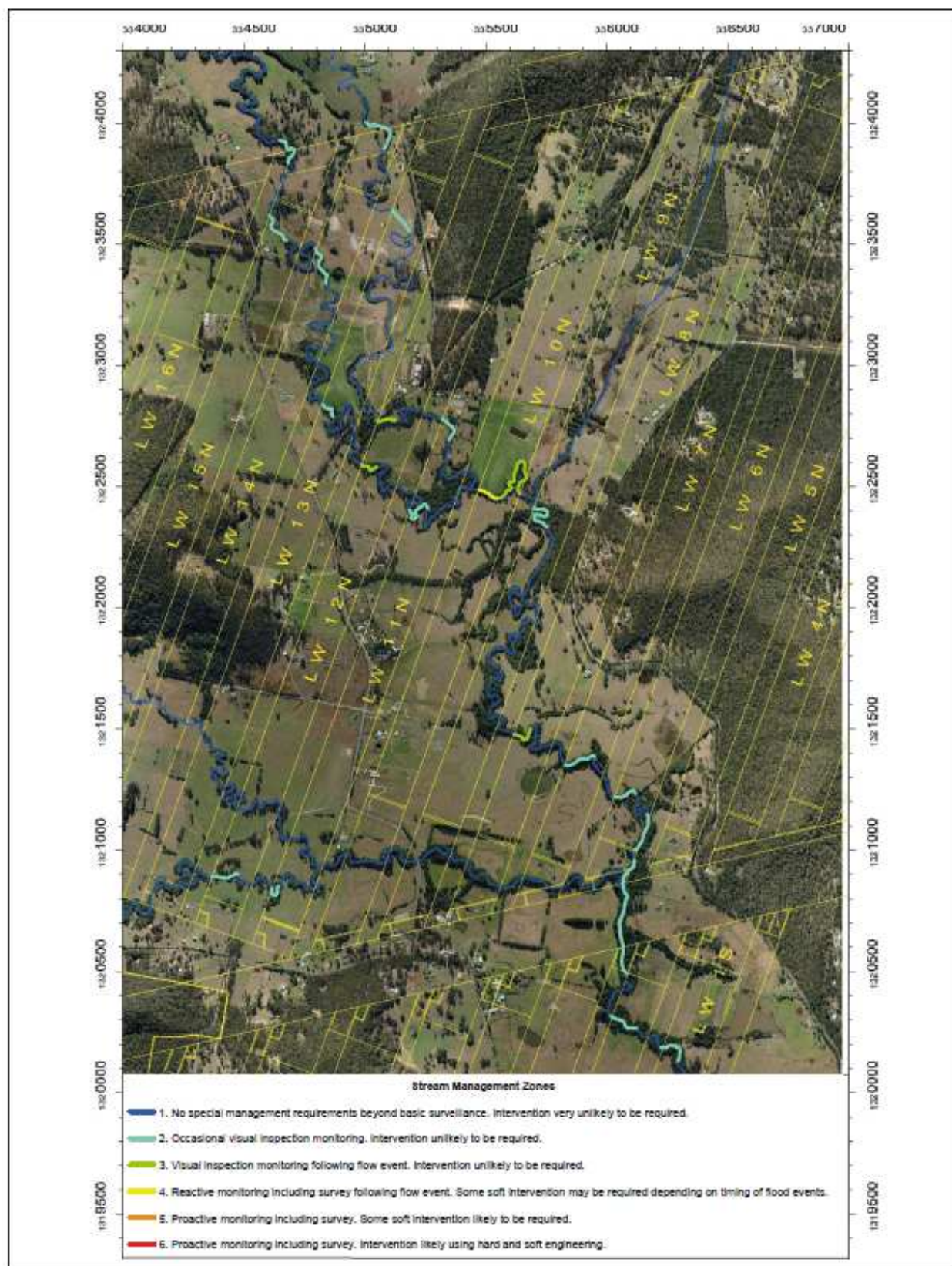


Figure 26: Proposed stream management zones

Table 17: Potential stream morphology impacts and management measures

Potential Impact	Comment	Potential Management Measures
Avulsion ¹ due to temporary lowering of relative floodplain levels	Historical avulsions have played a significant role in the evolution of the existing system. Incremental subsidence effects could locally enhance or counteract natural processes	Temporary earth bund across low point in bank (outside of riparian vegetation) to limit flow breakout. Potential bank scour to overflow path replaced to natural level and revegetated.
Meander cutoff through bank collapse	Shortcutting of meander bends occurs in the existing system. Detailed monitoring would provide the basis for determining the contribution of subsidence to future cutoffs.	Assess whether cutoff is natural or due to differential settlement. Repair or replace bank profile and vegetation.
Headward erosion caused by local increase in bed gradient	Analysis of gradient impacts on stream hydraulics indicates a low risk of headcutting.	Increased roughness and bed protection through placement of large woody debris. Existing large woody debris realigned to eliminate or protect headcut.
Increased undercutting of bank on outside bend	Vegetation plays a key role in stabilising channel banks.	Monitor and replace bank profile and vegetation if significant erosion occurs.

Performance Measures for Stream Morphology

As noted in the Commission's review report, the PAR focussed on the three main streams within the project area, namely Wyong River (6th order stream), Jilliby Jilliby Creek (5th order stream) and Little Jilliby Jilliby Creek (4th and 3rd order stream).

The Department accepts the Commission's view regarding a performance measure that impacts on these streams should not exceed minor subsidence impacts and minor environmental consequences at any time, and has made changes to the proposed performance measure which have this effect (see the discussion under Recommendations 1 and 2 above and Table 1 in condition 1 of Schedule 3).

The Department also generally accepts the Commission's view that after mine subsidence is complete, these streams should be returned to a condition equivalent or better than prior to subsidence. However, there are some limitations to this standard. If negligible impacts are acceptable (as is the proposed performance measure for the Wyong River, which would not be undermined), then any such 'negligible' impacts should not have to be remediated. Remediation may in fact cause more damage than a 'small and unimportant' impact. The Department agrees that minor impacts and environmental consequences should be remediated, where this remediation would not cause additional impacts. In the alternative, other stream remediation works should be undertaken, such as bank stabilisation or weed removal. The Department has revised the previously proposed rehabilitation objective to more-surely achieve this standard (see Table 8 in condition 33 of Schedule 4), which is reproduced below:

Feature	Objective
All watercourses where subject to subsidence impacts or environmental consequences that are greater than negligible	- Hydraulically and geomorphologically stable - Aquatic ecology and riparian vegetation that is the same or better than prior to grant of this consent

Notes: Where remediation of watercourses is likely to cause subsidence impacts or environmental consequences greater than those that require rehabilitation, alternative equivalent works may be undertaken within the affected watercourse.

- Wyong River**

The text of the Commission's report also suggested that the performance measure for the Wyong River should be strengthened to explicitly prevent any connective cracking between the streambed (or the base of associated alluvium) and the underlying mined seam. The Commission considered that the draft conditions would allow for 'small and unimportant' connective cracking rather than 'no connective cracking'. The Department does not agree with this view, for a number of reasons.

¹ Avulsion is the physical separation of land caused by a stream adopting a new channel or flow path.

Firstly, any degree of connective cracking from the Wyong River to nearby mine workings could not be considered as being 'small and unimportant'. Secondly, the proposed form of words introduces the possibility that surface cracking which is not 'connective' between the river bed or its alluvium and the mine workings may be acceptable. Thirdly, the scenario is unlikely, since the project has been designed to prevent any such connective cracking, with a substantial standoff between the Wyong River and the nearest longwall panels. The Department considers that the proposed form of the relevant performance measure (reproduced below) is both explicit and comprehensive.

Watercourses	Performance Measure
<i>6th Order Streams and their alluvium</i>	• <i>Negligible subsidence impacts and environmental consequences.</i>

The Commission also stated that any consent should be explicit that no extraction of longwalls be permitted in areas potentially impacting on the Wyong River unless:

- revised predictions of subsidence impacts on the Wyong River are available for consideration in the Extraction Plan process;
- the Secretary accepts that the revised predictions would not risk environmental consequences for the Wyong River beyond those identified in any consent; and
- the mine plan has been modified to ensure that no exceedance of the consent conditions would occur.

The Department also notes that the draft conditions of consent require revised predictions of subsidence to support the preparation and approval of Extraction Plans (see condition 6 of Schedule 3 and the Department's response to Recommendations 1 and 2 above) and at least two audits of subsidence outcomes, potentially leading to modification of the mine plan (condition 11 of Schedule 3) well prior to any possibility of impacts on the Wyong River.

- Jilliby Jilliby Creek and Little Jilliby Jilliby Creek

Both the Department and the Commission recognise that Jilliby Jilliby Creek presents more complex issues than the predicted impacts on the Wyong River. The primary reason for this is that Jilliby Jilliby Creek would be in part undermined whereas no undermining of Wyong River is proposed.

As noted in the PAR, some sections of Jilliby Jilliby Creek would be impacted more than others (ie areas associated with Longwalls 6N and 15). The Department's previous approach to this was to require 'negligible environmental consequences' over 80% of the impacted length and 'minor environmental consequences' over the remaining 20%. The Department has previously noted and addressed the Commission's concerns with this performance measure (see the Department's responses to Recommendations 1 and 2 above) and proposes the following performance measure.

Watercourses	Performance Measure
<i>3rd, 4th and 5th Order Streams and their alluvium</i>	• <i>No subsidence impact or environmental consequence greater than minor.</i> • <i>No connective cracking between the surface, or the base of the alluvium, and the underground workings.</i>

These streams would also be subject to the rehabilitation objective noted above. WACJV, in its response to the Commission's review report, agrees with these performance measures as it would ensure that there are no significant long-term impacts, without requiring it to address any changes that are within the natural variability of the creek.

Extraction Plan Conditions

As discussed in the Department's response to Recommendations 1 and 2, the Extraction Plan process provides a detailed assessment process which supports the achievement of the performance measures. This process addresses the issues raised by the Commission's Recommendation 20. The preparation of an Extraction Plan for each group of longwall panels allows an iterative assessment of predicted and achieved impacts to all built and natural features to be focussed at the local level, ensuring that impacts are regularly re-assessed and impact management regimes further refined during the life of the project in response to the results of subsidence monitoring and recorded impacts.

In regard to paragraphs (a)-(d) of Recommendation 20, the Department notes that it has standard conditions regarding subsidence monitoring, contingency planning and adaptive management. These are considered to be generally sound. However, the Department agrees with the Commission that these can and should be updated and strengthened. The Department has considered Extraction Plan conditions recently approved by the Commission to ensure consistency across the underground coal mining sector and provide certainty to WACJV that it is receiving fair and transparent conditions that

are in line with similar operations in the State. **Table 18** provides a summary of the relevant components of the draft conditions of consent which address the Commission's Recommendation 20.

Table 18: Summary of the relevant conditions addressing the Commission's Recommendation 20

Commission Recommendation	Relevant Recommended Conditions	Department Comments
<i>Rigorous conditions be included in the Extraction Plan for each longwall to ensure that:</i>		
(a) the previous experience of impacts on stream morphology are incorporated;	See condition 6 of Schedule 3	Each Extraction Plan must provide revised predictions of the potential subsidence effects, subsidence impacts and environmental consequences of mining proposed to be covered by the Extraction Plan, incorporating any relevant information obtained since the consent. This extends to the previous experience of impacts on stream morphology.
(b) there are appropriate triggers to warn of developing problems;	See condition 6 of Schedule 3	Each Extraction Plan must include Trigger Action Response Plans (TARPs) which must address all features in Tables 1 and 2 of the draft conditions and contain: • appropriate triggers to warn of increased risk of exceedance of any performance measure; • specific actions to respond to high risk of exceedance of any performance measure to ensure that the measure is not exceeded; and • an assessment of remediation measures that may be required if exceedances occur and the capacity to implement the measures.
(c) there is a clear response plan to prevent exceedance of the criteria; and	See condition 6 of Schedule 3	See above.
(d) clear strategies are identified to address any exceedance that might occur despite the adaptive management requirements.	See condition 6 of Schedule 3	Each Extraction Plan must include TARPs that expressly provide for: • adaptive management where monitoring indicates that there has been an exceedance of any performance measure in Tables 1 and 2, or where any such exceedance appears likely; and • an assessment of remediation measures that may be required if exceedances occur and the capacity to implement those measures.

The Commission also expressed the view (although not a recommendation) that there is no explicit requirement for the Secretary to be satisfied that the consequences would be no greater than those allowed for in the consent before approving the Extraction Plan and that the onus is entirely on WACJV to ensure that the performance measure is complied with.

It is certainly true that the onus is generally on WACJV to ensure that it complies with its performance measures and the consent more broadly. However, the Department maintains oversight and enforceability of all provisions of the consent for the life of the project and does not accept that there is no 'onus' on it to prevent it approving an Extraction Plan that goes beyond the allowed scope of the consent. The Department considers that any such approval would be *ultra vires*.

The Secretary could not, under the legal obligations of the planning legislation, 'approve consequences greater than those allowed for in the consent' without carrying out an assessment of those 'consequences' under the EP&A Act (ie assessing and approving a modification to the development consent).

Commission Recommendations 21 and 22

- 21) That before extraction of longwall 6N commences a program of water quality monitoring that can differentiate subsidence-induced impacts from background variation be implemented. The program is to be developed in consultation with the Water Supply Authority [now Central Coast Council], EPA and NOW [now DPI Water] and be approved by the Director-General [now Secretary] before implementation.
- 22) That the program be subject to independent audit each year at least until the Director-General [now Secretary] is satisfied that longer intervals can provide appropriate safeguards.

As discussed above, the Department has strengthened the recommended water monitoring requirements associated with the project (see the response to Recommendation 8 above). In summary, the Department has recommended new conditions for a comprehensive water monitoring program which would include monitoring of surface water, groundwater, flooding and the CCWS. This program would apply to each Extraction Plan (not just those prior to Longwall 6N) and include comparison with baseline data. The Department has proposed a draft condition which goes beyond the scope of Recommendation 21, as set out below:

Prior to longwall extraction and as part of each Extraction Plan, the Applicant must prepare a Water Monitoring Program for the areas of the development subject to underground mining, to the satisfaction of the Secretary. This program must:

- (f) be capable of differentiating between subsidence impacts and related environmental consequences and background variations for stream morphology, baseflows, stream flows and water quality and flooding.*

The Department does not agree that the water quality component of the Water Monitoring Program should be subject to annual audit, as proposed in the Commission's Recommendation 22. The environmental performance of the entire project, including the full Water Monitoring Program, would be subject to requirements for incident reporting, Annual Review and triennial independent environmental audit (see conditions 7 - 10 of Schedule 6). In turn, any of these reporting and audit requirements could lead to the need to review and revise management plans and monitoring programs or to make other changes to adaptively manage the impacts of the project (see conditions 3 and 5 of Schedule 6). Further, the consent provides for at least two independent audits of subsidence impacts (after Longwalls 5N and 9N) and possibly additional audits (see condition 10 of Schedule 3). The TARP components of the Extraction Plan also apply (see condition 6 of Schedule 3).

The Department considers that this monitoring, reporting, review and auditing framework provides a robust oversight and adaptive management framework.

Commission Recommendation 23

23) That a performance measure of negligible consequences should be specified for Porters Creek Wetland in any consent and that this should be supported by a monitoring regime sufficient to alert the Proponent [Applicant] and regulators to any change that may cause greater than negligible consequences to the wetland.

The Commission accepted that WACJV's response to the then Wyong Shire Council's concerns over the potential for subsidence impacts within Hue Hue Creek to affect water flows to the Porters Creek Wetland was 'reasonable'. Nevertheless, the Commission recommended a performance criterion of 'negligible environmental consequences' for Porters Creek Wetland and that this performance measure be supported by a monitoring regime sufficient to alert WACJV and regulators to any exceedance of such a performance measure.

The Department does not agree that this monitoring requirement is necessary or reasonable in the circumstances. As the Commission's report acknowledges, Porters Creek Wetland receives flows from a catchment of 55 km². To monitor the entire wetland and its catchment with such intensity as to be able to differentiate an impact to water flow, water quality or ecosystem health within the Wetland that originated from within a small section of Hue Hue Creek (which is a relatively small 2nd order stream) and nowhere else is considered to be an extreme requirement. It requires very substantial baseline information from across the Wetland and its catchment (two years of comprehensive baseline data would be a minimum) in order to differentiate any variation, much less a mining-induced one. The necessary water flow, water quality and ecological monitoring equipment/plots would involve a certain level of disturbance in and of itself in the Wetland.

In addition, there are no changes predicted for flood flow regimes downstream of the M1 Motorway and Porters Creek Wetland is located well outside (more than one km) the subsidence impact limit. Finally, the Commission accepted WACJV's assessment that the predicted subsidence on Hue Hue Creek of 500 mm vertical subsidence over a distance of 500 m is such a small change in gradient that it would have minimal implications on stream morphology and erosion potential. On this basis, it is highly unlikely that impacts to this stream would have implications for the Wetland.

It seems likely that the Commission's recommendation was based in a desire to validate WACJV's assessment of the unlikelihood of any impact on the Wetland, rather than reflecting any real fear that such impacts would eventuate. In the Department's view, a much more efficient and achievable

measure to achieve this outcome would be to monitor catchment flows and water quality within the section of Hue Hue Creek which would be subject to subsidence impacts. The Department has included this requirement within the proposed Water Monitoring Program, as follows:

Prior to longwall extraction and as part of each Extraction Plan, the Applicant must prepare a Water Monitoring Program for the areas of the development subject to underground mining, to the satisfaction of the Secretary. This program must:

- (d) *assess a representative sample of affected sections of 2nd and 1st order streams (including the affected sections of Hue Hue Creek);*

Commission Recommendation 25

25) That an Emergency Evacuation Management Plan be prepared. This plan should include clearly identified secondary access routes for those properties that will be adversely impacted by the 1% AEP flood. For those properties that do not have either a primary or secondary access route as a result of flooding, the Proponent [Applicant] must consult/negotiate with the individual landowners to reach a mutually agreed resolution for emergency evacuations before extraction of any longwalls that could create altered flood conditions for these properties occurs. In the situation where no agreement can be reached, either party may refer the matter to the Director-General [now Secretary] for resolution.

Overall, the Commission was satisfied with the Department's assessment of potential flooding impacts and supported the draft conditions of consent. The Commission found that:

- the options for mitigating the flood-related impacts of subsidence on dwellings and road involve proven methods;
- emergency access would still be available via secondary routes to most dwellings, except those in the 1% AEP flood extent (30 existing dwellings, plus four new dwellings). The use of these secondary routes would increase as a result of the increased duration of road closures due to flooding; and
- any mitigation measures must be carried out in consultation with the individuals impacted and the relevant agencies. Where mitigation measures are not possible, compensation would be made by WACJV to the affected parties (eg individual landowners and Council).

WACJV, in its response to the Commission's review report, noted that it is not the appropriate body for emergency evacuation planning. However, WACJV agreed to assist Council, the SES and other appropriate authorities in the review and potential revision of emergency evacuation plans, as may be required throughout the life of the project. WACJV considered that it could assist in this process by providing its pre-mining modelled predictions for post-subsidence flooding conditions, as well as any refined predictions using the results of its validated subsidence model (based on actual monitoring following mining), including the identification of any areas at greater risk.

The Department notes that there are inherent risks with both the Commission's and WACJV's proposed approaches. The Commission's recommendation for preparation of an Emergency Evacuation Management Plan could result in a plan that has not been prepared by appropriate experts in emergency planning and WACJV's approach may not lead to timely review or adoption by the SES.

The Department has noted the Commission's concerns and WACJV's position that it is not the relevant emergency evacuation expert and has subsequently recommended WACJV deal with the issues as part of the Extraction Plan process through the development of a flood management protocol that would be developed in consultation with Council and the SES. This would be in addition to the already recommended condition for a flood monitoring program. The Water Management Plan component of each Extraction Plan and the Water Monitoring Program (see draft conditions 6 and 7 of Schedule 3) would include the following flood-related requirements:

[the Water Management Plan component of each Extraction Plan would need to include a] flood management protocol to:

- *identify secondary access routes for those properties that could potentially be adversely impacted by 1% AEP flood events;*
- *regularly consult with landowners that would not have either a primary or secondary access route during 1% AEP flood events;*
- *provide up-to-date information (including subsidence and flooding predictions) to State Emergency Service and Council regarding privately-owned residences that could be affected by lack of access during 1% AEP flood events; and*
- *work with landowners, State Emergency Service and Council to develop evacuation plans to ensure landowners know what to do in the event of emergency as a result of a 1% AEP flood event.*

[the Water Monitoring Program must include] a flooding monitoring program to monitor and report on:

- *updated flood modelling;*

- measures to minimise, manage and mitigate (whether prospectively or retrospectively) flood impacts on key public infrastructure, other public infrastructure, residences, other built features and privately-owned land; and
- private properties where mitigation measures are not reasonable or feasible and compensation would instead be offered;

The Department considers that the implementation of such flood management protocol and monitoring program would address the Commission's concerns as outlined in its review report, while allowing proper emergency planning to be left to the SES, subject to the added knowledge and information provided by WACJV concerning any changes in potential flood levels and flood behaviour.

2.3 Noise

Commission Recommendation 27

27) That the predicted noise levels be re-assessed for properties 57 and 58 and a condition be attached to any consent that provides for noise mitigation or acquisition for privately owned properties when noise is predicted to exceed the PSNL on more than 25 percent of privately owned land. (Note that the requirement for mitigation or acquisition should depend on the degree of exceedance of the noise criteria consistent with normal practice).

Noise levels have been assessed for the amended project (see Section 6.4 and Appendix E of the amended development application and discussion of the NVIAA in **Section 5.1 of Part 1**). This assessment included an assessment for properties 57 and 58 as sought by the Commission. The NVIAA predicts that the amended project would emit up to 1.1 dB(A) less noise than the original project due to the relocation of the train load out facility and the replacement of the rail spur and loop with a rail siding.

The noise levels for the original project were predicted to exceed the Project Specific Noise Levels (PSNLs) over more than 25% of properties 57 and 58, although noise impacts were predicted to comply with the PSNLs at the residences on these properties. The properties are located immediately west of the M1 Motorway and would likely be affected by noise from that source.

The NVIAA assessed impacts to all privately-owned land in accordance with the NSW Government's *Voluntary Land Acquisition and Mitigation Policy* (VLAMP), which was finalised in December 2014, after completion of the Commission's First Review Report.

The amended project is predicted to exceed the PSNLs at locations P14, P15 and P16 by up to 4 dB(A), which represents a 'moderate' degree of affectation, under the VLAMP. The VLAMP provides these landowners with a right to request acoustic treatments at their residences. The Department has prepared draft conditions of consent for additional mitigation upon request for these residences (condition 3 of Schedule 4).

The amended project is no longer expected to cause noise exceedances at properties R57 and R58. WACJV notes that it would still consult with these landowners to discuss management of noise impacts.

Commission Recommendation 28

28) That a requirement for monitoring of wheel squeal noise from use of the rail loop be included in any consent and that additional mitigation measures be implemented if the noise becomes an on-going issue.

The amended project includes a rail siding in place of the rail spur and loop proposed under the original development application. Wheel squeal is predominantly associated with train wagons travelling on curved sections of rail track. The proposed rail siding would be predominantly straight and the turnout from the Main Northern Rail Line would have a large radius of curvature. Removal of the rail loop from the amended project greatly reduces the likelihood of wheel squeal noise. The Department therefore considers it unnecessary to include a specific condition for wheel squeal noise.

2.4 Air Quality

Commission Recommendation 29

29) That a condition be added requiring the implementation of methane gas capture and flaring within a specified timeframe and that a proposal be developed for beneficial use of the captured gas within three years of the commencement of longwall operations and to be implemented within a timeframe as required by the Director-General [now Secretary].

WACJV has committed to the capture and enclosed flaring of methane upon commencement of underground mining. WACJV has also proposed to undertake a study within 3 years of commencing longwall mining, into the feasibility of options for the beneficial use of methane. It also proposes that, if found to be viable, a timetable for the implementation of the options would be developed and agreed with the Secretary.

This commitment has been reflected and made to be more enforceable in the Department's draft conditions of consent (see condition 9 and 10 of Schedule 4). Extracts of these two conditions appear below:

9. The Applicant must:
 - (a) implement all reasonable and feasible measures to minimise the:
 - release of greenhouse gas emissions from the development;
10. The Applicant must prepare a detailed Air Quality & Greenhouse Gas Management Plan for the development to the satisfaction of the Secretary. This plan must:
 - (c) describe the measures that would be implemented to ensure:
 - capture and flaring of methane produced by underground coal mining;
 - (e) include provisions for a detailed feasibility study of the options for beneficial use of methane produced by underground coal mining, to be completed within 2 years of commencing second workings

2.5 Surface Facilities

Commission Recommendations 30 and 31

30) That the water treatment system, including the reverse osmosis and brine treatment plants be designed to meet the discharge criteria specified by the EPA.

31) That a requirement for construction of a reverse osmosis plant be inserted in 15(c) of Schedule 3 of the proposed conditions of consent.

WACJV has committed to designing the Water Treatment Plant to meet all discharge criteria specified by the EPA. The Department has proposed a condition stating that “*unless an EPL authorises otherwise, the Applicant must comply with Section 120 of the POEO Act*”. The Department is satisfied that this condition is appropriate and requires that WACJV comply with any EPL granted to it, including meeting discharge criteria. The Department's draft conditions of consent also require the preparation of a Water Management Plan in consultation with the EPA, DPI Water and NSW Fisheries which includes a site water balance, a Surface Facilities Water Management Plan and a Brine Treatment Management Plan.

The Surface Facilities Water Management Plan would detail the water management system, and among others things this would include the operation of the Water Treatment Plant. The Brine Treatment Management Plan would detail the processes for managing brine from the Water Treatment Plant. While the draft conditions of consent do not specifically require the construction of a Water Treatment Plant, the EIS does commit to the operation of a Water Treatment Plant. The Department is satisfied that the Water Management Plan is the appropriate mechanism for detailing the approach to water management for the project and that the Water Management Plan is required to be developed generally in accordance with the EIS, which commits to the operation of a Water Treatment Plant.

2.6 Aboriginal and Non-Aboriginal Heritage

Commission Recommendations 32 and 33

- 32) That the Heritage Management Plan included in the Department's draft recommended conditions (condition 5(k), Schedule 3) should include a trigger action response plan to manage unexpected subsidence impacts (similar to condition 21, Schedule 4).
- 33) That a note should be included in condition 1, Schedule 3 that any dispute in relation to impacts on Aboriginal heritage sites should be referred to the OEH for a final determination, and dispute in relation to impacts on historic sites should be referred to the Secretary for the Department of Planning and Environment for final determination.

The Department has strengthened the proposed Extraction Plan condition (condition 6 of Schedule 3), including a recommendation that a TARP is prepared to address the Commission's concerns for Aboriginal heritage sites (see Recommendations 1 and 2 above). The Department also notes that where performance measures (ie no loss of heritage value) are not met, condition 2 of Schedule 3 requires an offset to be provided.

Regarding dispute resolution, the Department notes that it is not standard practice for another agency to determine disputes where it is not the consent authority. Given the mitigation proposed by WACJV, and the draft conditions, the Department is satisfied that registered or newly discovered Aboriginal heritage sites would be appropriately managed to minimise potential impacts. The draft consent also requires WACJV to consult with OEH on matters relating to Aboriginal heritage through the development of an Aboriginal Cultural Heritage Management Plan (see condition 25 of Schedule 4).

2.7 Socio-economic Benefits

Commission Recommendation 34

- 34) That, for the purposes of assessment under cl.12AA of the Mining SEPP, the significance of the resource is limited to the creation of 300 direct jobs, royalty payments of between \$100m and \$200m and capital investment significantly less than \$800m. If this becomes crucial in the consent authority's task of assessing the project under s.79C of the Act, then the Commission recommends that the consent authority require that a new economic analysis be undertaken and subjected to external rigorous independent review before a decision is made.

The wording of Clause 12AA of the Mining SEPP current at the time of the Commission's First Review Report required the significance of the resource to be the consent authority's 'principal consideration' under Part 3 of the SEPP (although not under section 79C of the Act). This provision has since been repealed and in itself requires no further consideration. Nonetheless, the significance of the project's coal resource and the economic and social benefits of its development remain matters relevant to the Department's assessment and the public interest.

DRE provided an assessment of the significance of the resource, which concluded that the significance of WACJV's resource lies mainly in its ability to greatly increase the Newcastle coalfield's total yearly output (by more than 25%) and the coal produced from this proposal would add significantly to the total value of NSW exports (around \$12.5 billion in current Australian dollars over the life of the project).

DRE calculated that in a typical full production year, the State would receive approximately \$30 million per annum in royalty and that total royalty payable for the project in 'dollars of the day' would be approximately \$830 million. The net present value of this royalty stream would be around \$275 million using a 7% real discount rate. DRE notes that the Commission's First Review Report expressed the view that the figure of \$207 million in royalty calculated by WACJV "is almost certainly an over-estimate", and "that a reasonable estimate for royalties from the Project would be \$100 million". DRE did not agree with this view. Given that the project would generate around \$30 million per annum of royalty in a typical year of production, a total royalty estimate of \$100 million for the 25-year production life of the project is insufficient.

WACJV estimated that 500 flow-on jobs in the 'secondary study area' (which included the combined Wyong, Lake Macquarie and Gosford local government areas) would result from the 300 direct jobs generated by the project. The Commission disputed this and stated in its review report "that only the 300 jobs directly created by the mine can be used as a reliable estimate of employment creation".

DRE noted that the estimation of indirect employment from direct mine employment is not a precise science and a variety of methodologies can be used. WACJV used Input Output Modelling (IOM) to estimate flow-on jobs from the 300 direct jobs to be generated by the project. However, the Commission's report stated that "the use of IOM to generate estimates of flow-on employment creation has been thoroughly discredited".

DRE prefers to use more empirical evidence and therefore used a 2012/13 NSW Minerals Council survey of NSW mining to obtain an employment multiplier. In this survey, the NSW Minerals Council received results from 26 NSW exploration and mining companies to identify the economic contribution of the industry throughout NSW. The survey collected data on both direct and indirect (including induced employees) in the NSW mining industry.

Direct employment was approximately 23,500 and indirect employment was approximately 132,000, the resultant multiplier being around 5.5. DRE has taken a conservative approach and uses a multiplier of four to estimate indirect employment from direct employment.

As a result, DRE estimates that around 1,200 indirect jobs would result from the 300 direct jobs to be created for the project. These indirect jobs would be in mine and non-mine related industries in both regional and metropolitan areas of NSW. In summary, DRE is supportive of the project as a responsible utilisation of the State's coal resources that would generate employment opportunities and bring economic benefits to the local region and to the State as a whole.

The Department is satisfied that the repeal of clause 12AA has no bearing on the outcomes of the Department's assessment of the original project or the conclusions reached regarding its net overall benefits. The Department remains of the view that the coal resource at Wallarah is significant.

Appendix J of the amended development application included a revised Economic Impact Assessment (revised EIA) for the project undertaken by Gillespie Economics. The revised EIA provided a:

- cost benefit analysis (CBA): which is the primary way that economists evaluate the net benefits of projects and policies, provide economic justification for a project and address the public interest;
- local effects analysis (LEA) using a new methodology introduced by the Department in December 2015, to assess some of the impacts of the project in the locality, specifically:
 - o net employment to existing residents;
 - o non-labour project expenditure; and
 - o environmental and social impacts on the local community.
- supplementary LEA, using traditional input-output (IO) analysis to assess the broader economic activity project footprint in relation to output, value-added, income and employment.

WACJV commissioned an independent review of the revised EIA which was undertaken by BDA Group Economics and Environment (BDA Group) (see Appendix K of the amended development application). In conclusion, BDA Group found that Gillespie Economics had prepared a sound report; however noted that, given the breadth of potential impacts examined in the analysis, some assumptions would remain contestable. Nevertheless, BDA Group concluded that *"the scale of these uncertainties is at the margin of the analysis, such that even significant changes to relevant parameter valuations would not impact the conclusions of the analysis"*.

The revised EIA is discussed in further detail in **Section 5.7 of Part 1**.

In December 2016, the Department commissioned the Centre for International Economics (CIE) to undertake an independent Review of the revised EIA and consider the submission made by The Australia Institute in regards to the revised EIA. CIE gave specific consideration to the key points raised in the Australia Institute's submission including in relation to coal prices, company tax and the financial viability of the amended project. These were considered in the revised estimates of the benefits of the amended project provided by CIE. While CIE questioned some of the inputs to the CBA and the methods used, CIE concluded that the EIA is broadly consistent with the Economic Guidelines and would result in a net benefit to NSW.

Overall, based on the revised EIA and the peer reviews conducted by BDA Group and CIE, the Department concluded that the project offers net economic benefits to the local community, State and more broadly to Australia, and therefore relative to the no project scenario, is desirable from an economic efficiency perspective.

2.8 Agriculture

Commission Recommendation 35

35) *That the performance measures included in the Department's draft conditions of consent for built features (condition 3, Schedule 3) be amended to include a wider range of improvements relevant to agriculture that may be impacted by subsidence (eg those relevant to the turf farm) and that the relevance of the listed performance measures to each of the categories of other infrastructure that might be impacted by subsidence be reviewed.*

The Department has carefully considered the Commission's findings leading to its Recommendation 35. The Department confirms the Commission's interpretation that all performance measures listed in the second column in Table 2 of the draft conditions under 'other privately-owned built features and improvements' apply to all types of such built features and improvements.

The Commission's main concern lies in the definition of 'other built features and improvements' not including all possible improvements made to land. The Department notes that the definition applies to *all* 'other privately-owned built features and improvements' and includes a list of examples. This list is *inclusive*, not exclusive. The Department assures the Commission that it in no way excludes improvements not included in the list.

The example given in the Commission's review report of laser-levelled land for particular cropping enterprises would be covered under the performance measure as an 'improvement'.

The Department also notes that there are also a number of other avenues available in relation to compensation to landowners affected by subsidence, including:

- compensable loss under the *Mining Act 1992*; and
- compensation under the MSC Act 1961.

Part 13 of the *Mining Act 1992* contains wide ranging compensation provision to ensure that landholders are not financially disadvantaged by mining or prospecting operations. A compensable loss is defined as loss caused, or likely to be caused, by:

- **damage to the surface of land, to crops, trees, grasses or other vegetation** (including fruit and vegetables) or to buildings, structures or works, being damage which has been caused by or which may arise from prospecting or mining operations; or
- deprivation of the procession or of the use of the surface of land or any part of the surface; or
- severance of land from other land of the landholder; or
- surface rights of way and easements; or
- destruction or loss of, or injury to, disturbance of or interference with, stock; or
- damage consequential on any matter referred to above (**emphasis added**).

However, compensable loss under the *Mining Act 1992* does not extend to loss that is compensable under the MSC Act 1961. The MSC Act provides for compensation for damage to 'improvements' due to subsidence caused by coal mining. Claims can be made in respect of:

- compensation for damage to approved improvements whether within or outside of a mine subsidence district, where such damage arises from subsidence (including damage to household and other effects);
- cost of damage prevention and mitigation work; and
- an amount equivalent to rent foregone due to subsidence damage.

The *Mining Act 1992* and the MSC Act 1961 together provide comprehensive coverage for damage to either land or improvements by mining subsidence. Together, they provide substantial statutory backing to the proposed performance measures, which are in themselves considered to be comprehensive.

3.0 RESIDUAL MATTERS

3.1 Statutory Considerations

In line with the Commission's requests on other recently reviewed projects, the Department has given further consideration to a number of statutory requirements, including the:

- objects of the EP&A Act;
- matters relating to threatened species found in sections 5A-5D of the EP&A Act; and
- matters listed under section 79C of the EP&A Act.

The Department confirms that it has considered all of these matters in its assessment of the project. A summary of this assessment is provided below.

Objectives of the EP&A Act

Section 5 of the EP&A Act outlines a range of objects that must be considered when making decisions under the Act. A summary of the Department's consideration of the objects of the Act is provided in Section 3.6 of the PAR. The Department confirms that it has considered the objects of the Act in its assessment of the Wallarah 2 Coal Project, as amended.

One of the key objects of the Act is "to encourage ... ecologically sustainable development" (ESD). The *Protection of the Environment Administration Act 1991* sets out a number of principles and programs through which ESD can be achieved. The Department has considered WACJV's consideration of these principles in the EIS. The PAR and AR in their totality address the principles and programs of ESD. The Department has also given particular consideration to the ESD principles and programs below.

- Precautionary Principle

The Department has considered the threats of serious or irreversible environmental damage to the environment in its assessment of the amended project. Whilst the amended project would result in a number of impacts of varying significance, the key threat for serious or irreversible environmental damage is the potential impact on surface water resources. The Department has carefully considered these impacts in its assessment of the amended project, and is satisfied that there is sufficient scientific certainty to enable the consent authority to weigh up the impacts of the project on surface water resources and determine the project.

The Department's assessment has been guided by a careful evaluation of measures to avoid, where practicable, serious or irreversible environmental damage, and enable assessment of risk-weighted consequences of various options. The Department has taken a risk-based approach to the setting of draft conditions to mitigate and/or offset/compensate impacts on surface water resources and other environmental impacts, and is satisfied that any residual threats do not outweigh the benefits of the project. In particular, conditions requiring offsets for subsidence impacts on surface water resources that exceed the standard of negligible and/or minor subsidence impacts and environmental consequences reduce the risk of serious or irreversible environmental damage to a low and acceptable standard.

- Intergenerational Equity

The Department acknowledges that coal and other fossil fuel combustion is a known contributor to climate change, which has the potential to impact future generations. However, it also recognises that there remains for the foreseeable future a clear need to continue to mine coal deposits to meet society's basic energy needs. The Department also notes that climate change is a global phenomenon, the project's contribution to climate change would be very small and that WACJV has considered greenhouse gas mitigation measures. The Department also acknowledges that the downstream energy and other socio-economic benefits generated by the amended project would benefit future generations, particularly through the provision of international energy needs.

- Conservation of Biological Diversity and Ecological Integrity

The conservation of biological diversity and ecological integrity has been a fundamental component of the Department's assessment of the project, in both the PAR and AR. As outlined above and in the PAR, the Department recognises that the amended project has the potential to impact biodiversity. The Department is satisfied that these impacts can be mitigated and/or offset to an acceptable standard.

- Improved Valuation, Pricing and Incentive Mechanisms

The Department has considered this principle in its assessment of the project, which has included independent review of WACJV's revised EIA and associated CBA against applicable NSW Government guidelines. The CBA seeks to identify, quantify and weigh up all of the project's benefits and costs based on its full range of environmental, social and economic impacts. The Department accepts WACJV's CBA, and its key conclusion that the amended project would result in a net benefit to the Central Coast region and the State of NSW. The Department's full assessment is set out in **Section 5.7 of Part 1** and the Department's response to the Commission's Recommendation 34.

Sections 5A-5D of the EP&A Act

Sections 5A to 5D of the EP&A Act relate to threatened species assessment and management. The Department confirms that its assessment of the amended project has taken into account the matters listed in these sections in assessing whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats.

These matters include the:

- factors in section 5A(2), known as the ‘7 part test of significance’;
- threatened species assessment guidelines² identified in section 5A(1); and
- register of critical habitat as identified in section 5B.

The Department's consideration has had regard to WACJV's ecological assessment and the 7 part tests of significance included the amended development application, along with the threatened species assessment guidelines which assist in the interpretation and application of the 7 tests of significance. This assessment has considered the direct and indirect impacts of the project on threatened species, populations or ecological communities, or their habitats – both on the site and the broader study area, as defined under the threatened species assessment guidelines.

As outlined in the PAR, in the absence of any avoidance, mitigation or offsetting measures, the project is likely to have a significant impact on a number of threatened species and EECs. The project is not likely to affect any listed critical habitat. The Department's assessment concludes that these impacts are able to be mitigated or compensated to an acceptable standard through the avoidance, mitigation and offsetting measures that form part of the project.

Section 79C of the EP&A Act

Section 79C(1) of the EP&A Act outlines particular matters that a consent authority must take into consideration when determining development applications. These matters can be summarised as the:

- provisions of EPIs (including draft EPIs), development control plans, planning agreements, the EP&A Regulation and any coastal zone management plan;
- impacts of the development;
- suitability of the site;
- submissions received; and
- public interest.

The Department has considered all of these matters in its assessment of the amended project. In summary, the Department believes that:

- the development can be undertaken in a manner that is consistent with the aims, objectives and provisions of the applicable EPIs, other applicable planning documents and the EP&A Regulations (see Section 3 of the PAR and **Section 3 of Part 1**);
- the impacts of the development can be adequately minimised, managed, or offset or compensated for, to an acceptable standard;
- the site is suitable for the development, as it contains high quality thermal coal resources and is a permissible development on the land. The Department has carefully considered the potential impacts of the project on the site and surrounds in its assessment of the development, and is satisfied that the impacts of the development on the environment and the local community can be adequately minimised, managed, or compensated for, to an acceptable standard; and
- whilst there is opposition to the development from sections of the general public and a number of special interest groups, on balance, the development is in the public interest, particularly as it would:
 - o generate significant local and State economic benefits; and
 - o facilitate direct employment for approximately 300 people at the mine and indirect employment of 879 across NSW during operations.

Mining SEPP

The Department has considered the Mining SEPP in the PAR (see Section 3 of the PAR). Overall, the Department is satisfied that the amended project can be undertaken in a manner that is consistent with the aims, objectives and provisions of the Mining SEPP, subject to a range of mitigation, monitoring and management measures, as proposed in the draft conditions of consent.

² *Threatened Species Assessment Guidelines – The Assessment of Significance*, prepared by the then Department of Environment and Climate Change, dated August 2007.

Part 3 of the SEPP outlines a number of matters that a consent authority must consider before determining an application for consent for mining-related development. These matters, and a summary of the Department's consideration of each in relation to the project, are outlined below.

- *Non-Discretionary Development Standards for Mining (Clause 12AB)*

Clause 12AB sets out certain non-discretionary development standards for mining developments which, if complied with, prevents the consent authority from requiring more onerous standards for those matters (but that does not prevent the consent authority granting consent even though any such standard is not complied with). These standards relate to cumulative noise, cumulative air quality impacts, airblast and ground vibration and aquifer interference.

The Department is satisfied that the impacts of the amended project meet the non-discretionary development standard for cumulative noise impacts under clause 12AB(3). The Department's assessment of the project's impacts on aquifers is set out in Section 5.2.4 of the PAR and **Section 2.2 of Part 2**.

- *Compatibility with other Land Uses (Clause 12)*

Clause 12 requires that, before determining an application for consent for mining development, the consent authority must:

(a) consider:

- (i) the existing uses and approved uses of land in the vicinity of the development, and
- (ii) whether or not the development is likely to have a significant impact on the uses that, in the opinion of the consent authority having regard to land use trends, are likely to be the preferred uses of land in the vicinity of the development, and
- (iii) any ways in which the development may be incompatible with any of those existing, approved or likely preferred uses, and

(b) evaluate and compare the respective public benefits of the development and the land uses referred to in paragraph (a) (i) and (ii), and

(c) evaluate any measures proposed by the applicant to avoid or minimise any incompatibility, as referred to in paragraph (a) (iii).

The Department's assessment has considered the potential impacts of the project on existing and approved land uses and land use trends in the vicinity of the development, including the potentiality that the Darkinjung LALC's proposal for residential development will lead to such development. This assessment has been undertaken in consideration of the public benefits of the project and the surrounding land uses, and measures to avoid or minimise any land use incompatibility. The Department's assessment indicates there would be limited disruption to agricultural activities and some residual impacts on a number of privately-owned residences as a result of mine subsidence. The Department has evaluated the measures proposed by WACJV to avoid, minimise, mitigate, remediate or compensate for subsidence impacts and considers those measures to be appropriate.

The Department has given particular consideration to the compatibility of the project (particularly its amended elements) with current and possible future land uses on the Darkinjung LALC's adjacent landholdings (see **Sections 4.4.4, 5.1.3, 5.2.3, 5.3.3, 5.4.3, 5.6.3 and 5.7.2**). The Department considers that WACJV had identified all reasonable and feasible measures to reduce impacts on those landholdings and their future development potential. The Department considers that the residual impacts are generally minor, including on the identified potential for future residential development on the Darkinjung LALC's Bushells Ridge and Doyalson sites.

The Department concludes that the amended project is unlikely to result in unacceptable impacts to either overlying or nearby land uses, and the Department is satisfied that the residual impacts are able to be minimised, mitigated or compensated for to achieve acceptable environmental and amenity outcomes.

- *Voluntary Land Acquisition and Mitigation Policy (Clause 12A)*

The Department's AR has considered the NSW Government's *Voluntary Land Acquisition and Mitigation Policy* (VLAMP) (see **Sections 5.1 and 5.2 of Part 1**), and concludes that no acquisition rights to surrounding receivers are required. Noise mitigation rights are recommended for residences at locations P14, P15 and P16.

- *Compatibility with Mining, Petroleum and Extractive Industries (Clause 13)*

The Department is satisfied that the project has been designed in a manner that is compatible with, and would not adversely affect, adjacent current or future mining-related activities.

- Natural Resource Management and Environmental Management (Clause 14)

The Department has recommended a number of conditions aimed at ensuring that the project is undertaken in an environmentally responsible manner, including but not limited to conditions in relation to water resources, threatened species and biodiversity.

- Resource Recovery (Clause 15)

The Department has considered resource recovery in its assessment of the project, and is satisfied that the project can be carried out in an efficient manner. The Department has prepared draft conditions requiring WACJV to implement reasonable and feasible measures to minimise waste and maximise the salvage and re-use of resources within the disturbance area (including vegetative and soil resources).

- Transport (Clause 16)

The Department notes that the project involves no transportation of coal by road, and is unlikely to result in significant additional truck movements in residential areas or near schools. The Department has consulted with the applicable roads authorities in relation to the project, and taken these submissions into consideration in its assessment of the project.

- Rehabilitation (Clause 17)

The Department has recommended a number of conditions aimed at ensuring the rehabilitation of land that would be affected by the project. These include requirements for WACJV to prepare and implement a Rehabilitation Management Plan, to effectively manage waste, and to meet a number of rehabilitation objectives including ensuring that the mine site as a whole is safe, stable and non-polluting, and to ensure public safety.

PART 3

CONCLUSIONS AND RECOMMENDATIONS

1.0 RECOMMENDED CONDITIONS

Revisions have been made to the Department's previously-proposed draft conditions of consent to reflect the amended development application (see **Part 1**), the Commission's recommendations (see **Part 2**) and various updates to standard consent conditions for underground coal mining developments (see **Appendix G**).

The Department has also consulted with WACJV, Council, OEH, EPA, RMS, DRE, NSW Health, Subsidence Advisory NSW, Transgrid, ARTC, TfNSW and DoEE in regard to the recommended conditions.

Comments made by agencies have been taken into account in the final drafting of proposed conditions. WACJV has advised the Department that it has no objections to the revised draft conditions.

2.0 CONCLUSIONS

The Department has assessed the proposed amendments to the project in regards to potential impacts on noise, air quality, visual amenity, transport, biodiversity, water resources, socio-economic and Aboriginal heritage in accordance with the requirements of the EP&A Act. This assessment has shown that, with the implementation of minor amendments and updates to draft conditions of consent, coupled with WACJV's proposed mitigation measures and required management plans, the amended project can be carried out with limited and acceptable environmental impacts.

The Department considers that the amended elements of the project would:

- avoid direct land use conflicts with a key neighbouring landowner (ie Darkinjung LALC);
- maintain legal access to adjacent private properties;
- reduce the area of land disturbance required for the project;
- reduce the ecological impacts of the project;
- result in fewer interactions with streams and riparian vegetation;
- result in limited visual impacts, with no impacts on residences in Blue Haven; and
- not result in any additional impacts on Aboriginal heritage values.

The Department's conclusions regarding the other elements of the overall project are set out in the PAR. However, the Department considers that the overall project, as amended, would:

- comply with noise and air quality criteria for residences in Blue Haven;
- be subject to appropriate noise mitigation measures at a limited number of residences subject to 'significant' noise impacts;
- require fewer train movements than previously proposed;
- provide net production benefits to NSW of \$275 million (present value) and employment benefits of \$211 million (present value); and
- provide significant contributions to the regional economy, including 300 direct jobs.

In June 2014, the Commission completed its merit review of the original project and concluded that it is able to be approved, subject to clarifying some issues and strengthening a number of the Department's then-proposed conditions. The Commission's recommendations for further consideration of issues and consultation were primarily in relation to:

- conditions of consent regarding subsidence management, management of surface water and groundwater resources (particularly water resources which support the Central Coast Water Supply) and monitoring of subsidence and related impacts;
- provision of further information regarding potential losses of baseflow from key streams resulting from subsidence impacts and conditions of consent to manage such impacts; and
- WACJV commissioning a new economic assessment and having it peer reviewed.

The First Review Report concluded that *"if the recommendations concerning improved strategies to avoid, mitigate or manage the predicted impacts of the project are adopted then there is merit in allowing the project to proceed."*

The Department has amended and strengthened its draft conditions, including to require:

- monitoring of non-conventional subsidence movements;

- detailed Trigger Action Response Plans (TARPs) in each Extraction Plan, to warn of any increasing risk of unacceptable subsidence impacts and to guide the implementation of adaptive management;
- intensive and comprehensive monitoring of water resources, including surface water, groundwater, and potential impacts on flooding and the Central Coast Water Supply;
- compliance with strengthened performance measures pertaining to streams and their alluvium and the Central Coast Water Supply;
- independent audits of subsidence, surface water and groundwater impacts; and
- development and implementation of a compensatory mechanism to offset any measured loss of water to the Central Coast Water Supply.

The Department considers that its draft conditions provide a comprehensive, strict, and precautionary approach to ensuring that the project can comply with relevant criteria and standards, and ensure that its residual impacts are effectively minimised, mitigated and/or compensated for. The proposed conditions incorporate a number of changes recommended by the Commission. They are based on contemporary policy, reflect current best-practice and are equitable and enforceable. They reflect current best practice for the regulation of underground mining projects in NSW and protect the local environment and the amenity of the local community and promote the orderly development of the region's important natural resources.

The Department remains satisfied that the project as amended would provide major economic and social benefits for the Central Coast region and for NSW as a whole. These benefits include the:

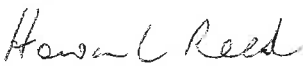
- direct employment of 300 full time equivalent staff during operations and around 450 contractors during construction;
- estimated indirect employment of around 879 people across NSW during operations;
- estimated annual direct and indirect household incomes across NSW of \$104 M during operations; and
- total estimated net economic benefit to NSW of \$275 M (Net Present Value), which includes:
 - \$5 M in voluntary contributions;
 - \$200 M to the State of NSW in royalty revenue; and
 - \$70 M in Commonwealth, State and local tax revenues.

The Department remains satisfied that the project is, on balance, in the public interest, and considers it to be approvable, subject to the draft conditions of consent.

3.0 RECOMMENDATIONS

It is **RECOMMENDED** that the Commission, as requested by the Minister for Planning:

- **consider** the findings of this report;
- **hold a public hearing** on matters relating to the amended development application;
- **consider any submissions** made on matters relating to the amended development application; and
- **provide its review report** within 8 weeks of receiving this report, unless otherwise agreed with the Secretary.


Howard Reed
Director
Resource Assessments

24-2-17

 24/2/17
Oliver Holm
Executive Director,
Resource Assessments & Compliance

APPENDIX A: AMENDED DEVELOPMENT APPLICATION AND ACCOMPANYING WRITTEN PARTICULARS

See: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4974

APPENDIX B: SUBMISSIONS

See: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4974

APPENDIX C: AMENDED PROJECT RESPONSE TO SUBMISSIONS (RTS2)

See: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4974

APPENDIX D: WACJV'S CONSULTATION WITH DARKINJUNG LALC

See: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4974

Refer to Section 6.1.14 of Response to Submissions (RTS2) – Page 126

APPENDIX E: COMMISSION'S FIRST REVIEW REPORT

See: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4974

APPENDIX F: WACJV'S RESPONSE TO THE COMMISSIONS'S FIRST REVIEW REPORT

See: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4974

APPENDIX G: DRAFT CONDITIONS OF APPROVAL

See: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4974