

COORANBONG ENTRY SITE STOCKPILE EXTENSION MODIFICATION

MODIFICATION REPORT

*for Centennial Coal Company
Pty Limited*

5 February 2025



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EXECUTIVE SUMMARY

Centennial Northern Coal Services Pty Limited operate the Northern Coal Services Project, located on the western side of Lake Macquarie, approximately 25 kilometres south-west of Newcastle and 140 km north of Sydney.

Northern Coal Services includes surface coal handling and processing facilities at the Newstan Colliery surface site and the Cooranbong Entry Site, as well as the use of haul roads connecting Newstan Colliery, Awaba Colliery, Cooranbong Entry Site and Eraring Power Station. The Northern Coal Services facilities are approved by SSD-5145 granted under the *Environmental Planning and Assessment Act 1979* and are integral to the handling, processing and transport of coal from Newstan Colliery and Mandalong Mine.

Centennial Northern Coal Services Pty Limited is seeking a Modification for:

- Development of the existing coal stockpile at the Cooranbong Entry Site to increase capacity from 100,000 tonnes to 400,000 tonnes;
- Construction of infrastructure associated with the modified stockpile footprint. This will include access tracks, lighting towers, water sprays, fencing and water management infrastructure; and
- An administrative update to the SSD-5145 Schedule of Land.

All other aspects of Northern Coal Services operations will remain the same as those approved under SSD-5145.

The proposed stockpile Modification will provide Centennial Northern Coal Services Pty Limited with greater flexibility in the management of Run of Mine coal received at the Cooranbong Entry Site from Mandalong Mine. This will promote the continuous, reliable supply of coal from the Northern Coal Services Project to meet customer demand and provide an ongoing economic benefit to NSW.

The environmental studies completed for the Modification have determined that the identified impacts from construction and operation of the modified stockpile will generally be minor in nature and can be appropriately managed through the application of existing environmental controls and the implementation of additional mitigations at the Cooranbong Entry Site. As such, it is considered that the Modification Application is in the public interest and can be approved, pursuant to Section 4.55(2) of the *Environmental Planning and Assessment Act 1979*.

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1. INTRODUCTION

This section provides an overview of approved Centennial Northern Coal Services (NCS) operations and the proposed Modification to the Cooranbong Entry Site (CES). It also outlines the purpose and structure of this Modification Report.

1.1 BACKGROUND

NCS operations are located on the western side of Lake Macquarie, approximately 25 kilometres (km) south-west of Newcastle and 140 km north of Sydney. NCS comprises surface coal handling and processing facilities at the Newstan Colliery surface site and CES, as well as haul roads connecting Newstan Colliery, Awaba Colliery, CES and Eraring Power Station. NCS facilities are integral to the handling, processing and transport of coal from Newstan Colliery (via the Newstan to Eraring private haul road) and Mandalong Mine (via an underground conveyor to CES then the Newstan to Eraring private haul road) (see **Figure 1**).

CES was originally developed as part of the Cooranbong Colliery in 1981. It comprises a Coal Handling Plant (CHP), coal stockpiles, coal conveyors, mine entries for access and ventilation to Mandalong Mine, workshop and administration buildings, car parking, water management structures and other associated infrastructure. Since 2015, CES has formed part of NCS coal handling and logistics activities authorised by SSD-5145 and is approved to operate 24 hours a day, seven days per week until the 31 December 2045.

1.1.1 Overview of the Modification

Centennial Northern Coal Services Pty Limited (Centennial) is seeking a Modification to SSD-5145 (the Modification) under Section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to increase the capacity of the existing Run of Mine (ROM) coal stockpile at CES. The Modification is Modification 4 of the SSD-5145 consent.

Further description of the proposed Modification is provided in **Section 3**.

1.2 APPLICANT

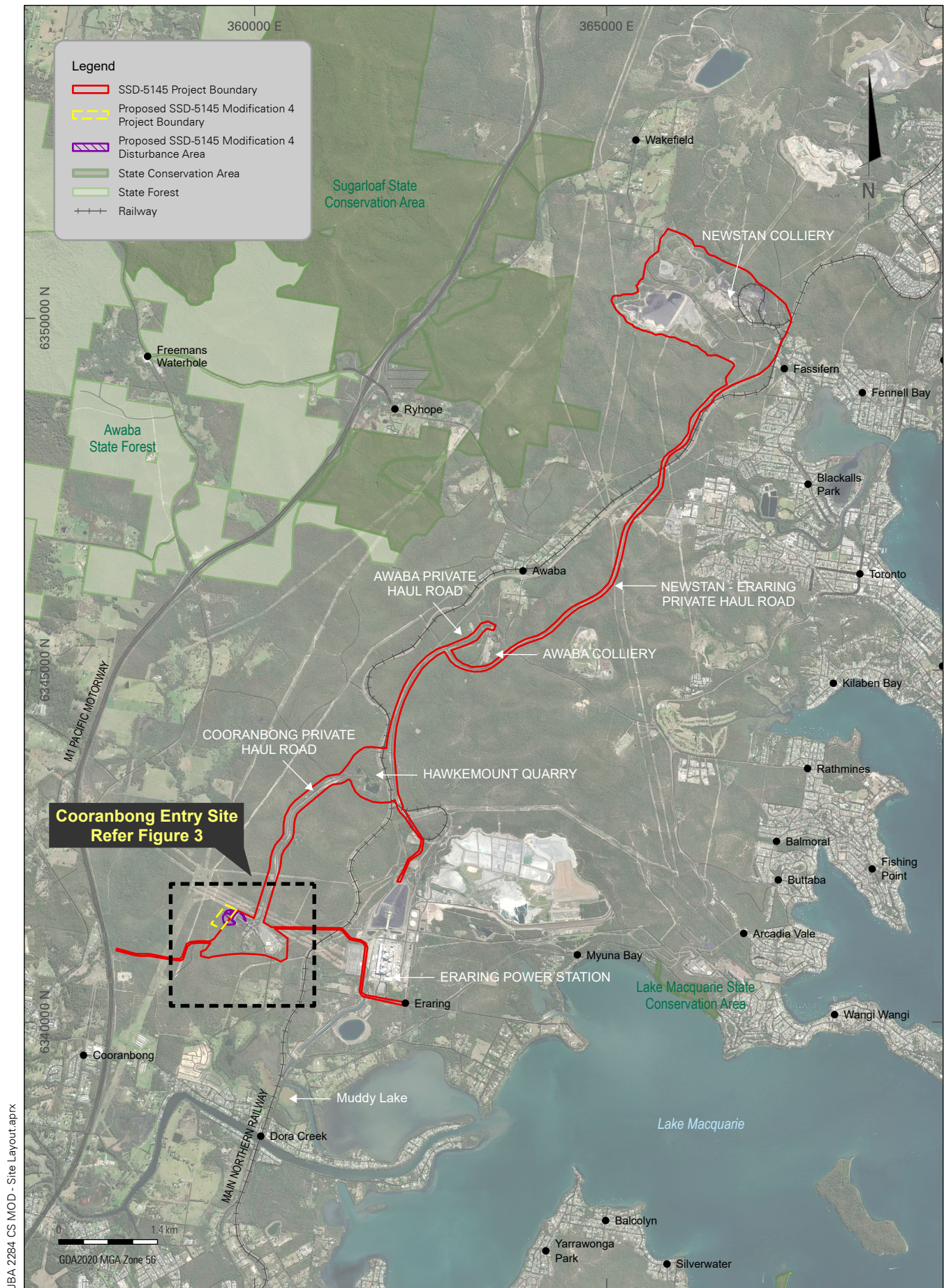
SSD-5145 is held by Centennial, the Applicant for the Modification. Contact details for Centennial are:

Centennial Northern Coal Services Pty Limited
Level 20
1 Market Street
SYDNEY NSW 2000

1.3 DOCUMENT PURPOSE

This Modification Report supports the Centennial application to modify SSD-5145 under Section 4.55(2) of the EP&A Act.

This Modification Report provides a description of the Modification, assesses the potential economic, environmental and social impacts of the changes sought and proposes additional mitigation and management measures where required.



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1.4 DOCUMENT STRUCTURE

This document has been prepared in consideration of '*State Significant Development Guidelines – Preparing a Modification Report*' (DPE, 2022) and directions received from the relevant regulatory authorities.

This Modification Report is structured as follows:

- **Section 1** provides an introduction to the Modification;
- **Section 2** outlines the existing environment and approved operations of CES;
- **Section 3** describes the proposed Modification;
- **Section 4** includes a brief discussion on the applicable regulatory framework;
- **Section 5** outlines the stakeholder consultation completed for the Modification;
- **Section 6** discusses the environmental assessments completed to identify potential impacts of the Modification and the mitigation and management measures proposed;
- **Section 7** provides a justification and evaluation of merits; and
- **Section 8** and **Section 9** respectively list of the references and abbreviations used in this Modification Report.

Appendix A to **Appendix I** provide copies of the detailed technical assessments and other supporting information which have been prepared for this Modification Report.

2. STRATEGIC CONTEXT

This section describes the existing approved activities at CES, the environmental setting, surrounding land ownership and land use relevant to the Modification.

2.1 GENERAL

CES is located in the floor of a small valley with elevations ranging between 10 and 30 m AHD. It is surrounded to the north, west and south by vegetated ridgelines with elevations up to 50 m AHD.

Lake Macquarie, the largest coastal lake in NSW, is located approximately 2 km from CES. Lake Macquarie is used for a wide range of recreation activities. CES is located on an unnamed creek that drains to an estuarine coastal wetland known as 'Muddy Lake'. Muddy Lake is connected to Lake Macquarie via an aqueduct that crosses the Eraring Power Station cooling water inlet canal (see **Figure 1**).

2.2 LAND OWNERSHIP & LAND USE

The suburb of Dora Creek is located approximately 2 km to the south of CES, with the nearest privately-owned residences on Gradwells Road approximately 330 m south of the SSD-5145 Project Boundary (see **Figure 2**).

The M1 Pacific Motorway is located on a north-south alignment approximately 1.8 kilometres to the west of CES, with the Main Northern Rail Line located approximately 400 m to the east. Eraring Power Station is located at the southern end of the Newstan to Eraring private haul road, approximately 1 km to the east of CES (see **Figure 1**). Eraring Power Station partially sources its fuel from surrounding mining operations, including Mandalong Mine (via CES).

2.3 APPROVED OPERATIONS

CES forms part of the NCS coal handling and logistics activities authorised by SSD-5145 (see **Section 1.1**). CES is approved to operate 24 hours a day, seven days per week until 31 December 2045.

CES is responsible for receiving, processing and transportation of coal from Mandalong Mine at a rate of up to 6 million tonnes per annum (Mtpa) ROM coal. This coal is approved to be delivered to CES surface facilities via a drift conveyor belt and then distributed to:

- Eraring Power Station, via conveyor; and
- Newstan Colliery Coal Handling and Preparation Plant, via haul trucks on the private haul road.

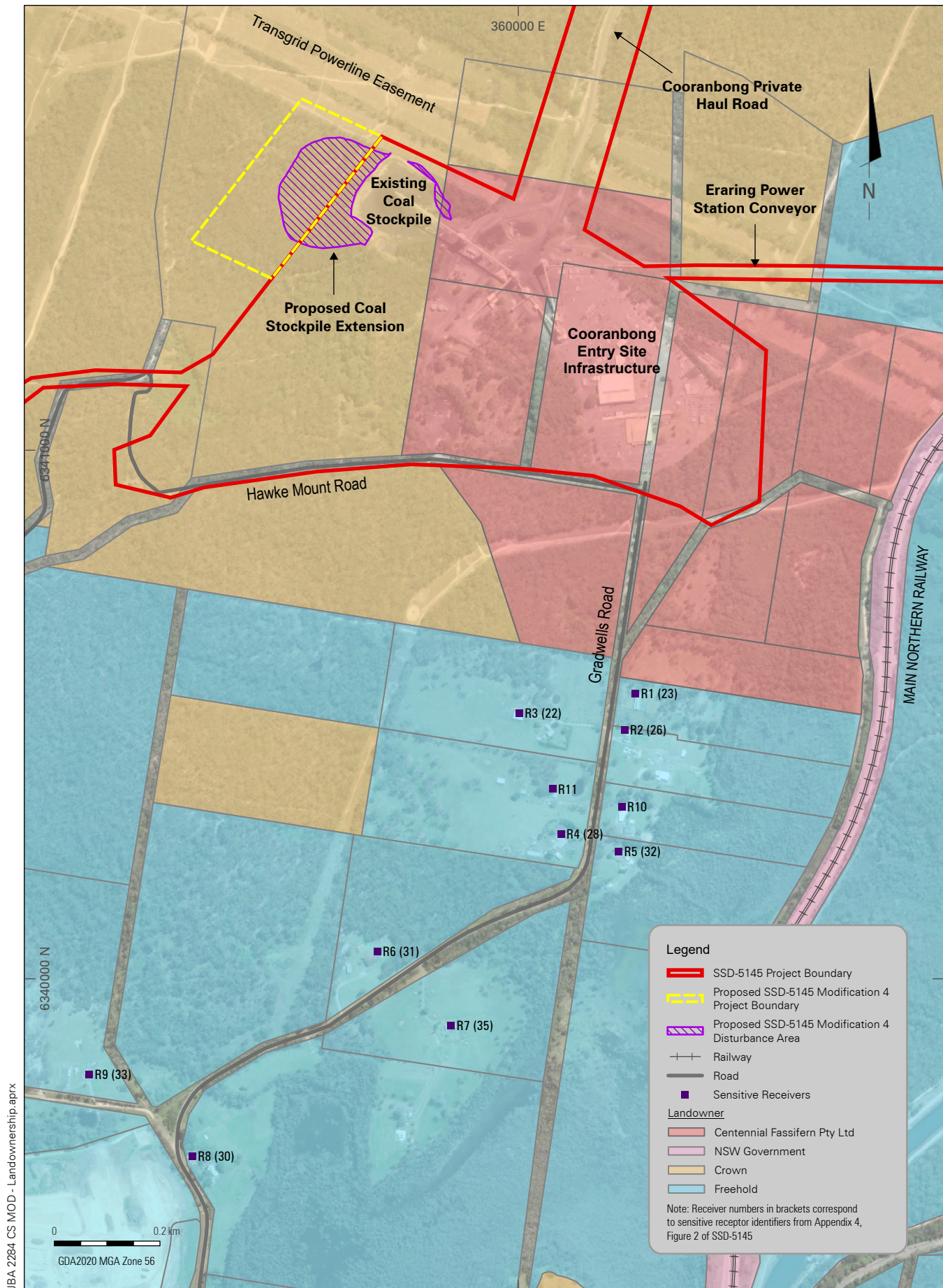
SSD-5145 has been modified on two occasions for:

- MOD 1: increase in employees based at CES and for administrative amendments to noise and air quality criteria (determined in January 2018);
- MOD 2: withdrawn; and
- MOD 3: amendment of SSD-5145 to align the rehabilitation management and performance conditions with contemporary requirements under the *Mining Act 1992* (Mining Act) (determined in November 2022).

This Modification Report relates to SSD-5145 Modification 4.

A separate Modification (Modification 5) has been prepared and relates to beneficial use of coal washery rejects and other related matters at NCS. Modification 5 was submitted for determination by DPHI in September 2024 and is currently under regulatory assessment.

CES is accessible via Gradwells Road, Hawke Mount Road or the Newstan to Eraring private haul road and comprises a CHP and associated coal handling and storage infrastructure (including coal stockpiles), underground mine entries to Mandalong Mine (drifts and shaft), workshop and administration buildings, car parking and other associated facilities. The approved layout of CES is shown on **Figure 3**.



JBA 2284 CS MOD - Landownership.aprx

COORANBONG STOCKPILE MODIFICATION

3. MODIFICATION DESCRIPTION

This section provides a comprehensive description of the Modification for which approval is sought. It also provides a justification for these changes and discussion on the alternatives considered.

3.1 OVERVIEW

Centennial proposes to apply for the Modification (Modification 4) of SSD-5145 under Section 4.55(2) of the EP&A Act for:

- Development of the existing coal stockpile at CES to increase capacity from 100,000 tonnes to 400,000 tonnes;
- Construction of infrastructure associated with the modified stockpile footprint. This will include access tracks, lighting towers, water sprays, fencing and water management infrastructure; and
- An administrative update to the SSD-5145 Schedule of Land.

The conceptual layout of the Modification is shown on **Figure 3**.

Table 1 compares the proposed Modification with the NCS project as approved under SSD-5145. It is noted that SSD-5145 MOD2 was withdrawn and is therefore not included in **Table 1**.

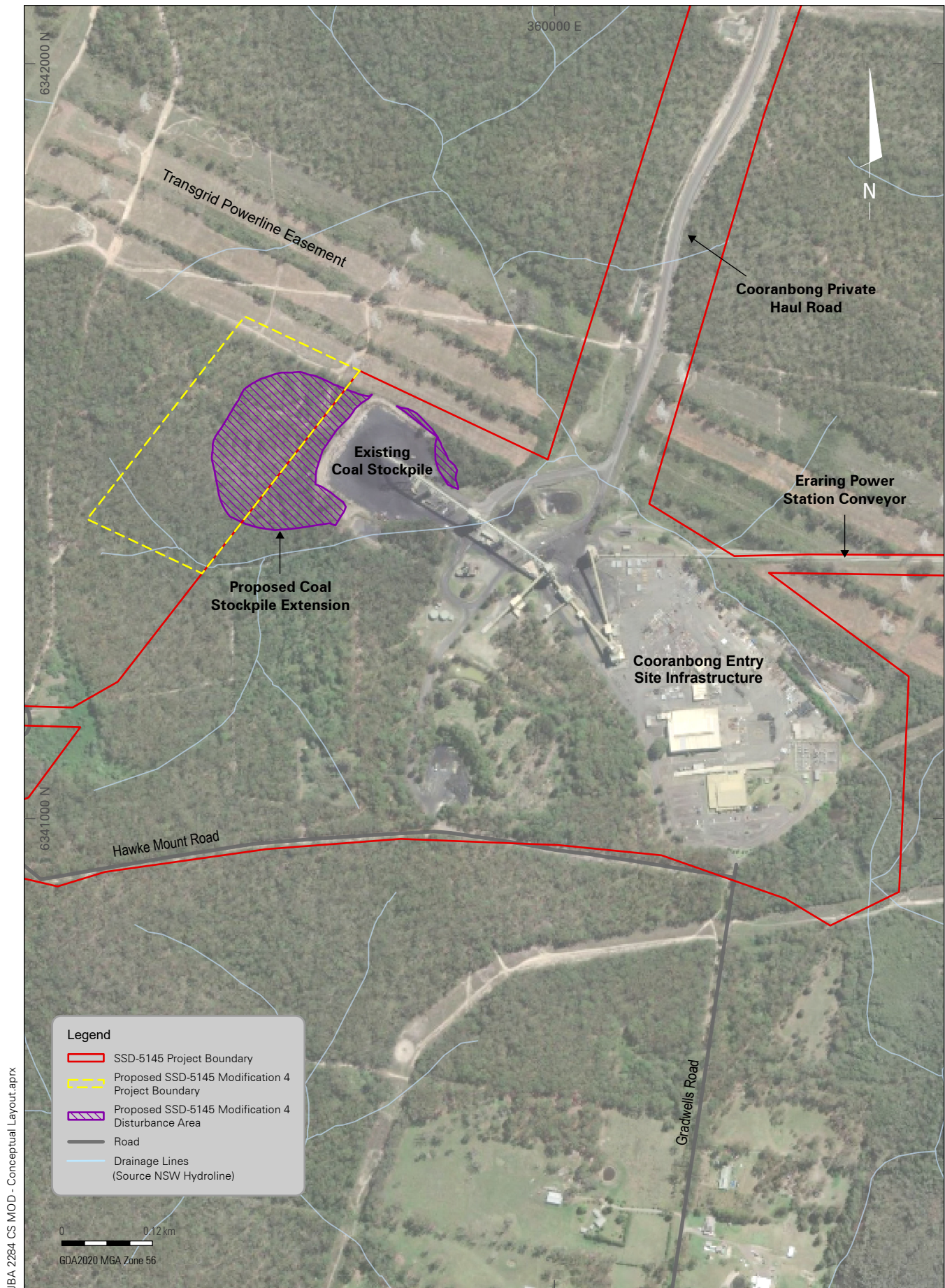
An updated Schedule of Land for SSD-5145 is included as **Appendix I**. The updates to the Schedule of Land are proposed due to changes in cadastre within the SSD-5145 Project Boundary that have occurred since 2015 and to resolve administrative errors in Appendix 1 of SSD-5145. The Modified SSD-5145 Project Boundary will not incorporate any land parcels not previously included in the existing SSD-5145 Schedule of Land.

Table 1 Comparison of Key Project Components

Component	SSD-5145	SSD-5145 MOD1	SSD-5145 MOD3	The Modification (SSD-5145 MOD 4)
Approval Expiry	31 December 2045	No change	No change	No change
Approval Boundary	Project Boundary of approximately 508 ha, as shown in Figure 1	No change	No change	Increase in the SSD-5145 Project Boundary of approximately 5.6 ha to accommodate the modified stockpile footprint (see Figure 3)
Schedule of Land	Schedule of Land in Appendix A of SSD-5145	No change	No change	Administrative update to the SSD-5145 Schedule of Land (see Section 3.1 and Appendix I)
Project Disturbance	Increase in the total NCS disturbance footprint of 21.4 ha	No change	No change	Increase in the total CES vegetation disturbance footprint of approximately 2.97 ha (see Figure 3)
Operational Hours	24 hours a day, seven days per week	No change	No change	No change
Handling & Processing	Receive and process up to 6 Mtpa ROM coal from Mandalong Mine through the CES CHP	No change	No change	No change
Full-time Equivalent (FTE) workforce	14 FTE personnel based at CES	46 additional FTE personnel, creating a total of 60 based at CES	No change	Four additional FTE personnel, creating a total of 64 based at CES
Infrastructure	- CHP - Coal stockpile - Workshop building - Administration building - Car park	No change	No change	Construction of a hardstand area to be utilised for the modified stockpile and supporting infrastructure. The construction of the modified stockpile will occur over approximately 12 months

Component	SSD-5145	SSD-5145 MOD1	SSD-5145 MOD3	The Modification (SSD-5145 MOD 4)
	- Water management infrastructure - Coal handling infrastructure including a drift conveyor belt from Mandalong Mine			
Water Management	- Water transfers at CES will be transfers from the CHP Settlement Tank, 5 ML Dam, Sediment Dam 1 and Sediment Dam 2 to the Cooranbong Underground Storage - Discharge of water from CES via the two existing Licenced Discharge Points (LDP) 001 and 002) - Receive up to 3 cubic metres of waste material / week collected from the sumps and dirty water dams at the Mandalong Mine Access Site and store in a 1,500 tonne emergency stockpile area at CES	No change	No change	Updates to CES water management structures to incorporate the modified stockpile footprint
Noise	Management of construction and operational noise in accordance with Schedule 3, Conditions 1 – 5 of SSD-5145	Modification to Schedule 3, Conditions 2 of SSD-5145 to change operational LAeq(15 minute) noise criteria for four CES receptors, from 35 dB(A) to 37 dB(A)	No change	Modification to Schedule 3, Conditions 2 and 3 of SSD-5145 to increase noise criteria for CES receptors and align with contemporary noise assessment policy (EPA, 2017)

Component	SSD-5145	SSD-5145 MOD1	SSD-5145 MOD3	The Modification (SSD-5145 MOD 4)
Air Quality	Management of air quality in accordance with Schedule 3, Condition 7 of SSD-5145	Administrative change to notes associated with air quality criteria in Schedule 3, Condition 7 of SSD-5145	No change	No change
CES Site Access and Roads	- Site access via Gradwells Road - Newstan to Eraring private haul road connection	No change	No change	No change
Materials Transport	- Transport up to 6 Mtpa of coal to Newstan Colliery via private haul roads; and - Transport up to 6 Mtpa of coal to Eraring Power Station via a dedicated overland conveyor - Transport of coarse rejects within NCS for emplacement within the Newstan Southern Reject Emplacement Area (REA), Northern REA and/or Hawkmount Quarry via private haul roads - Tailings transferred from the Newstan Colliery surface site to the Southern REA	No change	No change	Transport of materials from excavation and construction of the modified coal stockpile within NCS for use in site rehabilitation or emplacement areas
Rehabilitation and Final Landform	Progressive rehabilitation in accordance with approved Rehabilitation Management Strategy	No change	Modification to Schedule 3, Conditions 28 and 29 of SSD-5145 to align with contemporary Mining Act requirements	No change



JBA 2284 CS MOD - Conceptual Layout.aprx

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3.2 ALTERNATIVES CONSIDERED

Options for alternate ROM coal management arrangements at CES considered by Centennial during the concept design phase for the Modification included:

1. Use of existing CES hardstand areas as alternate stockpile locations. This option was not pursued due to constraints associated with efficient truck and heavy vehicle access, operational water and noise management and the footprint required for the stockpiling of additional ROM coal volumes sought for the Modification;
2. Extension of the stockpile to the south of the existing stockpile location. This option was not pursued to avoid disturbance of unnamed streams and associated vegetation located to the south of the existing stockpile (see **Figure 3**);
3. Extension of the stockpile to the west of the existing stockpile location. This option was adopted for the Modification (see **Section 3.3**);
4. Utilise the approved ROM coal stockpile at Newstan Colliery. This option was not pursued due to constraints associated with potential biodiversity and operational noise impacts and the locations of existing Newstan Colliery surface infrastructure; and
5. The 'Do Nothing' option, i.e. continue with current stockpile arrangements approved under SSD-5145. This option was not pursued due to productivity improvements in underground mining operations at Mandalong Mine that would be provided by the modified stockpile.

3.3 MODIFICATION JUSTIFICATION

The preferred option for the Modification (described in **Section 3.1**) is the extension of the existing NCS coal stockpile to the west. This option is the most suitable to support ongoing CES and Mandalong Mine operations, based on concept design reviews and an evaluation of environmental, community and economic considerations including:

- Using existing CES infrastructure where possible, to minimise additional disturbance and impacts to biodiversity, noise, visual, surface water and heritage;
- Avoidance of nearby 1st, 2nd and 3rd order streams;
- Minimising the modified disturbance footprint and excavation works required for the modified stockpile;
- Practicality and cost-effectiveness; and
- Health and safety outcomes for the Centennial workforce.

If approved, the Modification will:

- Increase efficiency of underground mining operations at Mandalong Mine through the availability of additional stockpile capacity at the CES, to better accommodate approved longwall production;
- Optimise the ability to stockpile ROM coal at CES and transport this material within NCS;
- Assist in the continuous, reliable supply of coal to NCS customers during periods of mining downtime at Mandalong Mine (including during longwall changeouts or unplanned outages); and
- Provide greater flexibility in the marketing of coal extracted from Mandalong Mine and assist in the management of coal quality at NCS.

4. STATUTORY CONTEXT

This section describes the provisions of legislation that are applicable to the Modification.

4.1 OVERVIEW

Table 2 summarises the regulatory framework applicable to the Modification. Further discussion on each aspect is provided in **Section 4.2**.

Table 2 Relevant Legislative Provisions

Aspect	Relevant Provisions	Applicability to Modification
Power to modify approval	Section 4.55(2) of the EP&A Act	A comparison of the minor changes proposed for the Modification to those approved under SSD-5145 is provided in Section 3.1 . If the Modification is granted, the modified development would be 'substantially the same development' as that approved under SSD-5145.
Permissibility	<i>Lake Macquarie Local Environmental Plan 2014</i> (LM LEP) Clause 2.9 of <i>State Environmental Planning Policy (Resources and Energy) 2021</i> (Resources and Energy SEPP)	The proposed stockpile footprint is located on land zoned as C2 Environmental Conservation under the LM LEP. Part 2.2, Section 2.9(1)(ii) of the Resources and Energy SEPP allows for mining development to be carried out with development consent on land that was the subject of a mining lease under the Mining Act prior to the commencement of that section of the SEPP (see Section 4.2).
Gateway process	Clause 103 of the <i>Environmental Planning and Assessment Regulation 2021</i> (EP&A Regulation) Clause 2.24 of the Resources and Energy SEPP	The Modification does not fall within the definition of 'mining or petroleum development' because no new Mining Leases are required. Accordingly, the Gateway process does not apply to the Modification.
Matters for consideration	Section 4.55(3) of the EP&A Act Part 2.3 of the Resources and Energy SEPP	The consent authority must consider the matters under Section 4.15(1) of the EP&A Act that are relevant to the Modification. Part 2.3 of the Resources and Energy SEPP prescribes additional matters that must be considered for mining proposals.
Other approvals	Sections 5 and 6 of the Mining Act	The Proposed Modified SSD-5145 Project Boundary is located within Consolidated Coal Lease 746 held by Centennial (see Figure 4). Therefore, the modified stockpile can be developed without the need for new mining authorities under the Mining Act.

Aspect	Relevant Provisions	Applicability to Modification
		The proposed changes to the site layout will be reflected in the Rehabilitation Management Plan to be prepared in accordance with the NCS mining authorities.
	Sections 86, 87 & 90 of the <i>National Parks and Wildlife Act 1974</i> (NPW Act) Section 4.41 of the EP&A Act	An Aboriginal Heritage Impact Permit (AHIP) is required for any activity that may harm or desecrate an Aboriginal object. Pursuant to Section 4.41 of the EP&A Act, an AHIP is not required for the modified development as it is State Significant Development (SSD).
	Part 2 of <i>Water Management Act 2000</i> (WM Act)	The Modification will not necessitate any changes to existing Centennial water licensing arrangements.
	Sections 89, 90, 91 of WM Act Section 4.41 of EP&A Act	Water use approvals, water management work approvals and activity approvals under the WM Act are not required for the Modification.
	Section 22 of <i>Coal Mine Subsidence Compensation Act 2017</i>	Approval (TBA24-02112) from Subsidence Advisory NSW has been obtained for development of the modified stockpile. Pursuant to Section 4.42 of the EP&A Act, approval cannot be refused if it is necessary for carrying out SSD that is authorised by a development consent and is to be substantially consistent with that consent.
	Section 68 of <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	The Modification is likely to have a significant impact protected Matters of National Environmental Significance (MNES). A referral (2024/02417) under Section 68 of the EPBC Act was submitted (see Section 5.1).
	Section 48 of the <i>Protection of the Environment Operations Act 1997</i> (POEO Act)	Centennial holds Environment Protection Licence (EPL) 365 granted under the POEO Act, which will be applied to the proposed Modification. A variation to the EPL may be required.
	Section 7.9 of the <i>Biodiversity Conservation Act 2016</i> (BC Act)	All applications for SSD are required to be accompanied by a Biodiversity Development Assessment Report (BDAR) unless both the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values. A BDAR waiver has not been sought for the Modification, and therefore a BDAR has been prepared (refer to Section 6.3 and Appendix C).

4.2 KEY LEGAL MATTERS

4.2.1 Power to Modify

Section 4.55(2) of the EP&A Act gives a consent authority the power to modify a development consent. This power to modify is limited by the requirement for the modified development to be 'substantially the same development' as that which was granted development consent.

The Modification will not result in any material change in any essential or important features of the approved development. Specifically, the following aspects will remain consistent with SSD-5145:

- Maximum volume of coal receipt at CES;
- Maximum rate of coal processing at CES CHP;
- Methods and rate of coal transportation;
- Hours of operation; and
- Duration of CES operations.

However, the Modification will result in a minor increase to the surface extent of the approved development. It has been assessed that this surface extent increase is minor and is considered to be substantially the same development as the development as originally approved.

In consideration of the quantitative and qualitative differences between the development as approved and the Modification in their proper context, the modified development meets the requirement of being 'substantially the same development'. Therefore, the consent authority may exercise its power under Section 4.55(2) of the EP&A Act to modify the relevant consent.

4.2.2 Permissibility

As shown on **Figure 5**, the Proposed Modification Disturbance Area is located on land zoned as C2 Environmental Conservation under the LM LEP. Such development would be prohibited under the LM LEP, except for the provisions of Part 2.2, Section 2.9(1)(ii) of the Resources and Energy SEPP. This provision allows for mining development to be carried out with development consent on land that was subject to a mining lease under the Mining Act immediately prior to the commencement of Resources and Energy SEPP. Mining lease CCL 746 was granted on 16 May 1990, predating the commencement of Section 2.9(1)(ii) of the Resources and Energy SEPP. The Modification is therefore permissible with development consent.

4.2.3 Landowner Consent

As shown on **Figure 4**, the proposed ROM Coal Stockpile Extension area is located on Crown land. Centennial has consulted with Crown Lands on the increased area of CES proposed for the Modification to confirm their requirements (see **Section 5**).

4.2.4 Environment Protection and Biodiversity Conservation Act 1999

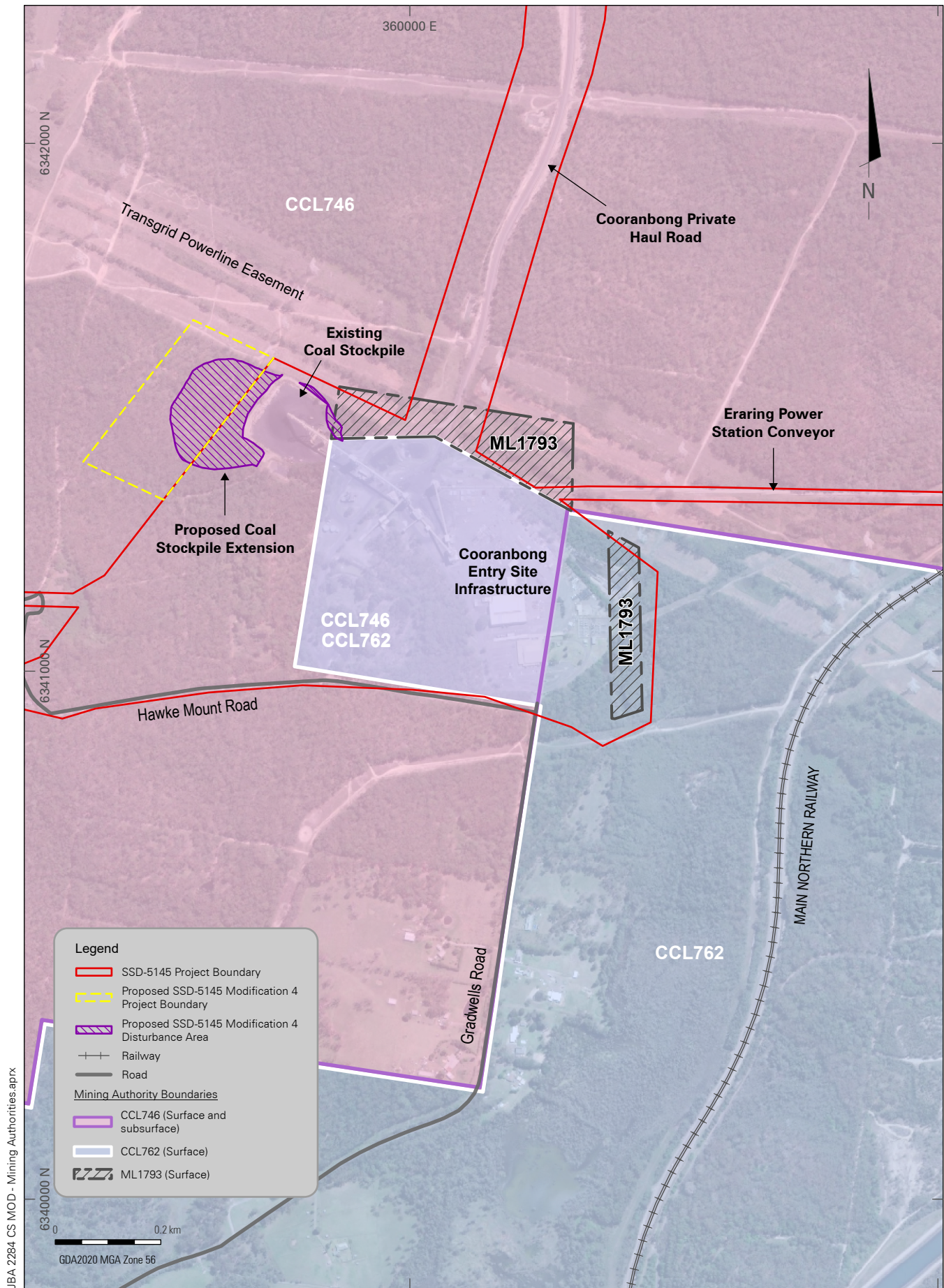
The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) outlines the role of the Commonwealth in the protection of the environment. The EPBC Act provides protection for listed Matters of National Environmental Significance (MNES) which include:

- World heritage properties;
- National heritage places;
- Wetlands of international importance;
- Listed threatened species and ecological communities;
- Listed migratory species;
- Commonwealth marine areas;

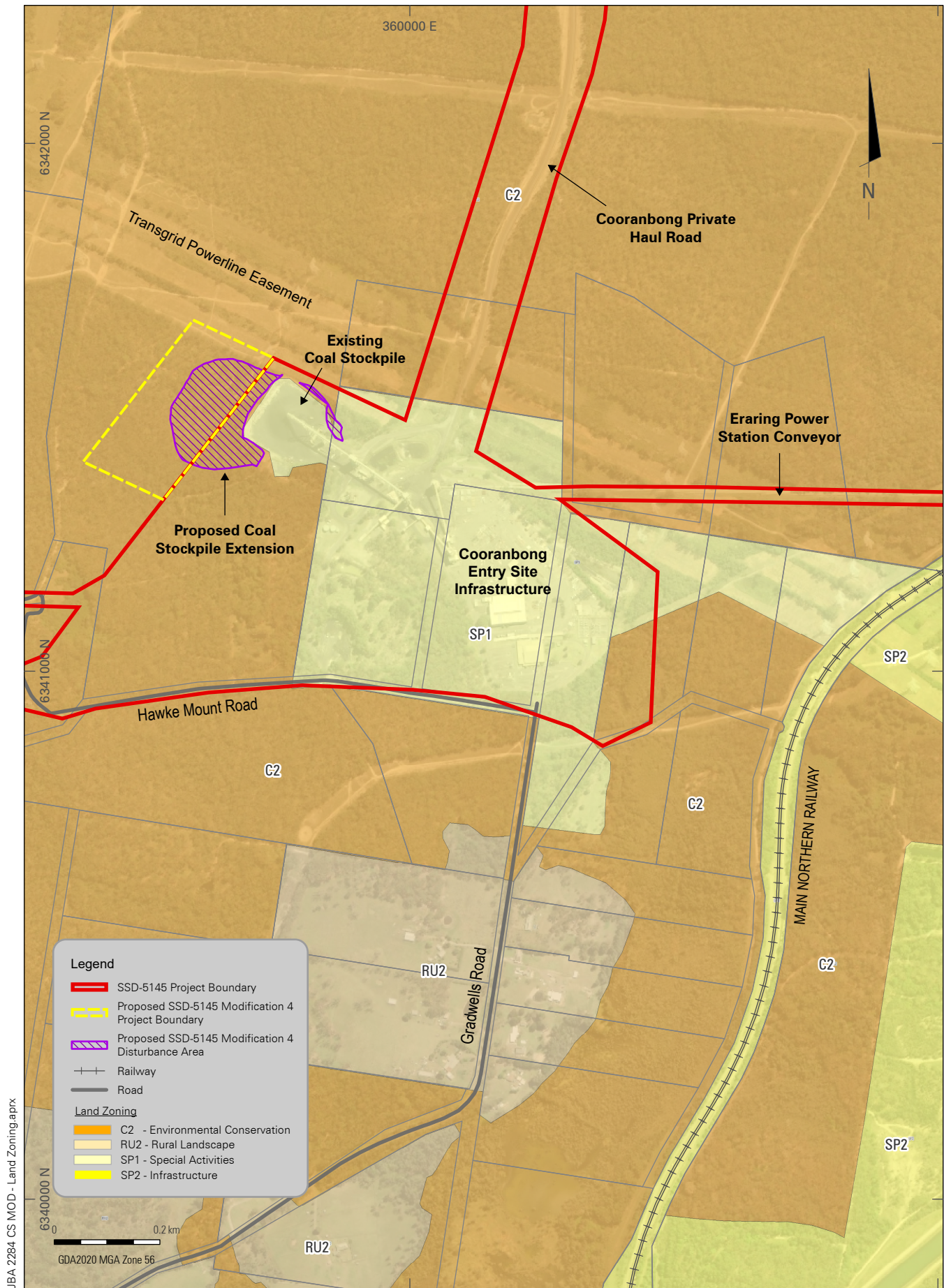
- Great Barrier Reef Marine Park;
- Protection of the environment from nuclear actions (including uranium mining); and
- Protection of water resources from coal seam gas development and large coal mining development.

Grevillea parviflora subsp. parviflora, *Tetratheca juncea* were identified in the proposed SSD-5145 Boundary Extension area during Hunter Eco (2010) and EcoResolve (2023, 2024) surveys (see **Section 6.3**). These species are listed as Vulnerable under the EPBC Act.

A Referral under Section 68 of the EPBC Act was therefore made due to the potential impacts of the Modification on MNES. The Referral (2024/02417) for the activities proposed under the Modification was lodged with the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) on 16 July 2024. DCCEEW responded on 11 September 2024 to notify Centennial that the Modification was a Controlled Action and that the action would be assessed under the Bilateral Agreement made between the Commonwealth and the NSW Government under section 45 of the EPBC Act.



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5. STAKEHOLDER ENGAGEMENT

This section outlines the stakeholder engagement program completed for the Modification.

5.1 CONSULTATION PROGRAM

A summary of the consultation undertaken with regulatory agencies and community stakeholders for the Modification is included in **Table 3**.

Table 3 Stakeholder Engagement and Consultation

Stakeholder	Method of Consultation	Consultation Outcomes	Where Addressed in Document
Community			
NCS Community Consultative Committees (CCC)	Presentations at NCS CCC (September and December 2024) and Mandalong Mine CCC (June and October 2024) meetings	No matters raised	-
CES near neighbours	Modification notification letters and offer of meetings in May 2024 Meetings with landholders in June and July 2024 Modification updates on NCS and Mandalong Mine websites	- Noise impacts - Air quality impacts	Section 6.1 Section 6.2
NCS Registered Aboriginal Parties (RAPs)	Invitation for involvement in the Modification Aboriginal cultural heritage assessment report (ACHAR) and field surveys Request for comments on field survey methodology in June 2023 Field surveys in July 2023 Draft ACHAR provided for review and comment August 2023 Final ACHAR provided June 2024 Update presentation to the Northern Region Cultural Heritage Committee in September 2024	Request during field surveys for relocation of some native vegetation species within the Modification Disturbance Area, if possible.	Section 6.5, Appendix E
Regulatory Agencies			
DPHI	Modification notification meeting in December 2022	Confirmation of Modification approvals pathway	Section 4

Stakeholder	Method of Consultation	Consultation Outcomes	Where Addressed in Document
	Pre-Modification Consultation letter in June 2023 Pre-Modification update meeting and presentation in May 2024 Updates on the Modification at quarterly Centennial Project Update Meetings (March, June and September 2023 and June 2024)	Advice on consultation required with Commonwealth DCCEEW and Subsidence Advisory NSW (SA NSW)	Section 5.1
Lake Macquarie City Council (LMCC)	Briefing of LMCC Lake Macquarie Coastal Zone Committee in June 2024 Modification notification letters in July 2024 Response from LMCC on Modification notification in July 2024	No matters raised Request from LMCC for the following: - Consideration of alternative sites to avoid additional disturbance - Permissibility of the Modification and the requirement for rezoning of land - Biodiversity assessment for the Modification, including the requirement for biodiversity offsets - Water quality management assessment - Bushfire assessment	- Section 3.3 Sections 4.1, 4.2 Section 6.3 Section 6.4 Section 6.7
DPHI Crown Lands	Modification notification in June 2023 and update in September 2023	No matters raised	-
NSW DCCEEW – Biodiversity and Conservation Science Directorate (BCS)	Modification notification and response from BCS in June 2024	No matters raised	-
Environment Protection Authority	Modification notification in June 2024	No matters raised	-
Mining, Exploration and Geoscience	Modification notification in June 2024	No matters raised	-
Resources Regulator	Modification notification in June 2024	No matters raised	-

Stakeholder	Method of Consultation	Consultation Outcomes	Where Addressed in Document
NSW DCCEEW-Water	Meeting with DCCEEW representative in May 2024	Confirmation on water licencing requirements and setback distances from third order streams	Section 4.1
SA NSW	Modification notification in June 2023 Confirmation of assessment requirements for <i>Mine Subsidence Compensation Act 2017</i> approval in July 2023 Provision of modified stockpile design plans to SA NSW in July 2024 SA NSW determination under the <i>Coal Mine Subsidence Compensation Act 2017</i> in September 2024	No matters raised	- - - -
Heritage NSW	Modification notification and request for updated RAPs list in April 2023 Provision of draft ACHAR in August 2023	List of RAPs provided for consultation over the Modification ACHAR	Section 6.5, Appendix E
Commonwealth DCCEEW	Modification notification meeting in May 2024 EPBC Act Referral lodged in July 2024	Modification determined as a Controlled Action under the EPBC Act on 11 September 2024	Sections 4.2, 6.3
Other Stakeholders			
NCS Workforce	Presentations to NCS workforce in September / October 2024	No matters raised	-
TransGrid	Modification notifications in June and July 2022 Modification update and submission of draft concept designs in August 2023 Modification update and provision of updated designs in August 2024	Technical specifications and conditions provided by TransGrid for proposed stockpile design to manage potential impacts to TransGrid infrastructure.	N/A
Origin Energy (Eraring Power Station)	Notification of the Modification and potential interactions during construction in June 2024	No matters raised	-

6. IMPACTS, MANAGEMENT AND MITIGATION

This section provides an assessment of the potential environmental impacts of the Modification and describes the measures that will be implemented to mitigate these impacts.

6.1 ACOUSTICS

6.1.1 Background

A Noise Impact Assessment was completed by GHD to evaluate the acoustic impacts of the construction and operation of the modified stockpile. A summary of the Noise Impact Assessment is provided in the sections below and a copy of the GHD study is included as **Appendix A**.

6.1.2 Methodology

Acoustic impacts of the Modification were assessed in accordance with the methodologies described in the:

- *NSW Noise Policy for Industry* (EPA, 2017) (NPfI). The NPfI was adopted for the Modification Noise Impact Assessment as a more contemporary noise assessment policy than the superseded *NSW Industrial Noise Policy* (2000) used in previous assessments for NCS;
- *NSW Road Noise Policy* (EPA, 2011); and the
- *NSW Interim Construction Noise Guideline* (EPA, 2019).

Noise criteria for the assessment of impacts of the Modification on sensitive receivers (see **Figure 2**) were determined based on background data, including from attended and unattended noise monitoring. This included noise monitoring at two locations on Gradwells Road that were representative of sensitive receiver locations.

Noise modelling was undertaken using the Conservation of Clean Air and Water Europe (CONCAWE) prediction methodology within the SoundPLAN 3D modelling software (Version 9). Operational noise modelling included the following mitigations which will be implemented for the Modification:

- Lining of haul road truck trays with sound dampening material to reduce noise during loading; and
- Application of sound attenuation kit on the PR776 (or equivalent) dozer operating at the site.

6.1.3 Impact Assessment

Construction Noise

Construction noise levels at sensitive receiver locations are presented in **Table 4**. Predicted construction noise impacts are below the highly noise affected management level during all construction scenarios at all assessment receptor locations. Mitigation strategies that will be implemented to minimise construction noise impacts are listed in **Section 6.1.4**.

Significant road traffic and construction vibration impacts to sensitive receivers are not predicted.

Operational Noise

Operational noise levels at sensitive receiver locations are presented in **Table 6**. Exceedances of sleep disturbance criteria are not predicted for receivers that are not subject to negotiated noise agreements with Centennial. Centennial has negotiated noise agreements in place for CES receiver locations R1 (23), R2 (26), R5 (32) and R10 (see **Figure 2**).

Table 4 Construction Noise Modelling Results

Construction Scenario	Receiver ID	Prediction results $L_{Aeq(15minute)}$ dBA – Day (Calm) ¹	Noise Management Level $L_{Aeq(15minute)}$ dBA Criteria	
			Noise affected	Highly noise affected
CS01 – Initial site clearing	R1 (23) ¹	30	45	75
	R2 (26) ¹	33		
	R3 (22)	37		
	R4 (28)	43		
	R5 (32) ¹	41		
	R6 (31)	39		
	R7 (35)	34		
	R8 (30)	38		
	R9 (33)	31		
	R10 ¹	35		
	R11	36		
CS02 - Civil works	R1 (23) ¹	37	45	75
	R2 (26) ¹	40		
	R3 (22)	43		
	R4 (28)	49		
	R5 (32) ¹	47		
	R6 (31)	46		
	R7 (35)	41		
	R8 (30)	44		
	R9 (33)	38		
	R10 ¹	42		
	R11	43		
CS03 - Infrastructure development	R1 (23) ¹	31	45	75
	R2 (26) ¹	34		
	R3 (22)	37		
	R4 (28)	43		
	R5 (32) ¹	41		
	R6 (31)	39		
	R7 (35)	35		
	R8 (30)	38		
	R9 (33)	31		
	R10 ¹	35		
	R11	36		

Note 1: Receptor has negotiated noise agreement in place with Centennial.

Table 5 Operational Noise Modelling Results

Receptor ID	Prediction results $L_{Aeq(15minute)}$ dBA								Criteria $L_{Aeq(15minute)}$ dBA
	Day (Calm)	Evening (Calm)	Night (Calm)	Prevailing winds – Day				Night (temperature inversion)	
				ESE	SE	SSE	S		
R1 (23) ³	40	40	40	35	34	34	34	42	40
R2 (26) ³	39	39	39	34	33	32	32	41	40
R3 (22)	29	27	28	26	24	24	23	30	40
R4 (28)	36	35	35	31	29	29	29	38	40
R5 (32) ³	37	36	36	31	30	29	29	39	40
R6 (31)	31	28	28	27	25	24	24	30	40
R7 (35)	30	28	28	26	24	23	23	31	40
R8 (30)	36	35	35	31	29	29	29	38	40
R9 (33)	28	25	25	27	23	22	21	28	40
R10 ³	38	37	37	32	31	30	30	40	40
R11	31	31	31	28	25	24	24	34	40

Note 1: Day is defined as the period from 7:00 am to 6:00 pm. Evening is defined as the period from 6:00 pm to 10:00 pm. Night-time is defined as 10:00 pm to 7:00 am.

Note 2: Noise from all sources that contribute to the total noise from the Site were assessed to identify characteristics that may cause greater annoyance (e.g. tonality, impulsiveness, intermittent, low frequency etc).

Note 3: Receptor has negotiated noise agreement in place with Centennial.

Table 6 Sleep Disturbance Noise Modelling Results

Receiver ID	Prediction results (L_{Amax} dBA) ¹	Sleep Disturbance Criteria (L_{Amax} dBA)
R1 (23) ¹	47	52
R2 (26) ¹	42	52
R3 (22)	33	52
R4 (28)	38	52
R5 (32) ¹	40	52
R6 (31)	31	52
R7 (35)	33	52
R8 (30)	38	52
R9 (33)	32	52
R10 ¹	41	52
R11	30	52

Note 1: Receptor has negotiated noise agreement in place with Centennial

6.1.4 Mitigation and Management

Reasonable and feasible noise mitigations that will be applied during construction of the modified stockpile include:

- Selection of equipment with lower noise and vibration levels during the construction planning phase;
- Siting of plant and equipment to minimise noise at sensitive receiver locations;
- Minimising drop heights during loading and unloading of construction material; and
- Regular maintenance of construction plant and equipment.

These mitigations will be described in a Construction Environmental Management Plan (CEMP). The CEMP will be developed and prepared prior to the commencement of Modification construction work as an internal Centennial management procedure.

As noted in **Section 6.1.2**, additional noise mitigations that will be implemented prior to operation of the modified stockpile will include:

- Lining of haul road truck trays with sound dampening material to reduce noise during loading; and
- Application of sound attenuation kit on the PR776 (or equivalent) dozer used at the site.

These proposed operational mitigation measures will be described in a revision to the Centennial Northern Region Noise Management Plan if the Modification is approved.

6.2 AIR QUALITY AND GREENHOUSE GAS

6.2.1 Background

An Air Quality and Greenhouse Gas Impact Assessment (AQGHGIA) for the Modification was undertaken by SLR Consulting Australia Pty Ltd (SLR). A summary of the AQGHGIA report provided in the sections below, with a copy of the assessment provided as **Appendix B**.

6.2.2 Methodology

Air Quality

Assessment Approach

The air quality impact assessment included:

- Estimation of air quality impacts resulting from the construction phase of the Modification, using the procedures in accordance with the '*IAQM Guidance on the Assessment of Dust from Demolition and Construction*' (IAQM, 2024);
- Dispersion modelling to predict Modification dust emissions at surrounding sensitive receivers; and
- Assessment of cumulative impacts, considering the combined effect of existing baseline air quality conditions and other local activities.

Further detail on the air quality methodologies is provided in **Appendix B**.

Impact Assessment Criteria

The '*NSW Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*' (NSW EPA, 2022) (Approved Methods) specify the air quality impact assessment criteria relevant for assessing the air quality impacts of a development. The criteria in the Approved Methods for dust deposition, particulate matter (Total Suspended Particulate (TSP), Particulate Matter less than 10 microns (PM₁₀) and Particulate Matter less

than 2.5 microns (PM_{2.5})) were adopted for the AQGHGIA. SSD-5145 provides air quality criteria for PM₁₀, TSP and depositional dust that are consistent with those in the Approved Methods.

Air Quality Modelling

The AQGHGIA air dispersion modelling used a combination of the TAPM, CALMET and CALPUFF models. These model platforms were used to predict ground-level particulate matter concentrations and deposition levels due to the CES (including the changes for the Modification) and other sources. Cumulative impacts were then calculated by including background TSP, PM₁₀ and PM_{2.5} concentrations and dust deposition rates, based on a review of ambient air quality monitoring data for the local area.

Two operational scenarios were modelled to assess potential worst-case impacts for the Modification and compliance with SSD-5145 criteria at the sensitive receivers closest to CES. These included:

- Scenario 1 – Export option, including the receipt and handling of 6 Mtpa of ROM coal from Mandalong Mine at CES and transport to Newstan Colliery surface site by truck; and
- Scenario 2 – Eraring Power Station option, representing receipt and handling of 6 Mtpa of ROM from the Mandalong Mine at CES and transport to Eraring Power Station by conveyor.

Total dust emissions were estimated for each scenario using Modification layout plans and emission factors sourced from:

- 'Emission Estimation Technique Manual for Mining' (SEWPAC, 2012);
- 'Australian Coal Association Research Program emission factors' (ACARP, 2015); and
- 'AP 42' (US EPA 1985 and updates).

Full details on the emission calculations, including assumptions, emission controls and allocation of emissions to modelled locations and model settings are provided in **Appendix B**.

Greenhouse Gas

The greenhouse gas assessment included:

- Identification of potential emissions associated with construction and operation of the Modification, including:
 - Vegetation disturbance;
 - Fuel combustion required during the construction of the modified stockpile; and
 - Additional fuel combustion required during operation of the modified stockpile.
- Scope 2 emissions were not considered in the assessment as the Modification will not result in any significant change in NCS electricity use; and
- Estimation of Modification greenhouse gas emissions based on the emissions factors and methods provided in the *National Greenhouse Account Accounts* (DCCEEW, 2024) and the *NSW Guide for Large Emitters* (NSW EPA, 2025) (GHG Guide). Assessment of Modification impacts in accordance with the GHG Guide included the following:
 - Definition of a Modification 'boundary' applied to the GHG assessment (i.e. the modified SSD-5170 Project Boundary);
 - Identification of GHG emission sources associated with construction and operation of the Modification;
 - Confirmation of emissions calculation methods and emissions factors to be applied to all GHG emission sources for the Modification;
 - Identification of activity data for each GHG emission source related to the Modification; and
 - Assessment of Modification GHG emissions and comparison to estimated emissions forecasts for NSW and Australia.

6.2.3 Impact Assessment

Air Quality

The following impacts were identified in the air quality model:

- No exceedances of the cumulative annual average PM_{2.5}, PM₁₀ and TSP or deposited dust criteria were predicted at the identified receivers for both modelled scenarios;
- One day of exceedance of the cumulative 24-hour average PM_{2.5} and PM₁₀ criteria was predicted for Scenario 1 (export option) at receptors R1 and R2 (see **Figure 2**). An exceedance of the 24-hour average PM₁₀ criteria was also predicted at R5 and R10 on the same day;

Further analysis showed that on the day of the modelled exceedances, the ambient monitoring data recorded at the NSW Government Morisset Air Quality Monitoring System (as used in the modelling) was significantly impacted by local events (i.e. significant bushfire), with recorded 24-hour average PM₁₀ concentration data at the CES monitoring location on this day being much lower. Based on this analysis and the modelling of approved CES operations (i.e. double counting of the impact associated with CES material handling for cumulative impacts), it is considered highly unlikely that operation of the Modified would lead to exceedances of SSD-5145 air quality impact criteria at the nearest sensitive receivers; and

- No exceedances of the cumulative 24-hour average PM_{2.5} and PM₁₀ criteria were predicted for Scenario 2 (Eraring Power Station option).

Greenhouse Gas

Greenhouse gas emissions for the Modification were estimated as:

- 1,569 t CO₂-e during Modification construction; and
- 2,196 t CO₂-e / annum during Modification operations.

When compared to the total annual Scope 1 emissions estimated for NCS by BDM (2014) of 141,306 t CO₂-e, the Scope 1 annual greenhouse gas emissions predicted for the Modification are negligible (approximately 1.2% of total NCS emissions). The Modification emissions estimates are also significantly below the 25,000 tonne CO₂-e / annum threshold under the GHG Guide.

6.2.4 Mitigation and Management

Air quality and greenhouse gas impacts from CES are managed in accordance with the NCS Air Quality and Greenhouse Gas Management Plan, which will be updated to reflect the Modification, if approved. Air quality and greenhouse gas mitigation measures for the Modification will include:

- Use of water carts on unsealed access roads;
- All haulage trucks entering and leaving CES having their loads covered;
- Truck speeds within CES restricted to 40 km/hour;
- Using a combination of partial and fully enclosed conveyors and conveyor transfer points;
- Progressive rehabilitation of disturbed areas, where available;
- Regular review of NCS greenhouse gas emissions and options to improve energy efficiencies; and
- Utilising the existing NCS air quality monitoring network and Trigger Action Response Plan to assist in proactively managing operations, to minimise air quality impacts and the potential for exceedance of SSD-5145 air quality impact criteria.

Controls that will be implemented to minimise air quality impacts during the Modification construction phase will be documented in a CEMP.

6.3 BIODIVERSITY

6.3.1 Background

EcoResolve completed a streamlined Biodiversity Development Assessment Report (BDAR) to determine the ecological impacts of the Modification. A copy of the BDAR is included as **Appendix C** and the assessment methods and findings are summarised in the sections below.

6.3.2 Methodology

Due to the area of additional disturbance proposed (2.97 ha) and minimum lot size of 40 ha under the LM LEP, the Modification biodiversity assessment was conducted in accordance with the 'streamlined' module for small areas in the *Biodiversity Assessment Method 2020* (BAM). Under the 'streamlined' module, threatened species that are not considered at risk of Serious and Irreversible Impacts (SAIL species) and are not recorded during surveys of the Modification Disturbance Area do not require specific assessment.

Surveys in accordance with the BAM were undertaken, including:

- Desktop review of existing information on threatened species and ecological communities with the potential to occur;
- Flora field surveys, including:
 - Delineation of the type and extent of native Plant Community Type (PCT) vegetation cover (including any Endangered Ecological Communities) and threatened species habitat;
 - Collection of three BAM plots;
 - Targeted searches for candidate flora species identified during desktop research;
 - Evaluation of the presence of Endangered Ecological Communities (EECs) and, where present, mapping the EECs;
 - Compilation of a flora species list identifying native and exotic plant species, including priority weeds listed under the NSW *Biosecurity Act 2015* within the LM LGA;
 - Habitat assessments including high concentrations hollow bearing trees (HBT); and
 - Weed density and distribution mapping;
- Fauna field surveys, including
 - Targeted surveys for candidate threatened species identified from the desktop assessment;
 - Camera trapping;
 - Call-Playback;
 - Spotlighting for nocturnal species;
 - Anabat monitoring;
 - Assessment of potential nest trees / hollows; and
 - Opportunistic surveys.

6.3.3 Impact Assessment

Vegetation Communities

The Modification will impact on 2.97 ha of PCT 3583, *Hunter Coast Lowland Scribbly Gum Forest* (see **Figure 6**). This will require an associated offset of 84 ecosystem credits (see **Appendix C**). PCT 3583 is not considered to form part of any EECs listed under the BC Act or EPBC Act.

Flora and Fauna Species

Threatened flora and fauna species detected during field surveys (see **Figure 7**) or considered likely to occur are listed in **Table 7**.

Table 7 Threatened Flora and Fauna Species

Common Name	Scientific Name	BC Act Status	EPBC Act Status
Black-eyed Susan	<i>Tetradlea juncea</i>	V	V
Eastern Coastal Free-tail Bat	<i>Micronomus norfolkensis</i>	V	-
Glossy Black-Cockatoo	<i>Calyptrorhynchus lathamii</i>	V	V
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	V	-
Little Bentwing-bat	<i>Miniopterus australis</i>	V	-
Masked Owl	<i>Tyto novaehollandiae</i>	V	-
Small-flowered Grevillea	<i>Grevillea parviflora subsp. parviflora</i>	V	V
Yellow-bellied Sheath-tail-bat	<i>Saccolaimus flaviventris</i>	V	-
Squirrel Glider	<i>Petaurus norfolkensis</i>	V	-
Swift Parrot	<i>Lathamus discolor</i>	E	CE

Note: V = Vulnerable, E = Endangered, CE = Critically Endangered

Of the species detected:

- Two (the Large Bent-winged Bat and the Little Bentwing-bat) are listed SAI species; however, these two SAI species are dual credit species and their habitat constraint for species credits (breeding habitat) was not identified;
- One species (the Swift Parrot) was assumed present on the basis of important habitat being mapped within the Modification Disturbance Boundary; and
- One species (the Glossy Black-Cockatoo) was included precautionarily despite nesting trees not being identified in the Modification Disturbance Boundary.

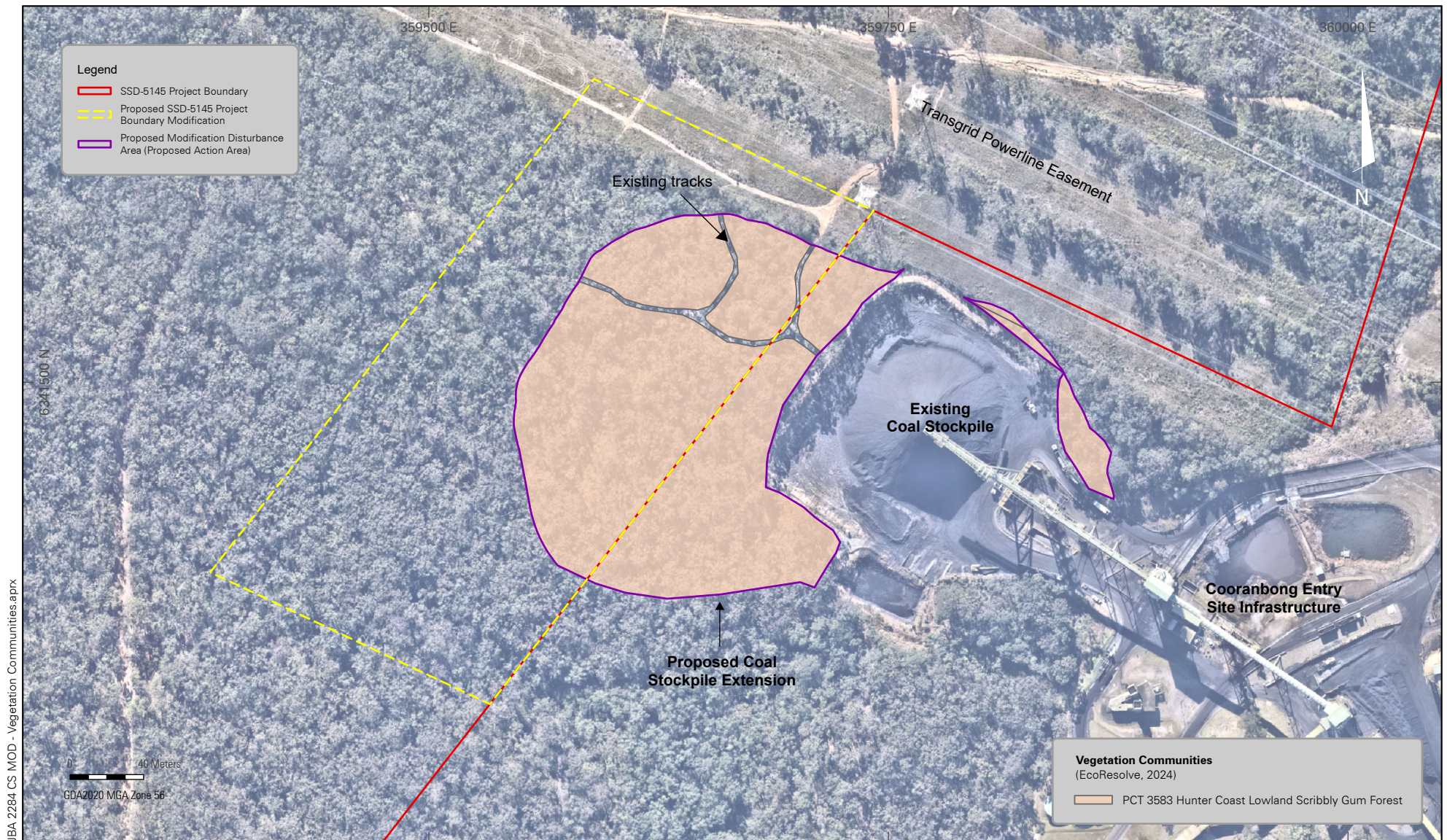
In total, potential impacts to the above species will require an offset of 534 species credits, including 384 species credits and 150 dual credit species credits (see **Appendix C**).

6.3.4 Mitigation and Management

As noted in **Section 6.3.3**, the Modification will require up to 84 ecosystem and 534 species credits (for various species) to offset impacts from the modified stockpile that could not be avoided or minimised. In addition, the following mitigation and management measures will be implemented to minimise impacts to biodiversity resulting from construction and operation of the modified stockpile:

- Delineation of the Modification Disturbance Boundary;
- Air quality and noise management controls;
- Erosion and sediment controls;
- Speed limits for CES traffic;
- Limiting construction hours to minimise noise, air quality and lighting impacts;
- Weed and pathogen controls, monitoring and treatment; and
- NCS inductions and training to include a biodiversity management component.

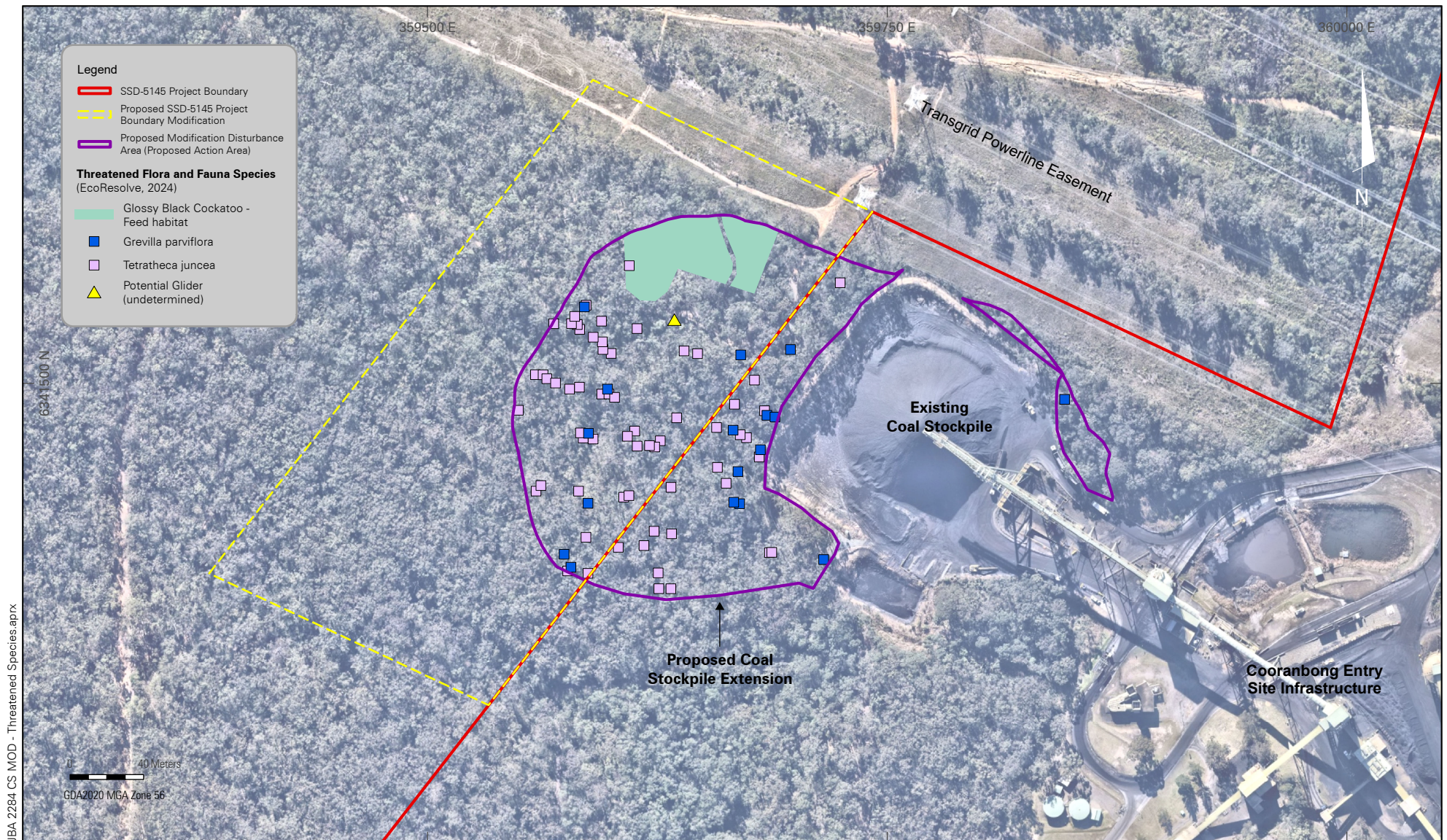
The Centennial Northern Region Biodiversity Management Plan will be updated if the Modification is approved and a CEMP prepared prior to the commencement of construction activities. The CEMP will include management controls required to minimise biodiversity impacts during construction of the modified stockpile.



COORANBONG STOCKPILE MODIFICATION

Vegetation Communities

FIGURE 6



COORANBONG STOCKPILE MODIFICATION

6.4 SURFACE WATER

6.4.1 Background

A Surface Water Impact Assessment (SWIA) was undertaken by Alluvium Consulting Australia Pty Ltd (Alluvium) to determine the likely surface water impacts from the Modification. A copy of the SWIA report is included as **Appendix D** and summarised below.

6.4.2 Methodology

Assessment Approach

The SWIA included:

- A site-specific water balance analysis to assess the existing hydrological behaviour and to predict the potential changes resulting from the Modification. This included an assessment of existing CES water management practice, water inputs, outputs and storage dynamics;
- A desktop assessment of surface water quality monitoring data for CES, to evaluate any potential impacts water quality resulting from Modification operations and develop appropriate management and mitigation strategies; and
- A flooding assessment to evaluate the potential impacts of the Modification on local hydrology, geomorphology and hydraulics, using a TUFLOW model.

Further detail on the methodologies utilised for the SWIA is provided in **Appendix D**.

Modelling Method

An uncalibrated two-dimensional hydraulic model was developed using the TUFLOW software to assess potential flooding impacts, based on current catchment conditions. A Direct Rainfall approach was employed for the SWIA study area where rainfall was applied to the entire model extent. A direct rainfall modelling approach allowed for detailed mapping of small shallow overland flow paths which are typical of small local catchments surrounding CES.

The TUFLOW model adopted a two-metre grid cell size which is considered adequate for the purposes of the 2D flood model while also having manageable run times given the number of runs required for this analysis.

Desktop analysis identified the locations of existing cross CES drainage structures underneath the Newstan to Eraring private haul road and under the conveyor belt at the 1200 tonne Coal Bins. These features were typically created with a width of 1.5 times a grid cell and designed to simulate the role of a culvert.

Details on the key modelling assumptions are provided in **Appendix D**.

6.4.3 Impact Assessment

Site Water Balance Review

A review of the CES water balance was completed to determine whether the modified stockpile footprint would require changes to the existing site water management system. Three scenarios were modelled based on an analysis of historical rainfall data to assess the performance of the site water management system. These scenarios included:

- 10th percentile: Drier than average conditions;
- 50th percentile: Average or normal conditions; and
- 90th percentile: Wetter than average conditions.

The water balance found that there would be an increase in average number of daily spills from the ROM Stockpile Dam as a result of the Modification (from 1.1 per year to 11.7 per year). These additional spills will be able to be accommodated within the site water management system under existing arrangements, by being directed to from the ROM Stockpile Dam to Sediment Dam 1 and Sediment Dam 2 and then to the Cooranbong Underground Storage via the existing decant boreholes.

The transfer of water to the Cooranbong Underground Storage will continue to minimise the need to discharge via EPL 365 LDP001, noting that the discharge limit for this location is 5 ML/day and the estimated increase in overflow due to the Modification is 12.58 ML/year. Therefore, it is anticipated that the increased volumes of water reporting to the ROM Stockpile Dam from the modified stockpile can be effectively managed within the existing CES site water management system.

Surface Water Quality

As noted above, the additional volume of water that would be captured in the site water management system due to the modified stockpile is not predicted to result in increased discharges from CES LDPs. Therefore, the existing surface water monitoring program (see **Figure 8**) in place for CES will continue, to allow the ongoing review water quality management performance.

During development of the modified stockpile, construction work may pose risks of erosion and sedimentation impacts on surface water. However, these risks can be effectively managed through the development of sediment control structures outlined in the 'Blue Book' (Landcom, 2004) and the implementation of a CEMP. These measures will be implemented to minimise the potential for increased pollutant concentrations and sediment in surface water runoff during construction.

To ensure the separation of the site water management system and surrounding catchments during operations, clean water will be diverted around the modified stockpile via a catch drain / channel to the existing unnamed watercourses. The watercourses will continue to be directed around CES (see **Figure 8**). This is consistent with the water management approach adopted for existing approved operations and no significant impacts to surface water quality are predicted due to the Modification.

Flood Impacts

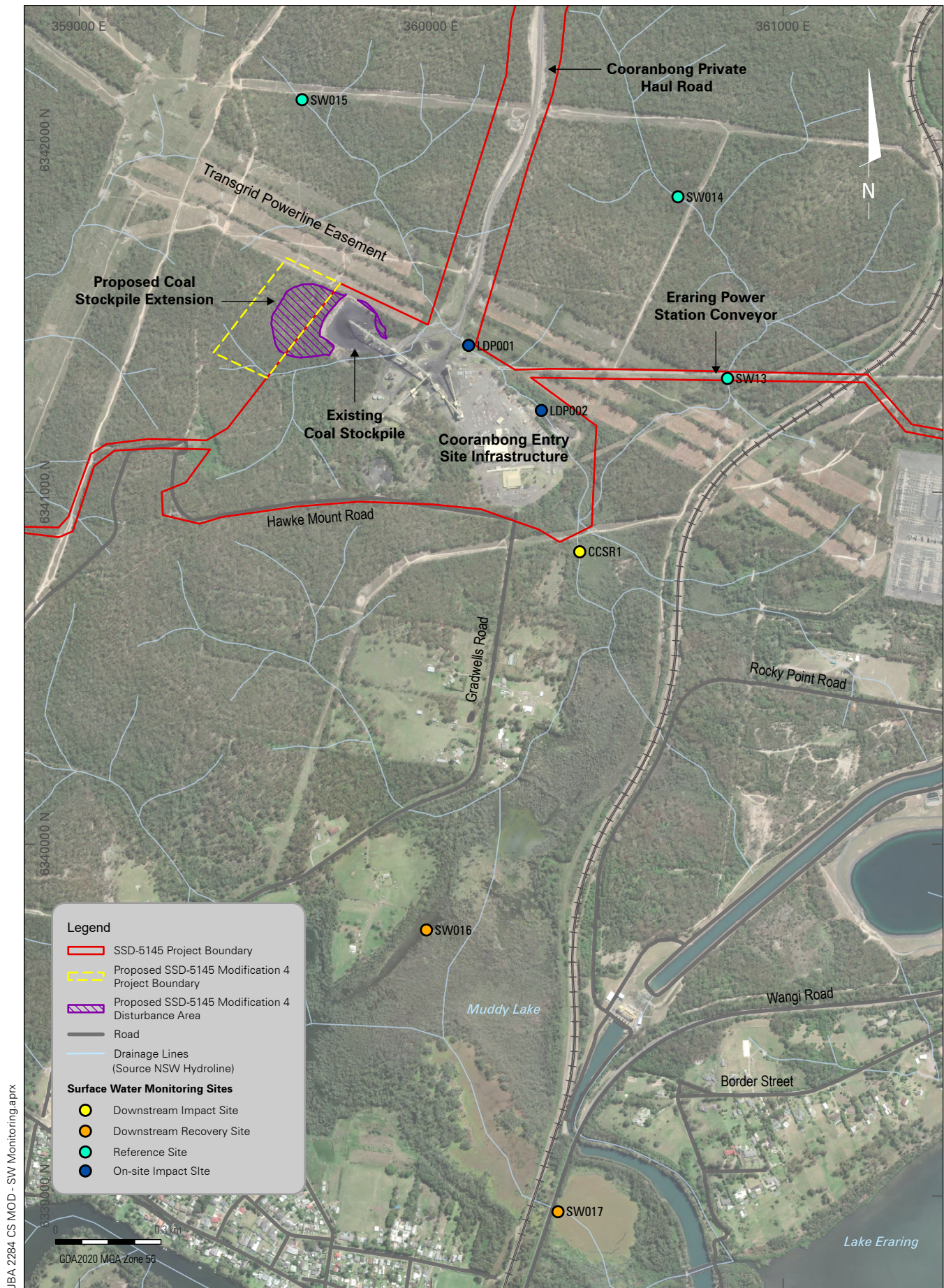
The results from the TUFLOW model indicated that the modified stockpile footprint and diversion drains / channels would not significantly impact on flooding and surface water behaviour in the local catchments surrounding CES. Therefore, it is assumed that the proposed diversion dimensions are sufficient for the Modification.

6.4.4 Mitigation and Management

NCS manage potential surface water impacts at CES in accordance with the Northern Coal Services Water Management Plan (WMP), which includes a surface water monitoring program at a total of eight locations upstream and downstream of the site (see **Figure 8**). The WMP will be revised to incorporate the extended stockpile and water management controls, if the Modification is approved.

During construction, erosion and sedimentation will be effectively managed, with structures developed generally in accordance with the 'Blue Book' (Landcom, 2004) and incorporated into a CEMP.

The proposed diversion drain has been adequately sized to minimise changes in local flood behaviour and divert clean water around the modified stockpile. Level spreaders will be developed as a further mitigation to control the diversion of clean water to nearby hydrolines, including at proposed outflow locations to the north and south of the modified stockpile.



COORANBONG STOCKPILE MODIFICATION

Surface Water Monitoring Program

FIGURE 8

6.5 ABORIGINAL AND HISTORIC HERITAGE

6.5.1 Background

An Aboriginal Cultural Heritage & Historic Heritage Assessment Report for the Modification was undertaken by Ozark Environment & Heritage (OzArk). The purpose of the assessment was to identify any potential impacts to heritage items and develop appropriate mitigation strategies. The ACHHR is provided in full as **Appendix E**.

6.5.2 Methodology

The ACHAR was undertaken in accordance with the:

- *'Code of Practice for the Investigation of Aboriginal Objects in New South Wales'* (DECCW, 2010);
- *'Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW'* (OEH, 2011); and
- *'Aboriginal cultural heritage consultation requirements for proponents'* (DECCW, 2010b), for consultation with NCS RAPs.

The historic heritage assessment considered the:

- *'The International Council on Monuments and Sites' The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance'* (Burra Charter) (2013);
- *'Historical Archaeology Code of Practice'* (Heritage Council, 2006);
- *'Assessing Significance for Historical Archaeological Sites and 'Relics''* (Heritage Council, 2009); and
- *'NSW Heritage Office's Assessing heritage significance'* (NSW Heritage Office, 2001).

6.5.3 Impact Assessment

Aboriginal Cultural Heritage

The Aboriginal cultural heritage assessment included a desktop review and field survey of the proposed Modification Disturbance Area.

No previously recorded Aboriginal heritage sites were identified within the Modification Disturbance Area from searches Aboriginal Heritage Information Management System database and reviews of previous archaeological investigations in the local area.

A field survey of the Modification Disturbance Area completed by OzArk and representatives from three NCS RAPs in July 2023 did not record any Aboriginal heritage sites. OzArk concluded that there is low likelihood the Modification would adversely impact on Aboriginal cultural heritage objects or sites.

Historic Heritage

The historic heritage assessment included a desktop review and field survey of the proposed Modification Disturbance Area. The desktop assessment included a review of:

- National and Commonwealth Heritage Listings;
- NSW State Heritage Listings; and the
- LM LEP.

Searches of these heritage databases did not identify any listed historical heritage sites within the Modification Disturbance Area.

The historic heritage field survey took place in July 2023. No historic heritage items were recorded during the survey. OzArk concluded that impacts to historic heritage will not occur due to the Modification. No areas with potential subsurface historic heritage deposits were identified.

6.5.4 Mitigation and Management

The Aboriginal Cultural Heritage assessment confirmed that sites or areas of archaeological sensitivity are not present within the Modification Disturbance Area and that there is a low likelihood that the proposed work will adversely harm Aboriginal cultural heritage objects.

The RAP site officers present during the survey requested that efforts be made to relocate some native vegetation, particularly the *Xanthorrhoea* species (grass trees) and Geebung from the Modification Disturbance Area. Relocation of these species is not considered to be a feasible mitigation option due to the difficulty in effectively transplanting these species and the potential for translocation work to impact on the biodiversity values of recipient sites located outside the Modification Disturbance Area.

The Northern Region Aboriginal Cultural Heritage Management Plan (ACHMP) for SSD-5145 will be reviewed following any determination of the Modification.

Given that historic heritage items were not recorded within the Modification Disturbance Area, further mitigation measures are not required. The Centennial Northern Region Historic Heritage Management Plan (HHMP) will be reviewed following any determination of the Modification.

In the unlikely event that heritage objects or skeletal material are identified during construction or operation of the modified stockpile, all work will cease and the relevant procedures in the ACHMP and/or HHMP will be implemented.

6.6 VISUAL AMENITY

6.6.1 Background

The construction and operation of the modified stockpile were reviewed in the context of the existing environmental setting to determine potential visual amenity impacts of the Modification.

6.6.2 Methodology

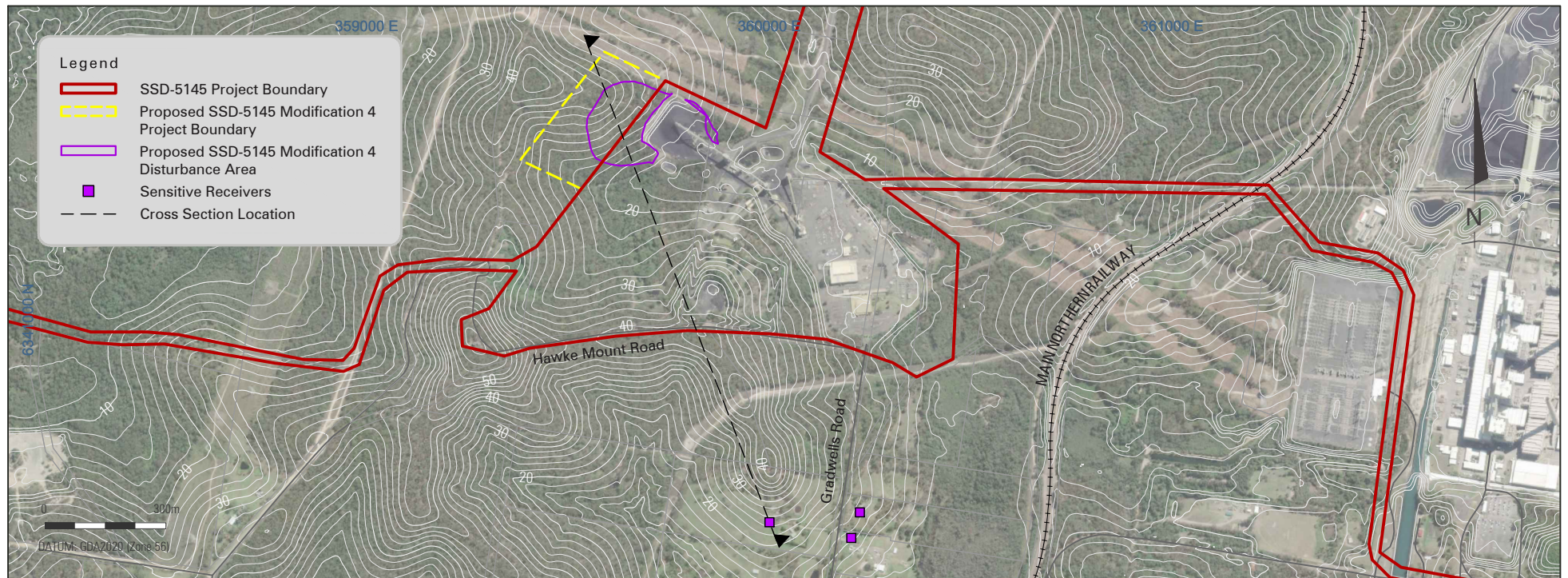
This review focussed on the potential for the Modification to impact sensitive receivers located to the south of CES on Gradwells Road (see **Figure 2**). As shown on **Figure 3**, land between existing CES facilities and the residential receivers generally consists of a series of vegetated ridgelines. Other landuse in the area also includes Eraring Power Station and transport corridors associated with the M1 Pacific Motorway and the Main Northern Rail Line.

Potential amenity impacts were assessed by reviewing existing the visual catchment and impact criteria for CES receivers documented in Northern Coal Logistics Project EIS (SLR, 2014) in the context of the changes to CES proposed for the Modification.

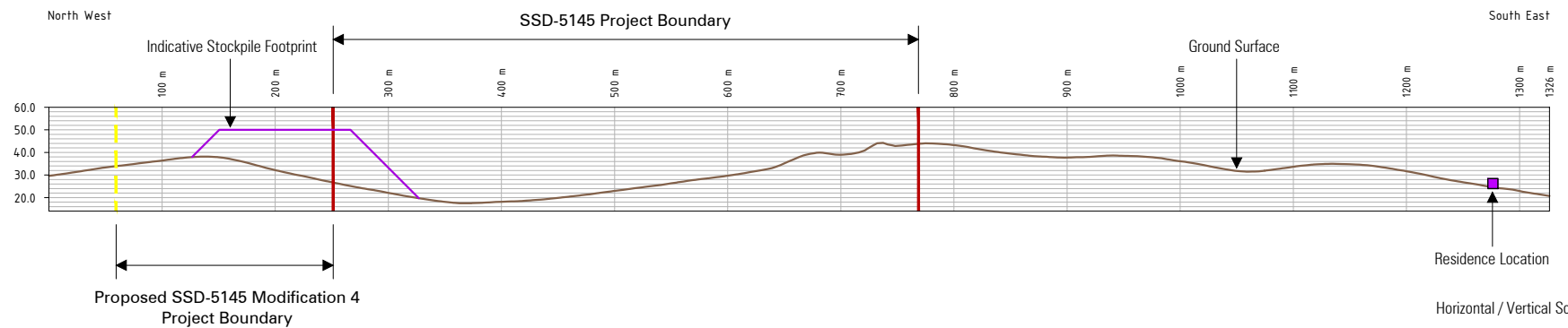
6.6.3 Impact Assessment

The visual impact of the modified stockpile will not be significant. **Figure 9** provides a cross-section representative of the nearest sensitive receiver location to the south of CES and worst-case visual impacts of the modified stockpile (i.e. stockpile at full operating height of approximately 50 mRL). As shown on this figure, views of the modified stockpile will generally be screened from receiver locations by the intervening topography and vegetation.

Lighting impacts for the modified stockpile will also be low. While additional fixed lighting will be required around the perimeter of the modified stockpile to support night-time operations, this is not expected to significantly contribute to the existing lighting effects of CES. Consistent with visual impacts, the potential for receiver locations to experience direct lighting effects from the fixed lighting required for the Modification will also be minimised due to screening effects.



LONGITUDINAL SECTION



COORANBONG STOCKPILE MODIFICATION

Visual Cross Section

FIGURE 9

6.6.4 Mitigation and Management

The Modification will not result in any significant additional impacts on the visual environment at sensitive receiver locations. As such, no additional mitigation or management measures are proposed.

CES operations will continue to be managed in accordance with the requirements of SSD-5145. This will include the installation and maintenance of additional fixed lighting required for the Modification that complies with Australian Standard 'AS/NZS 4282 – Control of obtrusive effects of outdoor lighting'.

6.7 BUSHFIRE

6.7.1 Background

An assessment of bushfire risk was completed to identify additional management measures for the Modification and is included as **Appendix H**. This included a review of existing controls in place for CES in the context of the land to be developed for the modified stockpile.

6.7.2 Methodology

The bushfire risk assessment included a review of:

- NSW Rural Fire Service (RFS) guidelines 'Planning for Bush Fire Protection' (RFS, 2019);
- Bushfire Prone Land Mapping within the Modification Disturbance Area;
- Existing SSD-5145 requirements for bushfire management; and
- Existing CES bushfire management controls in procedures.

6.7.3 Impact Assessment

The Modification will require the disturbance of approximately 3 ha of woodland vegetation (see **Section 6.3**). Land adjacent to the western and southern boundary of the Modification Disturbance Area is mapped as Category 1 Bushfire Prone Land. Land to the north and east is of lower risk, being occupied by a powerline easement and the existing CES, respectively. **Section 6.7.4** outlines the additional management controls that will be implemented for the Modification, to address bushfire risk.

6.7.4 Mitigation and Management

The following mitigation and management measures will be implemented during the development and operation of the modified stockpile, to mitigate and manage bushfire risk:

- Establishment and maintenance of a 10 metre Asset Protection Zone (APZ). This will be an extension of the existing CES APZ;
- Maintenance of light vehicle access surrounding the modified stockpile;
- Installing water sprays surrounding the modified stockpile footprint;
- Maintaining CES plant and equipment to assist with initial bushfire response;
- Communication of site bushfire response and incident management procedures to the CES workforce; and
- Ongoing consultation with the RFS.

The measures above are generally consistent with existing controls in place for CES. If the Modification is approved, the existing NCS Bushfire Management Plan will be reviewed to reflect the Modification changes.

6.8 SOCIAL

6.8.1 Background

A Social Impact Assessment (SIA) was undertaken for the Modification and is provided in **Appendix F**. The SIA was completed to assess socio-economic trends and impacts associated with the Modification and identify opportunities to enhance social outcomes.

6.8.2 Methodology

The SIA was completed in consideration of the '*Social Impact Assessment Guideline*' (SIA Guideline) (DPE, 2023a) and the associated '*Technical Supplement Social Impact Assessment Guideline for State Significant Projects*' (SIA Technical Supplement) (DPE, 2023b). The SIA study methodology included:

- Definition and characterisation of the Social Locality to be assessed;
- Review of the social and planning policy context;
- Stakeholder identification, engagement and analysis;
- Classification and assessment of the significant Modification impacts and opportunities (both direct and indirect); and
- Development of measures to mitigate social impacts.

The Social Locality for the Modification was defined based on an assessment of the local and regional communities likely to be influenced by CES, the residential location of the existing workforce and the geographic spread of community contributions and procurement spend made by Centennial for NCS over the previous five years. The Social Locality adopted for the SIA included a:

- Local Study Area, of private residences south of CES and Eraring Power Station, as well as the suburbs of Cooranbong, Dora Creek and Eraring; and
- Regional Study Area, defined by the Lake Macquarie Local Government Area.

6.8.3 Impact Assessment

Impacts on the Social Locality were assessed based on themes derived from the SIA Guideline and the findings of Modification stakeholder engagement, NCS community complaints analysis, social baseline assessment, local and regional issues/ trends review and technical SIA expertise.

Each of the potential social impacts and opportunities were assessed through a risk-based evaluation based on the SIA guideline and are presented in **Appendix F**, with themes including:

- Way of Life;
- Accessibility;
- Livelihoods;
- Health and Wellbeing;
- Surroundings;
- Culture; and
- Cumulative impact.

This analysis considered the predicted impacts of the Modification in the context of the Social Locality and existing NCS operations and found that mitigated risk levels were generally low to medium in nature.

6.8.4 Mitigation and Management

Social impacts for the Modification are generally associated with environmental amenity impacts (particularly noise and dust emissions), while benefits are linked to ongoing employment opportunities for the site workforce, construction workers and business opportunities for NCS suppliers.

The Modification is therefore predicted to have low to moderate social impacts, due to:

- Not significantly changing the social and economic profile of the community, except in the potential for continued employment; and
- Low to moderate cumulative impact on local amenity, infrastructure (including housing), or the economic profile of the Social Locality.

The social impacts of the Modification will be managed through the implementation of the additional environmental mitigation measures described in this Modification Report and the application of updated NCS environmental management plans, as required under the conditions of SSD-5145.

6.9 ECONOMICS

6.9.1 Background

An Economic Assessment of the Modification was completed by Gillespie Economics. A copy of the Economic Assessment report is provided in **Appendix G** and summarised in the sections below.

6.9.2 Methodology

The Economic Assessment was undertaken in accordance with the NSW Government (2015) *Guideline for the economic assessment of mining and coal seam gas proposals* and included the following analyses:

- A Cost Benefit Analysis (CBA), to evaluate the net benefits and the economic justification for the Modification and to address public interest considerations; and
- A Local Effects Analysis (LEA), to assess the impacts of the Modification in the locality, including:
 - Effects relating to local employment;
 - Effects relating to non-labour project expenditure;
 - Effects on other local industries; and
 - Environmental and social impacts on the local community (externalities).

6.9.3 Impact Assessment

Cost Benefit Analysis

The potential costs and benefits of the Modification that were considered in the CBA are summarised in **Table 8**. The main economic costs relate to the additional social environmental impacts to biodiversity, local amenity (noise and air quality) and greenhouse gas emissions that would result from the Modification. The main economic benefit would occur due to the additional storage capacity and operational flexibility provided by the modified stockpile, which would increase ability to efficiently transfer coal from Mandalong Mine through NCS to Centennial customers. Overall, the CBA found that the modified stockpile would realise a minimum benefit of:

- Royalties of approximately \$13M; and
- Total net production benefit to Australian and NSW (net present value at 7% discount rate) in the order of \$23M and \$18M, respectively.

Combining the estimate of net production benefits with the consideration of residual environmental, social and cultural impacts, the CBA estimated the Modification would have net social benefits to both Australia and NSW relative to the base case (i.e. no Modification) and is therefore desirable and justified from an economic efficiency perspective. Any unquantified residual environmental impacts would need to be assessed at greater than \$23M and \$18M, respectively (present value at 7% discount rate), for the Modification to be questionable from an Australian and NSW economic efficiency perspective.

Sensitivity Analysis

The sensitivity analysis found that the Modification CBA results for NSW are not highly sensitive to changes in capital costs for stockpile development, operating costs, revenue or greenhouse gas costs. Since mitigation, offset and compensation costs are a small component of the capital and operating costs of the Modification, it is unlikely that large changes in these individual cost levels would have any significant impact on the CBA results. The results are also not sensitive to changes in assumed greenhouse gas costs, including accounting for the global abatement costs.

Under all scenarios examined (i.e. at 4%, 7% and 10% discount rates), the Modification was found to have net social benefits to NSW.

Local Effect Analysis

The Modification will result in direct and indirect increases in economic activity in the local economy (Lake Macquarie LGA) due to the employment of an additional four FTE personnel at the CES. The availability of additional employment will increase the wages of existing residents (either directly and/or indirectly via job chain effects) and benefit the local economy via wage expenditure on goods and services demanded by households.

6.9.4 Mitigation and Management

A CBA of the Modification found that it would have net production benefits to Australia and NSW of \$23M and \$18M, respectively. Provided the residual environmental, social, and cultural impacts of the Modification (after mitigation, offset and compensation) that accrue to Australia and NSW are valued at less than the level of net production benefits, the Modification can be considered to provide an improvement in economic efficiency and hence is justified on economic grounds.

Mitigation measures for the residual environmental, social and cultural impacts of the Modification that were considered in the Economic Assessment are described in the relevant sections of this Modification Report.

Table 8 Economic Costs and Benefits of the Modification

Stakeholder	Costs	Benefits
Centennial	Capital cost of developing the Modification Incremental NCS operating costs, stockpile and transport costs	Additional coal revenue
Local and NSW Community	Modification environmental impacts – mainly ecological and local amenity impacts (noise and air quality)	-

7. MERIT EVALUATION

This section provides a justification and evaluation, integrating the findings of previous sections to weigh up the positive and negative impacts of the Modification.

7.1 JUSTIFICATION OF THE MODIFIED PROJECT

CES is an integral part of the NCS project and has been operating since 1981. If approved, the Modification will result in the following changes to NCS as approved under SSD-5145:

- Development of the existing coal stockpile at CES to increase capacity from 100,000 tonnes to 400,000 tonnes; and
- Construction of infrastructure associated with the modified stockpile footprint. This will include access tracks, lighting towers, water sprays, fencing and water management infrastructure.

All other aspects of NCS operations will remain the same as those approved under SSD-5145.

The environmental, social and economic assessments completed for this Modification Report (see **Section 6**) confirm that the impacts of the Modification will generally be minor in nature. This Modification Report has demonstrated that these impacts can be appropriately managed through the application of existing CES environmental controls and the implementation of additional management and mitigation measures both during the construction and operation of the stockpile.

The Modification will realise increased operational efficiencies for NCS, due to the ability to store a greater volume of ROM coal from Mandalong Mine at CES. This will provide for greater flexibility to NCS operations and improve the continuity and reliability of coal supply to Centennial customers, which will in turn provide net economic benefits to NSW.

If the Modification is granted, the modified NCS development will be 'substantially the same development' as that approved under SSD-5145. As such, it is considered that the Modification Application is in the public interest and can be approved, under Section 4.55(2) of the EP&A Act.

8. REFERENCES

- Australian Coal Association Research Program (2015), *Australian Coal Association Research Program emission factors*
- BDM Resources (2014), *Northern Coal Services, Northern Coal Logistics Project Greenhouse Gas Report for EIS*
- Department of Environment, Climate Change and Water (2010), *Code of Practice for the Investigation of Aboriginal Objects in New South Wales*
- Department of Environment, Climate Change and Water (2010b), *Aboriginal cultural heritage consultation requirements for proponents*
- Department of Environment, Climate Change and Water (2024), *National Greenhouse Accounts Factors*
- Department of Planning and Environment (2022), *State Significant Development Guidelines – Preparing a Modification Report*
- Department of Planning and Environment (2023a), *Social Impact Assessment Guideline*
- Department of Planning and Environment (2023b), *Technical Supplement Social Impact Assessment Guideline for State Significant Projects*
- Department of Sustainability, Environment, Water, Population and Communities (2012), *National Pollutant Inventory Emission Estimation Technique Manual for Mining*
- IAQM (2024), *IAQM Guidance on the Assessment of Dust from Demolition and Construction*
- International Council on Monuments and Sites (2013), *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*
- Landcom (2004), *Managing Urban Stormwater: Soils and Construction Volume 1. New South Wales*
- NSW Environment Protection Authority (2017), *Noise Policy for Industry*
- NSW Environment Protection Authority (2022), *NSW Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*
- NSW EPA (2000), *NSW Industrial Noise Policy* (2000)
- NSW Environment Protection Authority (2011), *NSW Road Noise Policy*
- NSW Environment Protection Authority (2017), *Noise Policy for Industry*
- NSW Environment Protection Authority (2019), *Interim Construction Noise Guideline*
- NSW Environment Protection Authority (2025), *NSW Guide for Large Emitters*
- NSW Government (2015), *Guideline for the economic assessment of mining and coal seam gas proposals*
- NSW Heritage Council (2001), *NSW Heritage Office's Assessing heritage significance*
- NSW Heritage Council (2006), *Historical Archaeology Code of Practice*
- NSW Heritage Council (2009), *Assessing Significance for Historical Archaeological Sites and 'Relics'*
- NSW Office of Environment and Heritage (2011), *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*

- NSW Rural Fire Service (2019), *Planning for Bushfire Protection; A guide for councils, planners, fire authorities and developers*
- SLR (2014), *Centennial Northern Coal Services Pty Limited, Northern Coal Logistics Project Environmental Impact Statement*
- US Environment Protection Agency (1985 and updates), *Compilation of Air Pollutant Emissions Factors from Stationary Sources (AP-42)*

9. ABBREVIATIONS

Abbreviation	Meaning
ACHAR	Aboriginal Cultural Heritage Assessment Report
ACHMP	Aboriginal Cultural Heritage Management Plan
Alluvium	Alluvium Consulting Australia Pty Ltd
APZ	Asset Protection Zone
AQGHGIA	Air Quality and Greenhouse Gas Impact Assessment
BC Act	<i>Biodiversity Conservation Act 2016</i>
CBA	Cost Benefit Analysis
CEMP	Construction Environmental Management Plan
BCS	Biodiversity and Conservation Science Directorate (within NSW DCCEEW)
BDAR	Biodiversity Development Assessment Report
CCC	Community Consultative Committee
CCL	Consolidated Coal Lease
CEMP	Construction Environmental Management Plan
Centennial	Centennial Coal Company Pty Ltd
CES	Cooranbong Entry Site
CHP	Coal Handling Plant
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPHI	Department of Planning, Housing and Infrastructure
EA	Environmental Assessment
EECs	Endangered Ecological Communities
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2021</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	Environment Protection Licence
FTE	Full-time equivalent
GHG	Greenhouse Gas
HHMP	Historic Heritage Management Plan
LEA	Local Effects Analysis
LEP	Local Environmental Plan
LMCC	Lake Macquarie City Council
LM LEP	<i>Lake Macquarie Local Environmental Plan 2014</i>
km	Kilometres
m	metres

Abbreviation	Meaning
Mining Act	<i>Mining Act 1992</i>
ML	Mining Lease
MNES	Matters of National Environmental Significance
MOD	Modification
Mt	Million tonnes
Mtpa	Million tonnes per annum
NCS	Northern Coal Services
NPfl	Noise Policy for Industry
NSW	New South Wales
OzArk	Ozark Environment & Heritage
PM _{2.5}	Particulate Matter less than 2.5 microns
PM ₁₀	Particulate Matter less than 10 microns
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
RAP	Registered Aboriginal Party
Resources & Energy SEPP	<i>State Environmental Planning Policy (Resources and Energy) 2021</i>
ROM	Run of Mine
SAII	Serious and Irreversible Impact
SA NSW	Subsidence Advisory NSW
SIA	Social Impact Assessment
SLR	SLR Consulting Australia Pty Ltd
SSD	State Significant Development
SWIA	Surface Water Impact Assessment
TSP	Total Suspended Particulates
WM Act	<i>Water Management Act 2000</i>
WMP	Water Management Plan