Development Consent

Section 89E of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning, the Planning Assessment Commission of New South Wales (the Commission) approves the development application referred to in Schedule 1, subject to the conditions in Schedules 2 to 6.

These conditions are required to:
- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the development.

Member of the Commission	**Member of the Commission**	**Member of the Commission**

Sydney 2015

SCHEDULE 1

Application Number:	SSD-5144
Applicant:	Centennial Mandalong Pty Limited
Consent Authority:	Minister for Planning
Land:	See Appendix 1
Development:	Mandalong Southern Extension Project

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Blue Type represents	**June 2016 modification**
Orange Type represents	**September 2016 modification**
Green Type represents	**November 2016 modification**
Red Type represents	**March 2017 modification**
Purple Type represents	**August 2017 modification**
Navy Blue Type represents	**April 2019 modification**
Olive Type represents	**July 2019 modification**
Yellow Type in grey background represents	January 2020 modification

DEFINITIONS

Adaptive management	Adaptive management includes monitoring subsidence effects and impacts and, based on the results, modifying the mine plan (including potentially modifying mining height, longwall width or any other element of the mine plan) as mining proceeds to ensure that the effects, impacts and/or associated environmental consequences remain within the predicted and/or designated ranges and in compliance with the conditions of this consent
Annual review	The review of operations required by Condition 12 of Schedule 6
Approved mine plan	The approved mine plan for the development, as shown in Figure 2 of Appendix 2
Applicant	Centennial Mandalong Pty Limited, or any other person or persons who rely on this consent to carry out the development that is subject to this consent
ARI	Average recurrence interval
BC Act	*Biodiversity Conservation Act 2016*
BCA	Building Code of Australia
BCD	Biodiversity and Conservation Division within the Department
Built features	Includes any building or work erected or constructed on land, including dwellings, outbuildings and infrastructure such as any formed road, street, path, walk, or driveway and any pipeline, water, sewer, telephone, gas or other service main
CCC	Community Consultative Committee
CES	Cooranbong Entry Site, as shown in Figure 6 of Appendix 2
Conditions of this consent	Conditions contained in Schedules 2 to 6 inclusive
Construction activities	Construction activities at the MSSS, TL24 relocation area, MMAS and the expansion of the Borehole Dam at the CES as described in the EIS, together with the construction of gas engines as described in EA (MOD 4)
CPI	Consumer Price Index, as published by the Australian Bureau of Statistics
Day	The period from 7.00 am to 6.00 pm on Monday to Saturday, and 8.00 am to 6.00 pm on Sundays and Public Holidays
Department	Department of Planning, Industry and Environment
DES	Delta Entry Site
Development	The development described in the EIS and EA MOD 4, as subsequently modified
DPI Fisheries	Department of Primary Industries - Fisheries
DPIE Water	Water Division within the Department
EA (MOD 4)	The modification application DA 97/800 - MOD 4 and accompanying Environmental Assessment entitled *Mandalong Mine Modification to Development Consent Environmental Assessment*, dated September 2008
EEC	Endangered ecological community, as defined under the BC Act
EIS	Environmental Impact Statement titled *Mandalong Southern Extension Project Environmental Impact Statement,* dated September 2013; associated response to issues raised in submissions, titled *Mandalong Southern Extension Project Response to Submissions,* dated March 2014; and additional information regarding residual concerns, titled *Mandalong Southern Extension Project Response to RTS submissions*, dated July 2014
Environmental consequences	The environmental consequences of subsidence impacts, including: damage to built features; loss of surface water flows to the subsurface; loss of standing pools; slope changes to streams; adverse water quality impacts; development of iron bacterial mats; rock falls; landslides; damage to Aboriginal heritage sites; impacts on aquatic ecology; and ponding.
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence issued under the POEO Act
Evening	The period from 6.00 pm to 10.00 pm
Exploration activities	Prospecting operations, as defined under the *Mining Act 1992*
Feasible	Feasible relates to engineering considerations and what is practical to build or to implement
First workings	Development of main headings, longwall gate roads, related cut throughs and the like
Ha	Hectare

Heritage item	An item as defined under the *Heritage Act 1977* and/or an Aboriginal object or Aboriginal place as defined under the *National Parks and Wildlife Act 1974*
HLLS	Hunter Local Land Services
Incident	A set of circumstances that: • causes or threatens to cause material harm to the environment; and/or • breaches or exceeds the limits or performance measures/criteria in this consent
Land	As defined in the EP&A Act, except for where the term is used in the noise and air quality conditions in Schedules 3 and 5 of this consent where it is defined to mean the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this consent
LMCC	Lake Macquarie City Council
Mandalong Coal Delivery System	The underground conveyor which delivers coal from the project's underground workings to the Wyee Coal Unloader, as regulated under DA 35-4-2004
Material harm to the environment	Actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Mining operations	Includes the extraction, processing, handling, storage and transportation of coal carried out on the site
Minister	Minister for Planning, or delegate
Minor	Not very large, important or serious
Mitigation	Activities associated with reducing the impacts of the development prior to or during those impacts occurring
MMAS	Mandalong Mine Access Site, as shown in Figure 4 of Appendix 2
Modification 7	The modification to the development, as described in SEE (Mod 7)
Modification 8	The modification to the development, as described in SEE (Mod 8)
MSSS	Mandalong South Surface Site, as shown in Figure 5 of Appendix 2
Negligible	Small and unimportant, such as to be not worth considering
Night	The period from 10pm to 7am on Monday to Saturday, and 10.00 pm to 8.00 am on Sundays and Public Holidays
POEO Act	*Protection of the Environment Operations Act 1997*
Privately-owned land	Land that is not owned by a public agency, or a mining company (or its subsidiary)
Public infrastructure	Linear and related infrastructure and the like that provides services to the general public, such as roads, railways, water supply, drainage, sewerage, gas supply, electricity, telephone, telecommunications, etc
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
Reasonable Costs	The costs agreed between the Department and the Applicant for obtaining independent experts to review the adequacy of any aspects of an Extraction Plan
Registered Aboriginal Parties	Aboriginal community stakeholders listed in Table 1 of Appendix 6
Rehabilitation	The restoration of land disturbed by the development to a good condition to ensure it is safe, stable and non-polluting
Remediation	Activities associated with partially or fully repairing or rehabilitating the impacts of the development or controlling the environmental consequences of this impact
ROM coal	Run-of-mine coal
RR	NSW Resources Regulator
Safe, serviceable & repairable	Safe means no danger to users who are present, serviceable means available for its intended use, and repairable means damaged components can be repaired economically
SANSW	Subsidence Advisory NSW
Second workings	Extraction of coal from longwall panels, mini-wall panels or pillar extraction
Secretary	Planning Secretary under the EP&A Act, or nominee
SEE (Mod 1)	Statement of Environmental Effects titled, '*Mandalong Mine Transmission Line TL24 Relocation Project*' dated March 2016 and prepared by Centennial Coal Company Limited, and the Response to Submissions document dated May 2016
SEE (Mod 2)	Statement of Environmental Effects titled *'Mandalong Mine Longwall 22 & 23 First Workings Modification'* dated August 2016 and prepared by Centennial Coal Company Limited

SEE (Mod 3)	Statement of Environmental Effects titled *'Mandalong Mine State Significant Development 5144 – Modification 3'* dated September 2016 and prepared by Centennial Coal Company Limited
SEE (Mod 4)	Statement of Environmental Effects titled '*Mandalong Mine State Significant Development 5144 – Modification 4*' dated November 2016 and prepared by Centennial Coal Company Limited
SEE (Mod 5)	Statement of Environmental Effects titled '*Mandalong Mine State Significant Development 5144 – Modification 5*' dated May 2017 and prepared by GHD Pty Ltd, including the Response to Submissions document dated 19 June 2017 and additional information dated 14 July 2017 and 18 July 2017 prepared by Centennial Coal Company Ltd
SEE (Mod 6)	Statement of Environmental Effects titled '*Mandalong Mine: Mandalong South Surface Site Water Management*' dated October 2018 and prepared by Centennial Mandalong Pty Ltd, including the Response to Submissions document dated 1 March 2019 prepared by Centennial Mandalong Pty Ltd
SEE (Mod 7)	Statement of Environmental Effects titled '*Mandalong 33 kV power line'* dated February 2019 and prepared by Centennial Mandalong Pty Ltd
SEE (Mod 8)	Statement of Environmental Effects titled *'Mandalong Mine Modification to SSD-5144 Statement of Environmental Effects'* dated April 2019 and prepared by EMM Consulting, including the Response to Submissions document dated 23 August 2019 prepared by Centennial Mandalong Pty Ltd
Site	All land to which the development application applies, including the longwall mining domains and the surface facilities sites, as listed in Appendix 1 and shown in Appendix 2
Statement of commitments	The Applicant's commitments, as set out in the EIS, and shown in Appendix 8
Steep slopes	An area of land having a gradient greater than 1 in 3 (33% or 18.3°)
Subsidence	The totality of subsidence effects, subsidence impacts and environmental consequences of subsidence impacts
Subsidence effects	Deformation of the ground mass due to mining, including all mining-induced ground movements, such as vertical and horizontal displacement, tilt, strain and curvature
Subsidence impacts	Physical changes to the ground and its surface caused by subsidence effects, including tensile and shear cracking of the rock mass, localised buckling of strata caused by valley closure, upsidence and surface depressions or troughs
Surface facilities sites	The MMAS, the CES and the MSSS, as shown in the relevant Figures in Appendix 2
TL24 relocation area	Transmission Line 24, as shown in Figure 7 of Appendix 2

SCHEDULE 2
ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

1. In addition to meeting the specific performance measures and criteria established under this consent, the Applicant must implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the development.

TERMS OF CONSENT

2. The Applicant must carry out the development:
   (a) generally in accordance with the EA (MOD 4);
   (b) generally in accordance with the EIS, SEE (Mod 1), SEE (Mod 2), SEE (Mod 3), SEE (Mod 4), SEE (Mod 5), SEE (Mod 6), SEE (Mod 7) and SEE (Mod 8);
   (c) generally in accordance with the Development Layout;
   (d) in accordance with the Statement of Commitments; and
   (e) in accordance with the conditions of this consent.

   Note: The Development Layout is shown in Appendix 2.

3. If there is any inconsistency between the documents identified in condition 2(a) and (b), the more recent document shall prevail to the extent of the inconsistency. The conditions of this consent shall prevail to the extent of any inconsistency with the documents identified in condition 2(a) and (b) or the Statement of Commitments.

4. The Applicant must comply with any reasonable requirement/s of the Secretary arising from the Department's assessment of:
   (a) any strategies, plans, programs, reviews, audits, reports or correspondence that are submitted in accordance with this consent (including any stages of these documents);
   (b) any reviews, reports or audits commissioned by the Department regarding compliance with this consent; and
   (c) the implementation of any actions or measures contained in these documents.

LIMITS ON CONSENT

Mining Operations

5. The Applicant may carry out mining operations on the site until 31 December 2040.

   Note: Under this consent, the Applicant is required to rehabilitate the site and perform additional undertakings to the satisfaction of either the Secretary or RR. Consequently, this consent will continue to apply in all other respects other than the right to conduct mining operations until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily.

6. The Applicant may only carry out second workings within the area covered by the approved mine plan.

Coal Extraction and Delivery

7. In any calendar year, the Applicant must not:
   (a) extract more than 6.5 million tonnes of ROM coal from the site;
   (b) deliver more than 6 million tonnes of ROM coal to the CES; and/or
   (c) deliver more than 6 million tonnes of ROM coal to the Mandalong Coal Delivery System.

Hours of Operation

8. The Applicant must comply with the operating hours in Table 1.

Table 1: *Operating hours*

Activity	***Operating Hours***
Mining operations, maintenance activities and shaft construction	24 hours a day, 7 days per week
Construction activities (except shaft construction)	7.00 am to 6.00 pm on Monday to Friday, and 8.00 am to 1.00 pm on Saturday, with no construction activities on Sunday or on public holidays, except where carried out underground

Note: This condition does not apply in the event of a direction from police or other relevant authority for safety or emergency reasons regarding works which may need to be undertaken to avoid loss of life, property loss and/or to prevent environmental harm.

STRUCTURAL ADEQUACY

9. The Applicant must ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures that are part of the development, are constructed in accordance with:
   (a) the relevant requirements of the BCA; and
   (b) any additional requirements of the SANSW, where the building or structure is located on land within a declared Mine Subsidence District.

Notes:

- *Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the development.*
- *Under Section 15 of the Mine Subsidence Compensation Act 1961, the Applicant is required to obtain the SANSW's approval before subdivision or constructing any improvements in a Mine Subsidence District.*

DEMOLITION

10. The Applicant must ensure that all demolition work is carried out in accordance with *Australian Standard AS 2601-2001: The Demolition of Structures,* or its latest version.

OPERATION OF PLANT AND EQUIPMENT

11. The Applicant must ensure that all plant and equipment used at the site is:
   (a) maintained in a proper and efficient condition; and
   (b) operated in a proper and efficient manner.

COMMENCEMENT OF DEVELOPMENT UNDER THIS CONSENT

12. The Applicant:
   (a) must notify the Secretary in writing of the proposed date of commencement of development under this consent; and
   (b) may only commence development under this consent once the Secretary has agreed in writing that all prerequisites to the commencement of that development have been met.

SURRENDER OF EXISTING DEVELOPMENT CONSENT

13. By 30 April 2017, or as otherwise agreed by the Secretary, the Applicant must surrender the development consent DA 97/800 in accordance with Section 104A of the EP&A Act.

Note: This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under Part 4A of the EP&A Act. Surrender of a consent or approval should not be understood as implying that works legally constructed under a valid consent or approval can no longer be legally maintained or used.

SCHEDULE 3
ENVIRONMENTAL CONDITIONS – GENERAL

NOISE

Construction Noise

1. The Applicant must ensure that the noise generated by construction activities (excluding shaft construction), including activities undertaken for Modification 7, is managed in accordance with the requirements of the *Interim Construction Noise Guideline* (DECC, 2009), as may be updated from time to time.

Operational Noise Criteria

2. The Applicant must ensure that the operational noise generated by the development (including maintenance activities, shaft construction and exploration drilling) does not exceed the criteria in Table 2 at any residence on privately-owned land.

Table 2: *Operational Noise Criteria*

Receiver	Noise Limit (dB(A))			
	Day ($L_{Aeq(15\ min)}$)	Evening ($L_{Aeq(15\ min)}$)	Night ($L_{Aeq(15\ min)}$)	Night ($L_{A1(1min)}$)
R2	40	40	40	52
R3	42	42	42	52
R4	39	39	39	52
R5	41	41	41	61
R6	40	40	40	61
R7 & R8	43	43	43	61
R9	42	42	42	61
R10	39	39	39	61
All other residences on privately-owned land	35	35	35	45

Note: The receiver locations in Table 2 are shown in Figure 1 of Appendix 4.

Noise generated by the development is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the *NSW Industrial Noise Policy*. Appendix 3 sets out the meteorological conditions under which these criteria apply, and the requirements for evaluating compliance with these criteria.

However, these criteria do not apply if the Applicant has an agreement with the relevant landowner to exceed the noise criteria in Table 2, and the Applicant has advised the Department in writing of the terms of this agreement.

Operating Conditions

3. The Applicant must:
   (a) implement best management practice to minimise the construction, operational and road noise of the development;
   (b) use its best endeavours to facilitate the connection to, and use of, a permanent electricity source to undertake ventilation shaft sinking activities at the MSSS;
   (c) operate an on-site noise management system that uses a combination of predictions, forecasting, and attended and unattended monitoring of all noise associated with the development, to ensure compliance with the relevant conditions of this consent, including noise during construction and operations;
   (d) minimise the noise impacts of the development during meteorological conditions under which the noise limits in this consent do not apply (see Appendix 3); and
   (e) regularly assess noise monitoring data to determine whether the development is complying with the relevant conditions of consent,

   to the satisfaction of the Secretary.

Noise Management Plan

4. The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:
   (a) be prepared in consultation with the EPA, by suitably qualified and experienced persons whose appointment has been approved by the Secretary;
   (b) be submitted to the Secretary for approval prior to the commencement of construction of the MSSS, or by 31 March 2016, whichever is sooner;

(c) describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions of this consent, including management of out-of-hours noise associated with shaft construction;
(d) describe the proposed noise management system in detail;
(e) include a monitoring program that evaluates and reports on:
- the effectiveness of the noise management system;
- compliance against the noise criteria in this consent; and
- compliance against the noise operating conditions in condition 3 above;

(f) defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents; and
(g) outlines procedures to manage responses to any complaints or issues raised by the owners of affected residences.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

BLASTING

Blasting Restriction

5. The Applicant must carry out blasting on the surface of the site only between 9.00 am and 5.00 pm Monday to Saturday inclusive. No blasting is allowed on Sundays, Public Holidays, or at any other time, without the written approval of the Secretary.

Operating Conditions

6. The Applicant must implement best blasting management practice to:
(a) protect the safety of people in the surrounding area;
(b) protect public infrastructure and private property in the surrounding area from any damage; and
(c) minimise the dust and fume emissions of any blasting,

to the satisfaction of the Secretary.

AIR QUALITY & GREENHOUSE GAS

Odour

7. The Applicant must ensure that no offensive odours are emitted from the site, as defined under the POEO Act.

Air Quality Criteria

8. The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the particulate matter emissions generated by the development do not cause exceedances of the criteria in Table 3 at any residence on privately-owned land.

Table 3: Air quality criteria

Pollutant	***Averaging Period***	***Criterion***	
Particulate matter < 10 µm (PM_{10})	Annual	[a,d] 25 µg/m^3	
Particulate matter < 10 µm (PM_{10})	24 hour	[b] 50 µg/m^3	
Total suspended particulates (TSP)	Annual	[a,d] 90 µg/m^3	
[c] Deposited dust	Annual	[b] 2 g/m^2/month	[a,d] 4 g/m^2/month

Notes to Table 3:
a Cumulative impact (ie increase in concentrations due to the development plus background concentrations due to all other sources).
[b] Incremental impact (ie increase in concentrations due to the development alone, with zero allowable exceedances of the criteria over the life of the development).
[c] Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.
[d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.
e "Reasonable and feasible avoidance and mitigation measures" includes, but is not limited to, the operational requirements in conditions 9 and 10 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.

Operating Conditions

9. The Applicant must:
   (a) implement best practice air quality management at the site to minimise the
       - off-site odour, fume and dust emissions of the development; and
       - release of greenhouse gas emissions from the development;
   (b) minimise any visible off-site air pollution generated by the development;
   (c) minimise the surface disturbance of the site;
   (d) operate a comprehensive air quality management system to ensure compliance with the relevant conditions of this consent;
   (e) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note *d* to Table 3),

   to the satisfaction of the Secretary.

Air Quality & Greenhouse Gas Management Plan

10. The Applicant must prepare an Air Quality & Greenhouse Gas Management Plan for the development, to the satisfaction of the Secretary. This plan must:
    (a) be prepared in consultation with EPA, by suitably qualified and experienced persons whose appointment has been approved by the Secretary;
    (b) be submitted to the Secretary for approval prior to the commencement of construction of the MSSS, or by 31 March 2016, whichever is sooner;
    (c) describe the measures that would be implemented to ensure compliance with the relevant air quality criteria and operating conditions of this consent;
    (d) describe the on-site air quality management system; and
    (e) include an air quality monitoring program that:
        - adequately supports the air quality management system;
        - evaluates and reports on:
            - compliance with the air quality criteria;
            - the effectiveness of the air quality management system; and
            - compliance against the air quality operating conditions in condition 9 above; and
        - defines what constitutes an air quality incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any air quality incidents.

    The Applicant must implement the approved management plan as approved from time to time by the Secretary.

METEOROLOGICAL MONITORING

11. During the life of the development, the Applicant must ensure that there is a suitable meteorological station operating in the vicinity of the site that:
    (a) complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline; and
    (b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the *NSW Industrial Noise Policy*.

WATER

Water Supply

12. The Applicant must 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.

    Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Applicant is required to obtain the necessary water licences for the development.

Water Pollution

13. Unless an EPL authorises otherwise, the Applicant must comply with Section 120 of the POEO Act.

14. The Applicant must implement all reasonable and feasible measures to reduce water pollution associated with the discharge of surface water or mine-water (particularly salinity and dissolved or suspended metals associated with groundwater pumped from underground mine workings) required to comply with any EPL applying to the development.

Mine-Water Discharges Management Plan

15. The Applicant must prepare a Mine-Water Discharges Management Plan for the development to the satisfaction of the Secretary. This plan must:

(a) be prepared by suitably qualified and experienced persons whose appointment has been approved by the Secretary;
(b) be submitted to the Secretary for approval by 30 June 2016 unless otherwise agreed by the Secretary;
(c) describe the measures that would be implemented to ensure compliance with conditions 13 and 14 and relevant performance measures in Table 4;
(d) include targets, developed in co-operation with the EPA, to reduce acute and chronic toxicity from mine-water discharges from the CES to achieve the in-stream water quality and aquatic ecology objectives and criteria required by condition 16 below;
(e) include measures, developed in co-operation with the EPA to be implemented over 2-year, 10-year and life-of-project timeframes to reduce the salinity and metals toxicity in mine-water discharged from the CES to achieve these targets; and
(f) take into account relevant requirements of the Water Management Plan required by condition 17 below.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

Water Management Performance Measures

16. The Applicant must comply with the performance measures in Table 4, to the satisfaction of the Secretary.

Table 4: *Water Management Performance Measures*

Feature	***Performance Measure***
Potable Water	• Minimise the use of potable water from the public supply for purposes where non-potable water is acceptable.
MMAS MSSS	• 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 any infrastructure within 40 m of watercourses generally in accordance with the *Guidelines for Controlled Activities on Waterfront Land* (DPI 2007), or the latest version. • Design, install and maintain creek crossings generally in accordance with the *Policy and Guidelines for Fish Friendly Waterway Crossings* (DPI Fisheries 2003) and *Why Do Fish Need To Cross The Road? Fish Passage Requirements for Waterway Crossings* (DPI Fisheries 2003), or the latest versions.
Sediment Dams	• Maintain dams generally in accordance with the series *Managing Urban Stormwater: Soils and Construction – Volume 1 and Volume 2E Mines and Quarries.*
Clean water diversions	• Design, install and maintain new clean water diversion structures to convey the 100 year ARI flood. • Maximise as far as reasonable and feasible the diversion of clean water around disturbed areas on site.
Mine water storages	• Design, install and maintain mine water storage infrastructure to ensure no unlicensed or uncontrolled discharge of mine water off-site.
Aquatic and riparian ecosystems (including affected sections of unnamed watercourses receiving discharges from the CES, Muddy Creek and Muddy Lake)	• Maintain or improve baseline channel stability • Develop site-specific in-stream water quality and aquatic ecology (macroinvertebrate health and ecotoxicity assessment) objectives and criteria in consultation with the EPA and in accordance with any EPL applying to the CES.
Chemical and hydrocarbon storage	• Chemical and hydrocarbon products to be stored in bunded areas in accordance with the relevant Australian Standards.

Water Management Plan

17. The Applicant must prepare a Water Management Plan for the development to the satisfaction of the Secretary. This plan must:
(a) be prepared in consultation with DPIE Water and the EPA, by suitably qualified and experienced persons whose appointment has been approved by the Secretary;
(b) be submitted to the Secretary for approval prior to commencement of construction of the MSSS, or by 31 March 2016, whichever is sooner;
(c) include detailed performance criteria and describes measures to ensure that the Applicant complies with the Water Management Performance Measures in Table 4;
(d) include the following, in addition to the standard requirements for management plans (see condition 2 of Schedule 6):

(i) a Site Water Balance, that includes details of:
- water use and management on site;
- any off-site water discharges; and
- reporting procedures, including the preparation of a site water balance for each calendar year of the development; and
- investigates and implements all reasonable and feasible measures to minimise potable water use and to recycle water;

(ii) a Surface Water Management Plan, that includes:
- detailed baseline data on water flows and quality in the watercourses that could be affected by the development;
- a detailed description of the development's water management systems, including the:
  - clean water diversion systems;
  - erosion and sediment controls;
  - measures applying reasonable endeavours to reuse water held in the MSSS Sediment Dam, such as through the use of irrigation and/or evaporation, prior to discharge under condition 17A of this Schedule; and
  - minewater management systems;
- detailed performance criteria, including trigger levels, for investigating any potentially adverse impacts associated with:
  - the water management systems;
  - downstream surface water quality;
  - downstream watercourse channel stability;
  - stream and riparian vegetation health; and
  - downstream flooding impacts;
- a program to monitor and report on:
  - the effectiveness of the water management systems;
  - surface water flows and water quality, and the condition of stream and riparian vegetation in the watercourses on site and downstream of the site;
  - macroinvertebrate health and ecotoxicity parameters downstream of mine-water discharges; and
  - downstream flooding impacts;
- reporting procedures for the results of the monitoring program; and
- a plan to respond to any exceedances of the performance criteria, and mitigate any adverse surface water impacts of the development.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

Temporary Discharge of Water at MSSS

17A. The Applicant may discharge collected surface water from the MSSS Sediment Dam via Licenced Discharge Point LDP004 (EPL 365) until 30 June 2021. Any such discharge must be in accordance with conditions 14 and 17 of this Schedule.

BIODIVERSITY

Land Management Strategy

18. By 30 December 2016, the Applicant must finalise and implement a Land Management Strategy, to compensate for the clearing of 15.6 hectares of *Coastal Foothills Spotted Gum – Ironbark Forest*. The Land Management Strategy must:
   (a) be finalised in consultation with BCD;
   (b) define conservation areas, habitat restoration areas and riparian protection areas within the parcels of land shown in red outline in Figures 1 and 2 of Appendix 7;
   (c) make arrangements to manage, protect and provide long-term security for the Land Management Strategy areas;

   to the satisfaction of the Secretary.

Biodiversity Management Plan

19. The Applicant must prepare a Biodiversity Management Plan for the development to the satisfaction of the Secretary. This plan must:
   (a) be prepared in consultation with BCD and HLLS, and submitted to the Secretary for approval by 31 December 2016;
   (b) describe the short-term, medium-term, and long-term measures that would be implemented to:
   - manage remnant vegetation and habitat at the surface facilities sites; and
   - implement the Land Management Strategy;
   (c) include detailed performance and completion criteria for the Land Management Strategy;
   (d) include a detailed description of the measures that would be implemented over the next 3 years (to be

updated for each 3-year period following initial preparation of the plan) to:
- enhance the quality of existing vegetation and fauna habitat;
- minimise the impacts to fauna, including undertaking pre-clearance surveys;
- replace cleared hollow-bearing trees with appropriate nest boxes at a ratio of at least 2:1;
- manage salinity;
- control erosion, weeds, feral pests and unauthorised access; and
- manage bushfire risk; and

(e) include a program to monitor and report on these measures, and progress against the performance and completion criteria.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

Conservation Bond

20. Within 6 months of the approval of the Biodiversity Management Plan, unless the Secretary agrees otherwise, the Applicant must lodge a Conservation Bond with the Department, to ensure that the Land Management Strategy is implemented in accordance with the performance and completion criteria of the Biodiversity Management Plan.

The sum of the bond must be determined by:

(a) calculating the full cost of implementing the Land Management Strategy (other than land acquisition costs); and

(b) employing a suitably qualified quantity surveyor to verify the calculated costs.

The Secretary will release the bond if the Land Management Strategy is completed generally in accordance with the completion criteria in the Biodiversity Management Plan. If the Land Management Strategy is not completed generally in accordance with the completion criteria in the Biodiversity Management Plan, the Secretary will call in all, or part of, the Conservation Bond, and arrange for the satisfactory completion of the relevant works.

Notes:
- *Alternative funding arrangements for long-term management of the Land Management Strategy, such as provision of capital and management funding as agreed by BCD as part of a Biobanking Agreement or transfer to the conservation reserve estate can be used to reduce the liability of the Conservation Bond.*
- *The sum of the bond may be reviewed in conjunction with any revision to the Biodiversity Management Plan.*

Biodiversity Offset Credits Required

20A. Within 12 months of the commencement of construction activities for Modification 7, unless otherwise agreed by the Secretary, the Applicant must retire biodiversity credits as set out in Table 5 below. Retirement of these credits must be carried out in accordance with the NSW Biodiversity Offsets Policy for Major Projects (OEH, 2014), to the satisfaction of BCD.

Table 5: *Biodiversity credit requirements*

Credit Type	Credits Required
Ecosystem Credits	
PCT 1568 – Blackbutt – Turpentine – Sydney Blue Gum mesic tall open forest	1
PCT 1573 – Sydney Blue Gum – Lilly Pilly mesic tall open forest	9
PCT 1588 – Grey Ironbark - Broad-leaved Mahogany – Forest Red Gum shrubby open forest	147
PCT 1619 – Smooth-barked Apple – Red Bloodwood – Brown Stringybark – Hairpin Banksia heathy open forest	36
PCT 1638 – Smooth-barked Apple – Red Bloodwood – Scribbly Gum grass – shrub woodland	4
Species Credits	
Glossy-Black Cockatoo (*Calyptorhynchus lathami*)	229
Green-Thighed Frog (*Litoria brevipalmata*)	9

20B. Within 12 months of the commencement of construction activities for Modification 8, unless otherwise agreed by the Secretary, the Applicant must retire four (4) PCT 1649 – *Smooth-barked Apple – Red Mahogany – Melaleuca sieberi heathy swamp woodland of the coastal lowlands* biodiversity credits. Retirement of these credits must be carried out in accordance with the NSW Biodiversity Offset Scheme, to the satisfaction of the BCD.

HERITAGE

Archaeological Surveys

21. The Applicant must:
    (a) engage a suitably qualified archaeologist, whose appointment has been approved by the Secretary, to undertake sub-surface archaeological testing in areas A, B and C within the MSSS as shown on Figure 2 of Appendix 6;
    (b) undertake the surveys prior to the commencement of construction of the MSSS, in consultation with BCD and Registered Aboriginal Parties;
    (c) provide the results of these surveys to the Department, BCD and the Registered Aboriginal Parties;
    (d) analyse the significance of any heritage sites/items identified during the surveys; and
    (e) detail appropriate measures to avoid, minimise and/or mitigate impacts to these sites/items in the Heritage Management Plan required under condition 22 below for surface disturbance impacts, and under condition 6(l) of Schedule 4 for subsidence impacts,

    to the satisfaction of the Secretary.

Heritage Management Plan

22. The Applicant must prepare a Heritage Management Plan for the development to the satisfaction of the Secretary. This plan must:
    (a) be prepared in consultation with BCD and Registered Aboriginal Parties;
    (b) be submitted to the Secretary for approval, prior to commencement of construction of the MSSS, or by 31 March 2016, whichever is sooner; and
    (c) include:
    - a description of the measures that would be implemented to:
        - protect, monitor and/or manage Aboriginal Cultural Heritage sites/items (including any proposed archaeological investigations and/or salvage measures);
        - manage the discovery of previously unidentified Aboriginal items;
        - maintaining and managing reasonable access for Aboriginal stakeholders to heritage items on the Applicant's land;
        - ongoing consultation with Aboriginal stakeholders in the conservation and management of Aboriginal cultural heritage;
    - a short-term and long-term strategy for the storage of any Aboriginal Cultural Heritage items salvaged on site; and
    - a protocol for the management of impacts to Historic Heritage sites/items, including previously unidentified sites/items, including archival recording where impacts to Historic Heritage sites/items cannot be avoided.

    The Applicant must implement the approved management plan as approved from time to time by the Secretary.

    Note: This plan can be incorporated with any Heritage Management Plan for Centennial's other mines and/or mine infrastructure on the Central Coast/Lake Macquarie areas.

TRAFFIC AND TRANSPORT

Mandalong South Surface Site

23. The Applicant must, at its own cost, prior to construction of the MSSS access road:
    (a) construct, a BAR/CHL intersection off Mandalong Road to provide safe access to the MSSS, in accordance with *Guide to Road Design* (Austroads 2009); and
    (b) install appropriate advance warning signs on both approaches to the intersection,

    to the satisfaction of LMCC.

24. The Applicant must design and construct the MSSS access road to:
    (a) avoid impacting *Melaleuca Biconvexa* trees*;* and
    (b) not cause greater than minor increases to existing flood impacts at properties adjoining the access road.

25. Prior to the commencement of construction of the MSSS, and again within 3 months of the completion of construction, the Applicant must commission a suitably qualified independent expert, whose appointment has been approved by the Secretary, to undertake a pavement condition report for the section of Mandalong Road that will be used by construction traffic associated with the project. This report must:

(a) be submitted to the Secretary for approval;
(b) include a review of the pavement condition of the road identifying any deficiencies;
(c) recommend appropriate pavement repairs taking into consideration the axle loads and quantity of construction traffic associated with the project; and
(d) ensure the recommended repairs are in accordance with the *Guide to Road Design* (Austroads).

26. Within 3 months of the submission of the pavement condition reports required under condition 25, unless otherwise agreed or required by the Secretary, the Applicant must, in consultation with Council, and to the satisfaction of the Secretary, repair damaged sections of Mandalong Road in accordance with the recommendations of the pavement condition reports.

Construction Traffic Management Plan

27. The Applicant must prepare a Construction Traffic Management Plan for the construction of the MSSS, to the satisfaction of the Secretary. This plan must:
(a) be prepared in consultation with LMCC and any Mandalong residents likely to be affected by construction traffic;
(b) be approved by the Secretary prior to the commencement of construction of the MSSS; and
(c) include a drivers' code of conduct for the construction of the MSSS;
(d) detail the measures that would be applied to:
- limit the noise and dust impacts of construction traffic;
- monitor and repair any damage to the section of Mandalong Road that will be used by construction traffic associated with the project; and
- avoid and/or limit potential road safety and amenity conflicts between construction traffic and other road users (including pedestrians, cyclists and horse riders) on Mandalong Road, including:
  - hours during which heavy vehicle movements will be avoided (including during school bus hours) and/or minimised; and
  - other measures (such as voluntary speed limits, avoidance of convoying, separation distances, and driver safety signage) to avoid and/or limit such impacts.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

27A. The Applicant must prepare a Construction Traffic Management Plan for management of construction activities for Modification 7, to the satisfaction of the Secretary. This plan must:
(a) be prepared in consultation with LMCC and residents likely to be affected by construction traffic;
(b) be approved by the Secretary prior to the commencement of construction activities associated with Modification 7;
(c) include details of all transport routes and traffic types to be used by construction-related traffic;
(d) include details of the measures to be implemented to minimise traffic safety issues and disruption to local road users during construction activities, including:
(i) employee / contractor parking;
(ii) notifying the local community about construction-related traffic impacts;
(iii) responding to any emergency repair requirements or maintenance during construction activities; and
(iv) a traffic management system for managing over-dimensional vehicles; and
(e) include a drivers' code of conduct that addresses;
(i) travelling speeds; and
(ii) procedures to ensure that drivers implement safe driving practices.

The Applicant must implement the management plan as approved by the Secretary.

27B. The Applicant must prepare a Construction Traffic Management Plan for management of construction activities for Modification 8, to the satisfaction of the Secretary. This plan must:
(a) be prepared in consultation with RMS and LMCC;
(b) be approved by the Secretary prior to the commencement of construction activities associated with Modification 8;
(c) include details of all transport routes and traffic types to be used by construction-related traffic;
(d) include details of the measures to be implemented to minimise traffic safety issues and disruption to local road users during construction activities, including:
(i) employee / contractor parking;
(ii) notifying the local community about construction-related traffic impacts;
(iii) responding to any emergency repair requirements or maintenance during construction activities; and
(iv) a traffic management system for managing over-dimensional vehicles; and
(e) include a drivers' code of conduct that addresses;
(i) travelling speeds; and
(ii) procedures to ensure that drivers implement safe driving practices.

The Applicant must implement the management plan as approved by the Secretary.

27C. The Applicant must ensure that the car park approved under Modification 8 is constructed in accordance with Australian Standard AS 2890.

VISUAL

Visual Amenity and Lighting

28. The Applicant must:
    a) implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts of the development;
    b) take all practicable measures to further reduce visual impacts from the development, including:
        - screen planting along Mandalong Road on the approaches to the MSSS (insofar as this does not affect sightlines for traffic using the MSSS intersection);
        - other appropriate visual impact mitigation measures for residences with direct views of the MSSS (such as landscaping treatments or vegetation screens); and
    c) ensure that all external lighting associated with the development complies with *Australian Standard AS4282 (INT) 1995 - Control of Obtrusive Effects of Outdoor Lighting*; and
    d) take all practical measures to shield views of mining operations from users of public roads and privately-owned residences,

    to the satisfaction of the Secretary.

28A. The Applicant must implement all reasonable and feasible measures to minimise the visual impacts of the car park approved under Modification 8. No visual screening measures are permitted on LMCC-owned or managed land without the written permission of LMCC.

WASTE

29. The Applicant must
    (a) minimise and monitor the waste generated by the development;
    (b) ensure that the waste generated by the development is appropriately stored, handled and disposed of;
    (c) manage on-site sewage treatment and disposal in accordance with the requirements of LMCC and EPA; and
    (d) report on waste management and minimisation in the Annual Review,

    to the satisfaction of the Secretary.

BUSHFIRE MANAGEMENT

30. The Applicant must:
    (a) ensure appropriate Asset Protection Zones are maintained at the surface facilities sites, to the satisfaction of LMCC;
    (b) ensure that the surface facilities sites are suitably equipped to respond to fires; and
    (c) assist the Rural Fire Service and emergency services as much as possible if there is a fire in the vicinity of the site.

REHABILITATION

Rehabilitation Objectives

31. The Applicant must rehabilitate the MMAS and MSSS to the satisfaction of RR. This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EIS and comply with the objectives in Table 5.

Table 5: *Rehabilitation Objectives*

Feature	***Objective***
Mine site (as a whole)	• Safe, stable & non-polluting
Surface infrastructure	• To be decommissioned and removed, unless RR agrees otherwise. • MMAS and MSSS sites to be made safe, and hydraulically and geotechnically stable. • MMAS site to be appropriately prepared for industrial land-use where SP1 zoning applies, while ecological values to be maintained and enhanced where E2 zoning applies • MSSS site to be revegetated with suitable local native plant species, and to a landform consistent with the surrounding environment.
Revegetated final landforms	• Stable and sustain the intended land use

	• Consistent with surrounding topography to minimise visual impacts • Incorporate relief patterns and design principles consistent with natural drainage
Native flora and fauna	• Flora species used in rehabilitation selected to re-establish and complement local and regional biodiversity • Rehabilitated areas contribute to achieving self-sustaining biodiversity habitats
All watercourses subject to mine-water discharges and/or subsidence impacts	• Hydraulically and geomorphologically stable, with aquatic ecology and riparian vegetation that is the same, or better than prior to mining
Steep slopes	• No additional risk to public safety compared to prior to mining
Built features damaged by mining operations	• Repair to pre-mining condition or equivalent unless the: - owner agrees otherwise; or - damage is fully restored, repaired or compensated for under the *Mine Subsidence Compensation Act 1961*
Community	• Ensure public safety. • Minimise the adverse socio-economic effects of mine closure.

Progressive Rehabilitation

32. The Applicant must rehabilitate the site progressively, that is, as soon as is practicable following disturbance, to the satisfaction of RR.

Rehabilitation Management Plan

33. The Applicant must prepare a Rehabilitation Management Plan for the development, to the satisfaction of the Secretary and RR. This plan must:
(a) be prepared consultation with RR, BCD, DPIE Water, LMCC and the CCC;
(b) be submitted to the Secretary and RR for approval by 31 March 2016, or as otherwise agreed by the Secretary;
(c) be prepared in accordance with relevant guidelines and consistent with the rehabilitation objectives in the EIS and in Table 5;
(d) describe how the performance of the rehabilitation would be monitored and assessed against the objectives in Table 5;
(e) provide for detailed mine closure planning, including measures to minimise socio-economic effects associated with mine closure, to be developed prior to the site being placed on care and maintenance; and
(f) be integrated with the other management plans required under this consent.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

Note: *The Rehabilitation Management Plan must address all land impacted by the mine, whether prior to or following the date of this consent.*

SURFACE INFRASTRUCTURE MANAGEMENT

Gas Drainage

34. The Applicant must ensure that all gas drainage pipelines (other than connection points, monitoring points, dewatering facilities, regulation points or isolation points) between gas drainage plants are buried, unless otherwise agreed with the relevant landowner, or unless burial is inappropriate for safety or other reasons, to the satisfaction of the Secretary.

Surface Infrastructure Management Plans

35. The Applicant must prepare a Gas Drainage Management Plan, a Service Boreholes Management Plan and a PED Communications Management Plan in respect of construction and use of future surface gas drainage and management infrastructure, future service boreholes and future PED communications infrastructure, respectively, to the satisfaction of the Secretary. Each of these plans must be submitted to the Secretary for approval prior to the construction of the relevant infrastructure and must include the Applicant's commitments regarding:
(a) community consultation;
(b) landholder agreements;
(c) assessment of noise, air quality, traffic, biodiversity, heritage, public safety and other impacts in accordance with approved methods;
(d) avoidance of significant impacts and minimisation of impacts generally;

(e) beneficial re-use or flaring of drained hydrocarbon gases, wherever practicable (in the case of the Gas Drainage Management Plan);
(f) achievement of applicable standards and goals;
(g) mitigation and/or compensation for significant noise, air quality and visual impacts; and
(h) rehabilitation of disturbed sites.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

Exploration Activities Management Plan

36. The Applicant must prepare an Exploration Activities Management Plan for the development to the satisfaction of the Secretary. This Plan must:
(a) be prepared by suitably qualified and experienced person/s whose appointment has been approved by the Secretary;
(b) be prepared in consultation with RR;
(c) be submitted to the Secretary for approval within 6 months of the date of this consent or prior to carrying out exploration activities causing surface disturbance (whichever is the earlier), unless the Secretary agrees otherwise;
(d) include a description of the measures that would be implemented for:
- managing exploration activities;
- consulting with and compensating affected landowners;
- avoiding threatened species, populations or their habitats and EECs;
- minimising clearance and disturbance of native vegetation;
- minimising erosion and sedimentation;
- achieving applicable standards and goals; and
- rehabilitating disturbed areas.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

SCHEDULE 4
ENVIRONMENTAL CONDITIONS – UNDERGROUND MINING

SUBSIDENCE

Performance Measures – Natural and Heritage Features

1. The Applicant must ensure that the development complies with the performance measures in Table 6, to the satisfaction of the Secretary.

Table 6: *Subsidence Impact Performance Measures*

Watercourses	
3rd Order and above streams Groundwater-dependent Ecosystems	• No connective cracking between the surface, or the base of the alluvium, and the underground workings. • No subsidence impact or environmental consequence greater than minor.
1st and 2nd Order streams	• No subsidence impact or environmental consequences greater than predicted in the documents listed in condition 2(b) of Schedule 2. • No connective cracking between the surface and the underground workings.
Aquatic and riparian ecosystems, including affected sections of Morans Creek, Wyee Creek, Tobins Creek and Mannering Creek	• Maintain or improve baseline channel stability. • Develop site-specific in-stream water quality objectives in accordance with ANZECC 2000 and *Using the ANZECC Guidelines and Water Quality Objectives in NSW* procedures (DECC 2006), or their latest versions.
Land	
Steep slopes and rock outcrops	• No subsidence impact or environmental consequence greater than predicted in the documents listed in condition 2(b) of Schedule 2.
Agriculture	• No loss of agricultural productivity greater than minor.
Biodiversity	
Threatened species, threatened populations and endangered ecological communities	• Negligible environmental consequences.
Heritage sites	
Stone Arrangement RPS TBM 32	• Negligible subsidence impacts or environmental consequences
All other Aboriginal Cultural Heritage sites/items at the site	• No subsidence impact or environmental consequence greater than predicted in the documents listed in condition 2(b) of Schedule 2.
Mine workings	
First workings under an approved Extraction Plan 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.

Notes:
- *Classification of streams in accordance with Strahler stream order system.*
- *Detailed performance indicators (including impact assessment criteria) for each of these performance measures will be detailed in the various management plans that are required under this consent.*
- *Measurement and/or monitoring of compliance with performance measures and performance indicators is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristic is located. These methods are to be fully described in the relevant management plans. In the event of a dispute over the appropriateness of proposed methods, the Secretary will be the final arbiter.*

2. The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the performance measures in Table 6. Any exceedance of these 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 condition 3 below. Where any exceedance of these 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 recur;

(b) consider all reasonable and feasible options for remediation 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.

Offsets

3. If the Applicant exceeds the performance measures in Table 6 and the Secretary determines that:
(a) it is not reasonable or feasible to remediate the impact or environmental consequences; or
(b) remediation measures implemented by the Applicant have failed to satisfactorily remediate the impact or environmental consequence,

then the Applicant must provide a suitable offset to compensate for the impact or environmental consequence, to the satisfaction of the Secretary.

Note: An offset required under this condition must be proportionate with the significance of the impact or environmental consequence.

Performance Measures – Built Features

4. The Applicant must ensure that the development does not cause any exceedances of the performance measures in Table 7, to the satisfaction of the Secretary.

Table 7: *Subsidence Impact Performance Measures*

Key Public Infrastructure	
M1 Motorway	Always safe and serviceable.
Main Northern Railway	
330 kV power supply infrastructure	Damage that does not affect safety or serviceability must be fully repairable, and must be fully repaired.
Other Built Infrastructure	
Power lines and power poles	Always safe.
Telecommunications infrastructure	Serviceability should be maintained wherever practicable.
Privately-owned residences	
Local Roads	Loss of serviceability must be fully compensated.
Other built features and improvements, (including access roads, farm dams, swimming pools, tracks and fences)	Damage must be fully repairable, and must be fully repaired or else replaced or fully compensated.
Public Safety	
Public Safety	Negligible additional risk.

Notes:
- *Key public infrastructure is shown in Figure 2 of Appendix 2 and in Figure 1 of Appendix 5*
- *Other built infrastructure is shown in Figure 1 of Appendix 5.*
- *The Applicant will be required to define more detailed performance indicators for each of these performance measures in the Built Features Management Plan, Property Subsidence Management Plans and Public Safety Management Plan (see condition 6 below).*
- *Measurement and/or monitoring of compliance with performance measures and performance indicators is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristic is located. These methods are to be fully described in the relevant management plans. In the event of a dispute over the appropriateness of proposed methods, the Secretary will be the final arbiter.*
- *Requirements regarding safety or serviceability do not preclude preventative or mitigatory actions being taken prior to or during mining in order to achieve or maintain these outcomes.*
- *Requirements under this condition may be met by measures undertaken in accordance with the Mine Subsidence Compensation Act 1961.*

5. Any dispute between the Applicant and the owner of any built feature over the interpretation, application or implementation of the performance measures in Table 7 is to be settled by the Secretary, following consultation with RR. Any decision by the Secretary shall be final and not subject to further dispute resolution under this consent.

Extraction Plan

6. The Applicant must prepare an Extraction Plan for all second workings on site, to the satisfaction of the Secretary. Each Extraction Plan must:
(a) be prepared by suitably qualified and experienced persons whose appointment has been approved by the Secretary;
(b) be approved by the Secretary before the Applicant carries out any of the second workings covered by the plan;

(c) include detailed plans of existing and proposed first and second workings and any associated surface development;
(d) include detailed performance indicators for each of the performance measures in Tables 6 and 7;
(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 the commencement date of this consent;
(f) describe the measures that would be implemented to ensure compliance with the performance measures in Tables 6 and 7, and manage or remediate any impacts and/or environmental consequences;
(g) include a Built Features Management Plan, which has been prepared in consultation with RR and the owners of affected built features, to manage the potential subsidence impacts and/or environmental consequences of the proposed second workings, and which:
  - addresses in appropriate detail all items of key public infrastructure (with particular consideration to tension/angle/suspension towers on transmission lines), and other public infrastructure;
  - has been prepared following appropriate consultation with the owner/s of potentially affected feature/s;
  - recommends appropriate remedial measures and includes commitments to mitigate, repair, replace or compensate all predicted impacts on potentially affected built features in a timely manner; and
  - in the case of all key public infrastructure, and other public infrastructure except roads, trails and associated structures, reports external auditing for compliance with ISO 31000 (or alternative standard agreed with the infrastructure owner), and provides for annual auditing of compliance and effectiveness during extraction which may impact the infrastructure;
(h) include a Property Subsidence Management Plan for each privately-owned property affected by the proposed second workings, prepared in consultation with the landowner, which includes:
  - a detailed structural inspection of residences and all other structures on the property;
  - a detailed subsidence impact assessment for the property, including (where relevant):
    - o a flood impact assessment, including a prediction of the minimum freeboard of the residence in a 1 in 100 year ARI flood event, and, where this prediction shows the minimum freeboard at the residence to be less than 0.5 m in a 1 in 100 year ARI flood event:
      - – recommends such works to raise, remediate or relocate the residence and/or provide suitable access to the property, prior to undermining the residence; or
      - – where these works are unable to be undertaken, offers to acquire the whole of the property, or such part of the property requested by the landowner where subdivision is approved, in accordance with conditions 3 and 4 of Schedule 5;
    - o slope stability assessments at the properties shown in Figure 2 of Appendix 5, or at any other property as nominated by the Secretary, which must:
      - – be undertaken at least 12 months prior to undermining the property;
      - – be undertaken in consultation with RR, by a suitably qualified geotechnical expert;
      - – recommend measures to manage and/or mitigate the risks and impacts associated with slope instability and rock roll-out at the residence, and the risk to the safety of persons; and
      - – include a timeframe for the implementation of the recommended measures;
    - o soil erosion assessment, which recommends measures to avoid, mitigate and otherwise respond to increased soil erosion (including tunnel erosion) impacts; and
  - appropriate measures, commitments and timeframes to mitigate, repair, replace or otherwise compensate the impacts to the property;
(i) include a Water Management Plan, which has been prepared in consultation with EPA and DPIE Water, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on watercourses and aquifers, including:
  - detailed baseline data on groundwater levels, yield and quality in the region, and in privately-owned groundwater bores that could be affected by the second workings;
  - surface water and groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse impacts on water resources or water quality;
  - a program to monitor and report on stream morphology and stream flows, and assessment of any changes resulting from subsidence impacts, including scouring and ponding;
  - a program to monitor flooding (including updated flood modelling); with recommendations to minimise, manage and mitigate (whether prospectively or retrospectively) flood impacts on residences, private properties, roads, other infrastructure and other built features;
  - a groundwater monitoring program which:
    - o includes a comprehensive monitoring bore network, ensuring all bore casings are above ground level and are purged before sampling;
    - o samples on a monthly basis for the first two years of the development, and quarterly thereafter, unless directed by the Secretary;
    - o monitors and reports on:
      - – groundwater inflows to the mine;

  - background changes in groundwater yield/quality against mine-induced changes; and
  - impacts to:
    - regional and local (including alluvial) aquifers;
    - groundwater supply to private bores; and
    - groundwater dependent ecosystems and riparian vegetation;
- a program to validate the groundwater model for the development, and compare monitoring results with modelled predictions; and
- a plan to respond to any exceedances of the groundwater assessment criteria;

(j) include a Biodiversity Management Plan, which has been prepared in consultation with BCD, which establishes baseline data for existing habitat, including water table depth, vegetation condition, stream morphology and threatened species habitat, and provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on aquatic and terrestrial flora and fauna, with a specific focus on threatened species, populations and their habitats; endangered ecological communities; and water dependent ecosystems;

(k) include a Land Management Plan, which has been prepared in consultation with any affected public authorities, to manage the potential impacts and/or environmental consequences of the proposed second workings on land in general;

(l) include a Heritage Management Plan, which has been prepared in consultation with BCD and Registered Aboriginal Parties, to manage the potential environmental consequences of the proposed second workings on both Aboriginal and non-Aboriginal heritage items, and reflects the requirements of condition 22 of Schedule 3;

(m) include a Public Safety Management Plan, which has been prepared in consultation with RR, to ensure that the proposed second workings do not impact on public safety;

(n) include a Subsidence Monitoring Program, which has been prepared in consultation with RR to:
- provide data to assist with the management of the risks associated with conventional and non-conventional subsidence;
- validate the subsidence predictions;
- analyse the relationship between the predicted and resulting subsidence effects and predicted and resulting impacts under the plan and any ensuing environmental consequences; and
- inform the Contingency Plan and adaptive management process;

(o) Trigger Action Response Plans addressing all features in Tables 6 and 7, which contain:
- appropriate triggers to warn of the development of an increasing risk of exceedance of any performance measure;
- specific actions to respond to high risk 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;

(p) include a Contingency Plan that expressly provides for;
- adaptive management where monitoring indicates that there has been an exceedance of any performance measure in Tables 6 and 7, or where any such exceedance appears likely; and
- an assessment of the remediation measures that may be required if exceedances occur and the capacity to implement the measures;

(q) proposes appropriate revisions to the Rehabilitation Management Plan required under condition 33 of Schedule 3; and

(r) include a program to collect sufficient baseline data for future Extraction Plans.

The Applicant must implement the approved Extraction Plan as approved from time to time by the Secretary.

Notes:
- *This condition does not apply to mining operations covered by an approved Subsidence Management Plan in place at the date of commencement of this consent.*
- *In accordance with condition 5 of Schedule 6, the preparation and implementation of Extraction Plans may be staged, with each plan covering a defined area of underground workings. In addition, these plans are only required to contain management plans that are relevant to the specific underground workings that are being carried out.*

6A. The Applicant must commission an independent expert whose appointment has been endorsed by the Secretary, to carry out a review of the groundwater model for the development. This review must include a:

(a) review of all available monitoring data;
(b) comparison of predicted and actual groundwater impacts; and
(c) review of the effectiveness of the groundwater model.

The review must be undertaken and reported to the satisfaction of the Secretary. The report must be submitted to the Secretary and DPIE Water prior to the approval of any Extraction Plan relating to Longwalls 24 and/or 24A.

7. The Applicant must ensure that the management plans required under conditions 6(g)-(q) above include:

(a) an assessment of the potential environmental consequences of the Extraction Plan, incorporating any relevant information that has been obtained since the date of commencement of this consent; and

(b) a detailed description of the measures that would be implemented to remediate predicted impacts.

Archaeological Surveys

8. The Applicant must:
   (a) use its best endeavours to undertake archaeological surveys of privately-owned land which was not surveyed in the documents listed in condition 2(b) of Schedule 2, prior to subsidence impacts occurring on that land;
   (b) analyse the significance of any heritage sites/items identified during the surveys; and
   (c) include appropriate measures to avoid, minimise and/or mitigate impacts to the identified sites/items in the Heritage Management Plan required under condition 6(l) above,

   to the satisfaction of the Secretary.

Grinding Groove Trial Mitigation

9. Prior to the extraction of Longwall 25, the Applicant must undertake trial mitigation works at grinding groove sites RPS DF04 and RPS PS11, in consultation with Forestry Corporation of NSW, BCD and Registered Aboriginal Parties, and to the satisfaction of the Secretary.

10. The Applicant must:
    (a) monitor the effectiveness of the trial mitigation works during and following the extraction of Longwall 25;
    (b) provide a report on the monitoring to the Secretary, BCD and Registered Aboriginal Parties; and
    (c) use the report to inform the impact avoidance, management and mitigation strategies in future Extraction Plans covering other grinding groove sites,

    to the satisfaction of the Secretary.

Rock Shelter Monitoring

11. The Applicant must implement a monitoring program of subsidence effects at rock shelter sites 45-3-1228 and 45-3-1233 in the Extraction Plan for Longwall 34 or, if access to these sites is not granted by the landowner, other rock shelter sites as agreed to in writing with the Secretary. This monitoring must be:
    (a) undertaken by a suitably qualified archaeologist, whose appointment has been approved by the Secretary,
    (b) undertaken in consultation with BCD and Registered Aboriginal Parties; and
    (c) used to inform impact management of rock shelter sites under future Extraction Plans required under this consent,

    to the satisfaction of the Secretary.

First Workings

12. The Applicant may carry out first workings on site, other than in accordance with an approved Extraction Plan, provided that RR is satisfied that the first workings are designed to remain stable and non-subsiding, except insofar as they may be impacted by approved second workings.

Payment of Reasonable Costs

13. The Applicant must pay all reasonable costs:
    (a) incurred by the Department to engage suitably qualified, experienced and independent experts to review the adequacy of any aspect of an Extraction Plan; and
    (b) to the owner of privately-owned land subject to a Property Subsidence Management Plan under condition 6(h) above, to obtain legal and/or other advice on the Property Subsidence Management Plan.

SCHEDULE 5
ADDITIONAL PROCEDURES

NOTIFICATION OF LANDOWNERS

1. As soon as practicable after obtaining monitoring results showing:
   (a) an exceedance of any relevant criteria in Schedule 3, the Applicant must notify affected landowners in writing of the exceedance, and provide regular monitoring results to each affected landowner until the development is again complying with the relevant criteria; and
   (b) an exceedance of any relevant air quality criteria in Schedule 3, the Applicant must send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including the tenants of any mine-owned land).

INDEPENDENT REVIEW

2. If an owner of privately-owned land considers the development to be exceeding the relevant criteria in Schedule 3, then he/she may ask the Secretary in writing for an independent review of the impacts of the development on his/her land.

   If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision the Applicant must:
   (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to:
      - consult with the landowner to determine his/her concerns;
      - conduct monitoring to determine whether the development is complying with the relevant criteria in Schedule 3; and
      - if the development is not complying with these criteria, identify and implement measures to ensure compliance with the relevant criteria; and
   (b) give the Secretary and landowner a copy of the independent review.

LAND ACQUISITION

3. Within 3 months of receiving a written request from a landowner with acquisition rights, the Applicant must make a binding written offer to the landowner based on:
   (a) the current market value of the landowner's interest in the land at the date of this written request, as if the land was unaffected by the project, having regard to the:
      - existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and
      - presence of improvements on the land and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date;
   (b) the reasonable costs associated with:
      - relocating within the Lake Macquarie City Council or Central Coast Council local government areas, or to any other local government area determined by the Secretary; and
      - obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and
   (c) reasonable compensation for any disturbance caused by the land acquisition process.

   However, if at the end of this period, the Applicant and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Secretary for resolution.

   Upon receiving such a request, the Secretary will request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:
   - consider submissions from both parties;
   - determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above;
   - prepare a detailed report setting out the reasons for any determination; and
   - provide a copy of the report to both parties.

   Within 14 days of receiving the independent valuer's report, the Applicant must make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.

   However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Secretary for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Secretary will determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above, the independent valuer's report, the detailed report of the party that disputes the independent valuer's determination and any other relevant submissions.

Within 14 days of this determination, the Applicant must make a binding written offer to the landowner to purchase the land at a price not less than the Secretary's determination.

If the landowner refuses to accept the Applicant's binding written offer under this condition within 6 months of the offer being made, then the Applicant's obligations to acquire the land shall cease, unless the Secretary determines otherwise.

4. The Applicant must pay all reasonable costs associated with the land acquisition process described in condition 3 above, including the costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.

SCHEDULE 6
ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

1. The Applicant must prepare an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must:
   (a) be submitted to the Secretary for approval prior to the commencement of construction of the MSSS, or by 31 March 2016, whichever is sooner;
   (b) provide the strategic framework for environmental management of the development;
   (c) identify the statutory approvals that apply to the development;
   (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;
   (e) describe the procedures that would be implemented to:
      - keep the local community and relevant agencies informed about the operation and environmental performance of the development;
      - receive, handle, respond to, and record complaints;
      - resolve any disputes that may arise during the course of the development;
      - respond to any non-compliance; and
      - respond to emergencies; and
   (f) include:
      - copies of any strategies, plans and programs approved under the conditions of this consent; and
      - a clear plan depicting all the monitoring required to be carried out under the conditions of this consent.

   The Applicant must implement the approved strategy as approved from time to time by the Secretary.

Management Plan Requirements

2. The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:
   (a) detailed baseline data;
   (b) a description of:
      - the relevant statutory requirements (including any relevant approval, licence or lease conditions);
      - any relevant limits or performance measures/criteria; and
      - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;
   (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
   (d) a program to monitor and report on the:
      - impacts and environmental performance of the development; and
      - effectiveness of any management measures;
   (e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;
   (f) a program to investigate and implement ways to improve the environmental performance of the development over time;
   (g) a protocol for managing and reporting any:
      - incidents;
      - complaints;
      - non-compliances with statutory requirements; and
      - exceedances of the impact assessment criteria and/or performance criteria; and
   (h) a protocol for periodic review of the plan.

   Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.

Application of Existing Management Plans

3. Prior to the approval of management plans under this consent, the Applicant must manage development undertaken pursuant to this consent in accordance with any equivalent or similar management plan/s required under development consent DA 97/800.

Relationships between Management Plans

4. The Water, Biodiversity and Heritage Management Plans required by conditions 17, 19 and 22 of Schedule 3, respectively, are to be prepared in respect of all parts of the development that are not covered by an Extraction Plan or Subsidence Management Plan. In particular, the Water, Biodiversity and Heritage Management Plans should address all areas subject to existing or proposed surface disturbance associated with the development.

Staged Submission of Strategies, Plans or Programs

5. With the approval of the Secretary, the Applicant may submit any strategies, plans or programs required by this consent on a progressive basis.

Note: If the submission of any strategy, plan or program is to be staged, then the Applicant must ensure that existing strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program.

Consolidation of Strategies, Plans or Programs

6. With the approval of the Secretary, the Applicant may incorporate any strategies, plans or programs required by this consent (except those required under condition 6 of Schedule 4) with the strategies, plans and programs required for Centennial's mining operations within the general vicinity of the development.

Revision of Strategies, Plans and Programs

7. Within 3 months of:
   (a) the submission of an incident report under condition 10 below;
   (b) the submission of an annual review under condition 12 below;
   (c) the submission of an audit report under condition 13 below; or
   (d) the approval of a modification to this consent,

   the Applicant must review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the Secretary.

   Within 4 weeks of conducting any such review, the Applicant must advise the Secretary of the outcomes of the review, and provide any revised documents to the Secretary for review and approval.

   Note: This condition ensures that strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.

Adaptive Management

8. The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedules 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.

   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.

Community Consultative Committee

9. The Applicant must establish a Community Consultative Committee (CCC) for the development to the satisfaction of the Secretary. This CCC must be operated in general accordance with the *Community Consultative Committee (CCC) Guidelines for State Significant Projects* (Department of Planning, 2016) or its latest version.

   Notes:
   - *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent.*
   - *In accordance with the Guidelines, the CCC must include an independent chair and appropriate representation from the Applicant, Council, recognised environmental groups and the local community.*
   - *This condition may be satisfied by a CCC for the Mandalong Mine already in place as at the date of this consent, and the Secretary will accept continued representation from existing CCC members.*

- *The requirement for this CCC may be fulfilled by a regional CCC for Centennial's mines and mine infrastructure in the Central Coast/Lake Macquarie areas.*

REPORTING

Incident Reporting

10. The Applicant must immediately notify the Secretary and any other relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment. For any other incident associated with the development, the Applicant must notify the Secretary and any other relevant agencies as soon as practicable after the Applicant becomes aware of the incident. Within 7 days of the date of the incident, the Applicant must provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

Regular Reporting

11. The Applicant must regularly report the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.

ANNUAL REVIEW

12. By the end of March each year, or as otherwise agreed by the Secretary, the Applicant must submit a report to the Department reviewing the environmental performance of the development to the satisfaction of the Secretary. This review must:
    (a) describe the development (including any rehabilitation) that was carried out in the past calendar year, and the development that is proposed to be carried out over the current calendar year;
    (b) include a comprehensive review of the monitoring results and complaints records of the development over the past calendar year, which includes a comparison of these results against the:
        (i) relevant statutory requirements, limits or performance measures/criteria;
        (ii) requirements of any plan or program required under this consent;
        (iii) monitoring results of previous years; and
        (iv) relevant predictions in the documents identified in condition 2(a) and (b) of Schedule 2;
    (c) identify any non-compliance over the past calendar year, and describe what actions were (or are being) taken to ensure compliance;
    (d) identify any trends in the monitoring data over the life of the development;
    (e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
    (f) describe what measures will be implemented over the current calendar year to improve the environmental performance of the development.

INDEPENDENT ENVIRONMENTAL AUDIT

13. By 31 March 2016, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant must commission, commence and pay the full cost of an Independent Environmental Audit of the development. This audit must:
    (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;
    (b) include consultation with the relevant agencies;
    (c) assess the environmental performance of the development and assess whether it is complying with the requirements in this consent and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals);
    (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals;
    (e) recommend appropriate measures or actions to improve the environmental performance of the development, and/or any assessment, plan or program required under the abovementioned approvals; and
    (f) be conducted and reported to the satisfaction of the Secretary.

    Note: *This audit team must be led by a suitably qualified auditor and include experts in any field specified by the Secretary.*

14. Within 12 weeks of commencing this audit, or as otherwise agreed by the Secretary, the Applicant must submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of any measures proposed to address the recommendations.

ACCESS TO INFORMATION

15. Within 3 months of the date of this consent, the Applicant must:
    (a) make copies of the following publicly available on its website:

(i) the documents referred to in condition 2(a) and (b) of Schedule 2;
(ii) all current statutory approvals for the development;
(iii) all approved strategies, plans and programs required under the conditions of this consent;
(iv) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;
(v) a complaints register, updated monthly;
(vi) minutes of CCC meetings for the last 2 years;
(vii) the annual reviews of the development;
(viii) any independent environmental audit of the development, and the Applicant's response to the recommendations in any audit;
(ix) any other matter required by the Secretary; and

(b) keep this information up-to-date,

to the satisfaction of the Secretary.

APPENDIX 2: DEVELOPMENT LAYOUT

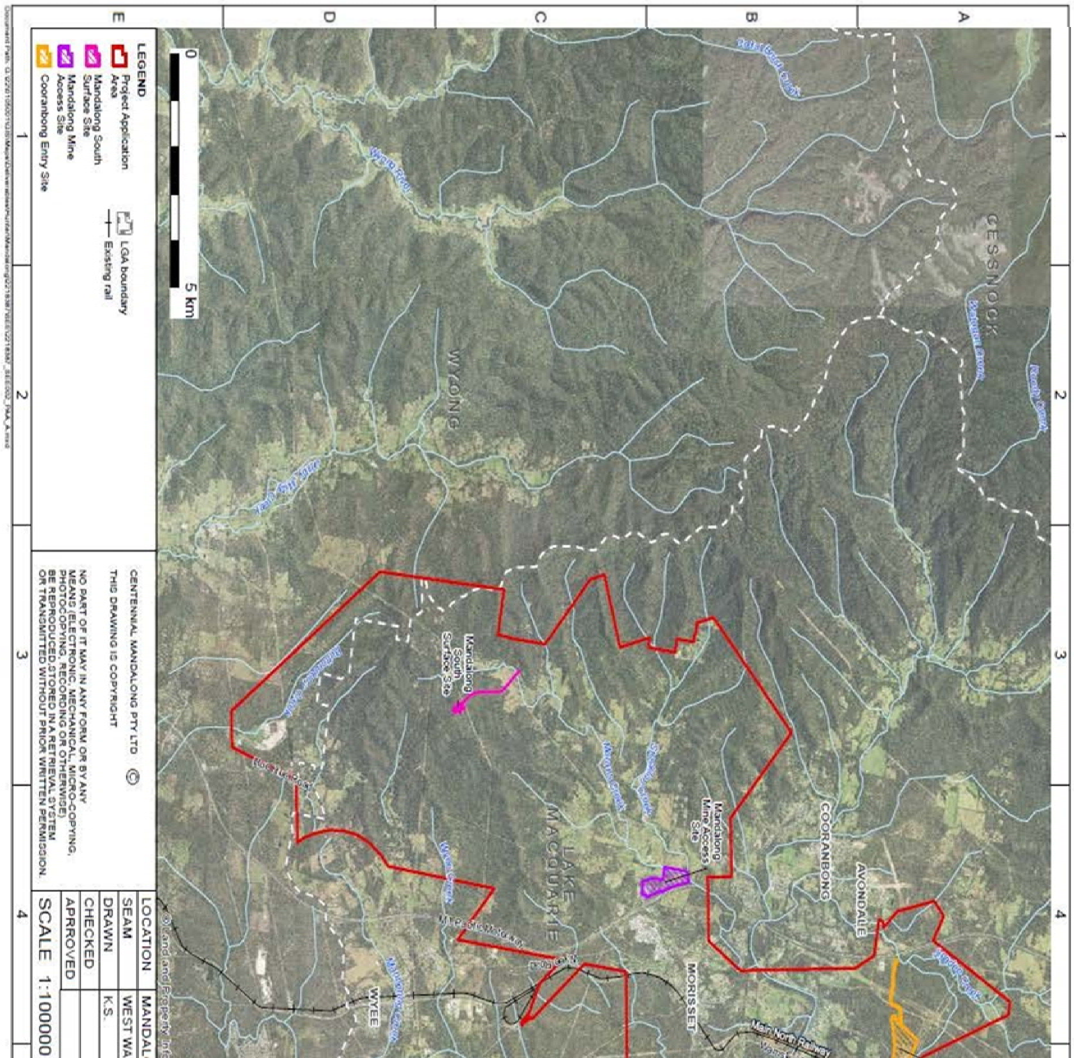

Figure 1: Development Application Area

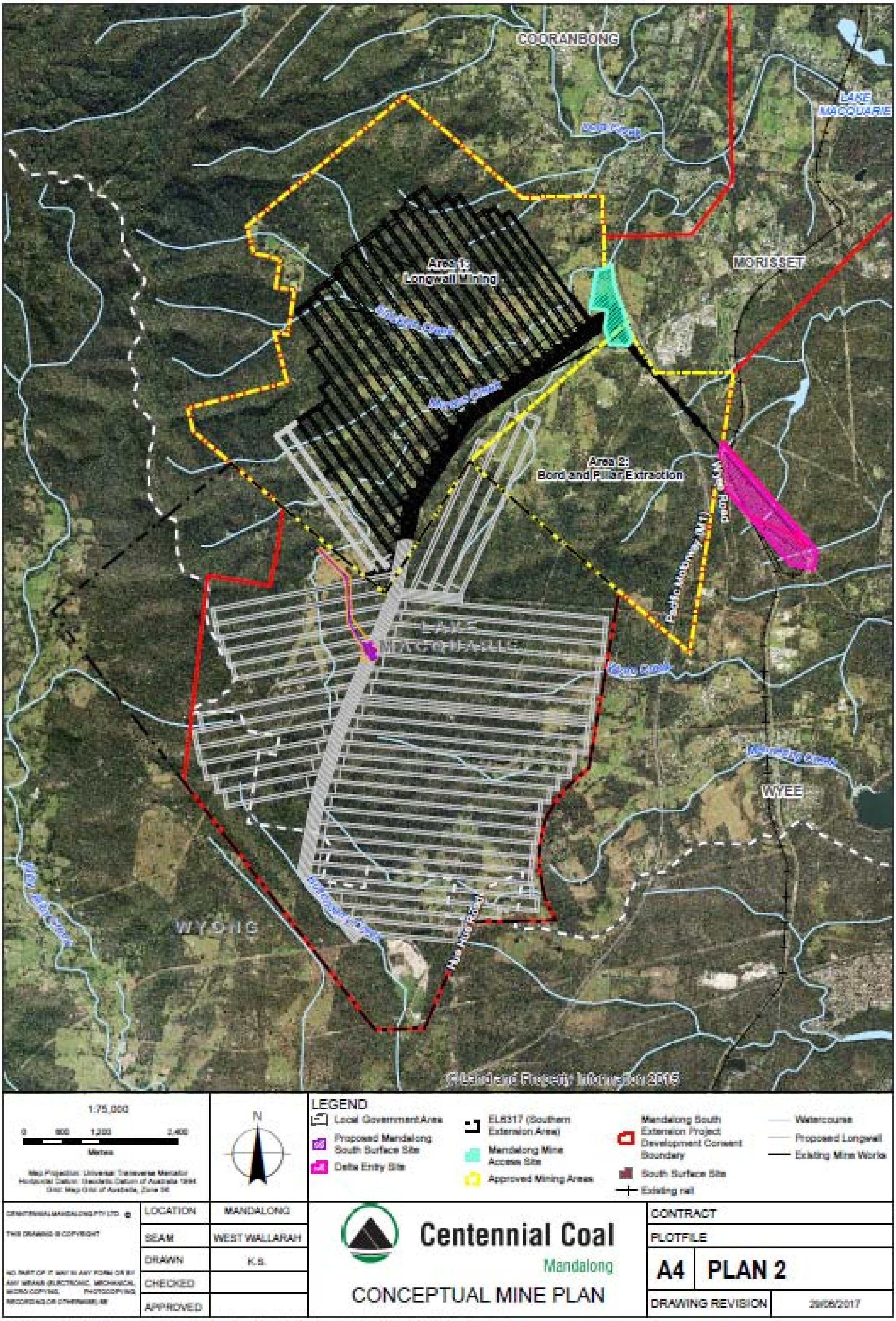

Figure 2: *Approved Mine Plan*

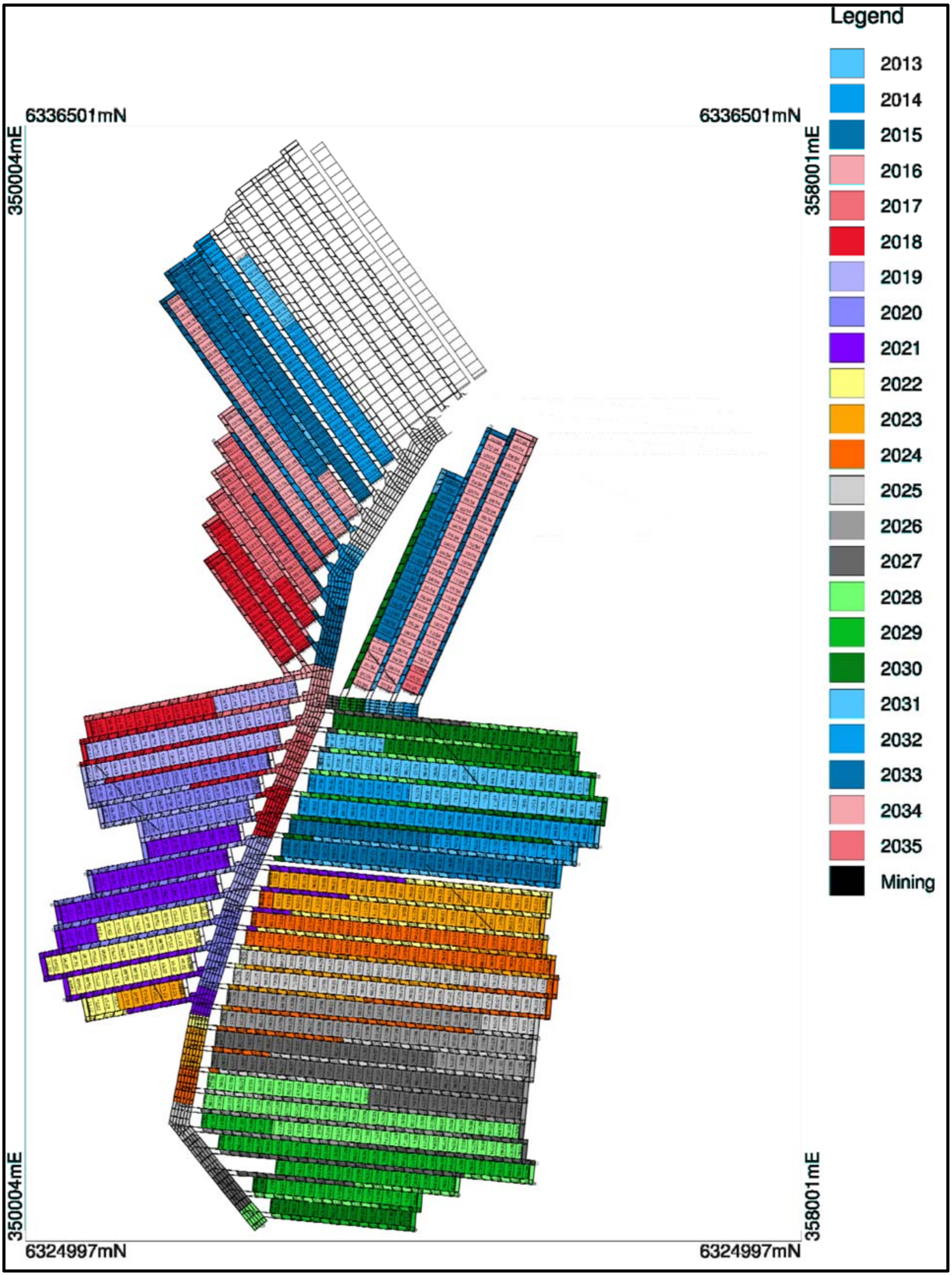

Figure 3: *Centennial's Indicative Extraction Schedule (not binding)*

Figure 4: *Mandalong Mine Access Site*

Figure 4A: Mandalong Mine Access Site Layout Following Modification 8

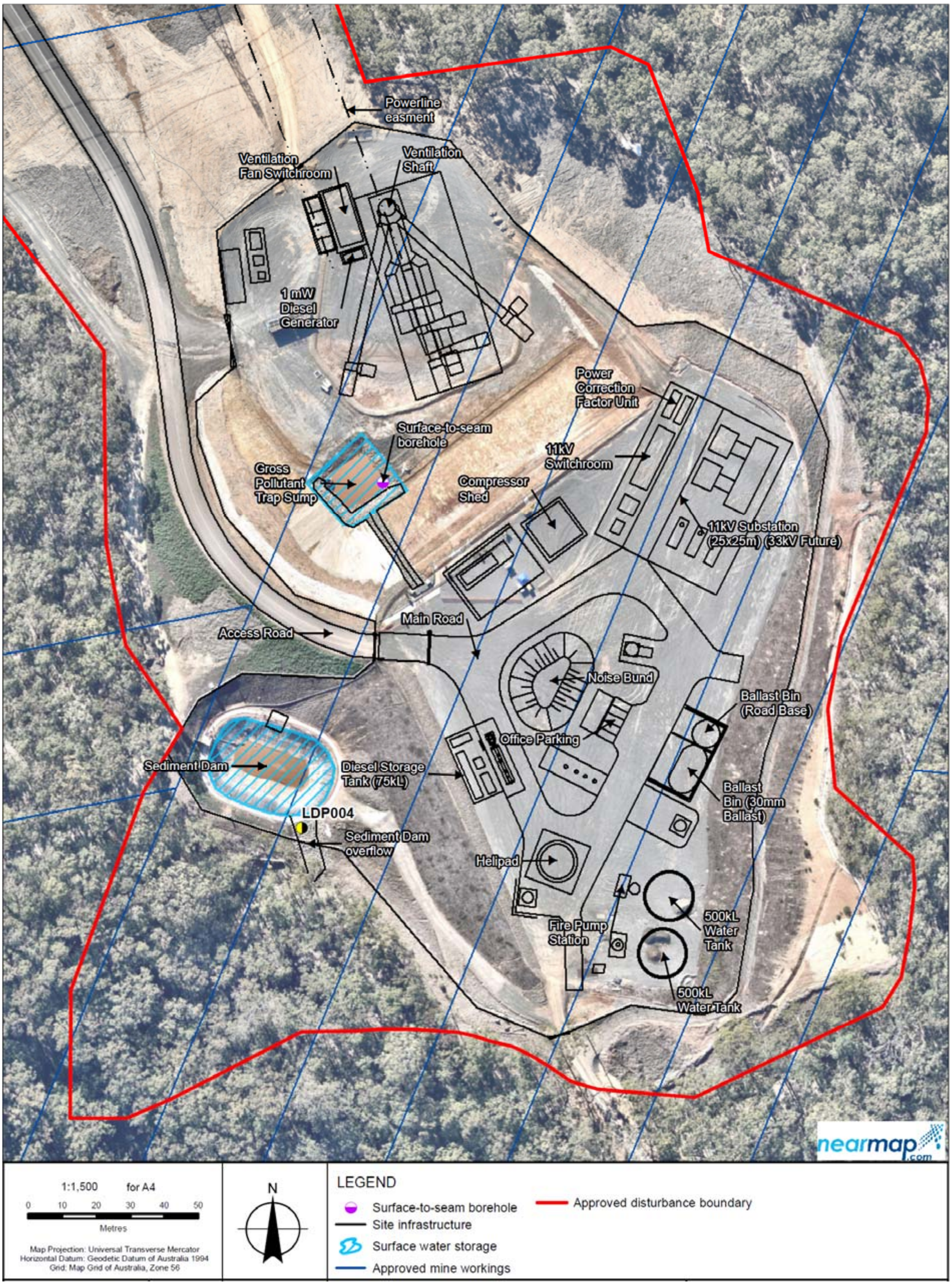

Figure 5: *Mandalong South Surface Site*

Figure 6: *Cooranbong Entry Site*

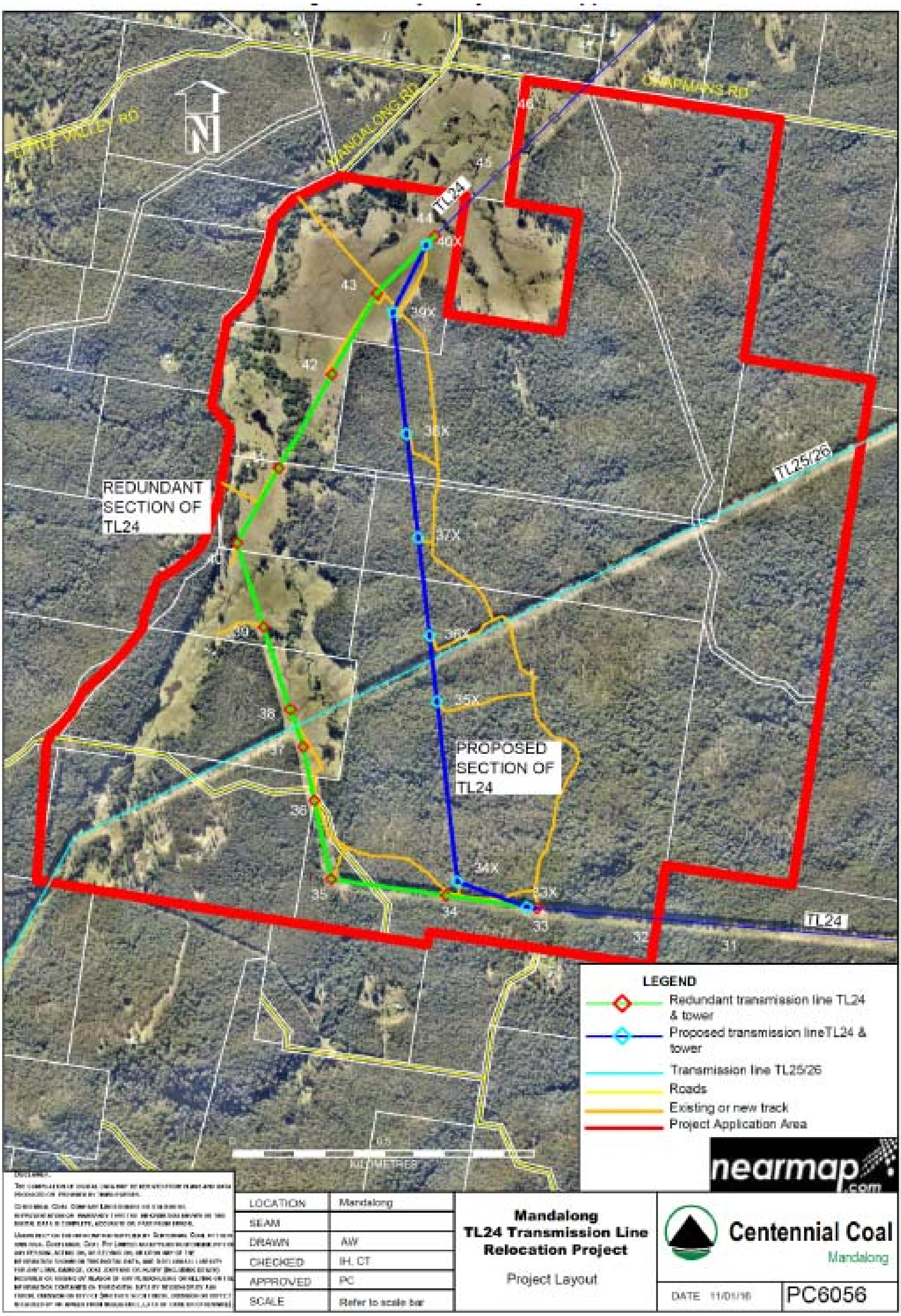

Figure 7: *Relocated TL24 Transmission Line*

APPENDIX 3: NOISE ASSESSMENT

Applicable Meteorological Conditions

1. The noise criteria in Table 2 of the conditions are to apply under all meteorological conditions except the following:
   (a) Wind speeds greater than 3 m/s at 10 m above ground level; or
   (b) Temperature inversion conditions between 1.5 ºC and 3ºC/100m and wind speeds greater than 2 m/s at 10 m above ground level; or
   (c) Temperature inversion conditions greater than 3ºC/100m.

Determination of Meteorological Conditions

2. Except for wind speed at microphone height, the data to be used for determining meteorological conditions must be that recorded by the meteorological station located in the vicinity of the site.

Compliance Monitoring

3. Attended monitoring is to be used to evaluate compliance with the relevant conditions of this consent.

4. Unless the Secretary agrees otherwise, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the *NSW Industrial Noise Policy* (as amended from time to time), in particular the requirements relating to:
   (a) monitoring locations for the collection of representative noise data;
   (b) meteorological conditions during which collection of noise data is not appropriate;
   (c) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment; and
   (d) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration.

APPENDIX 4: NOISE RECEIVER LOCATIONS

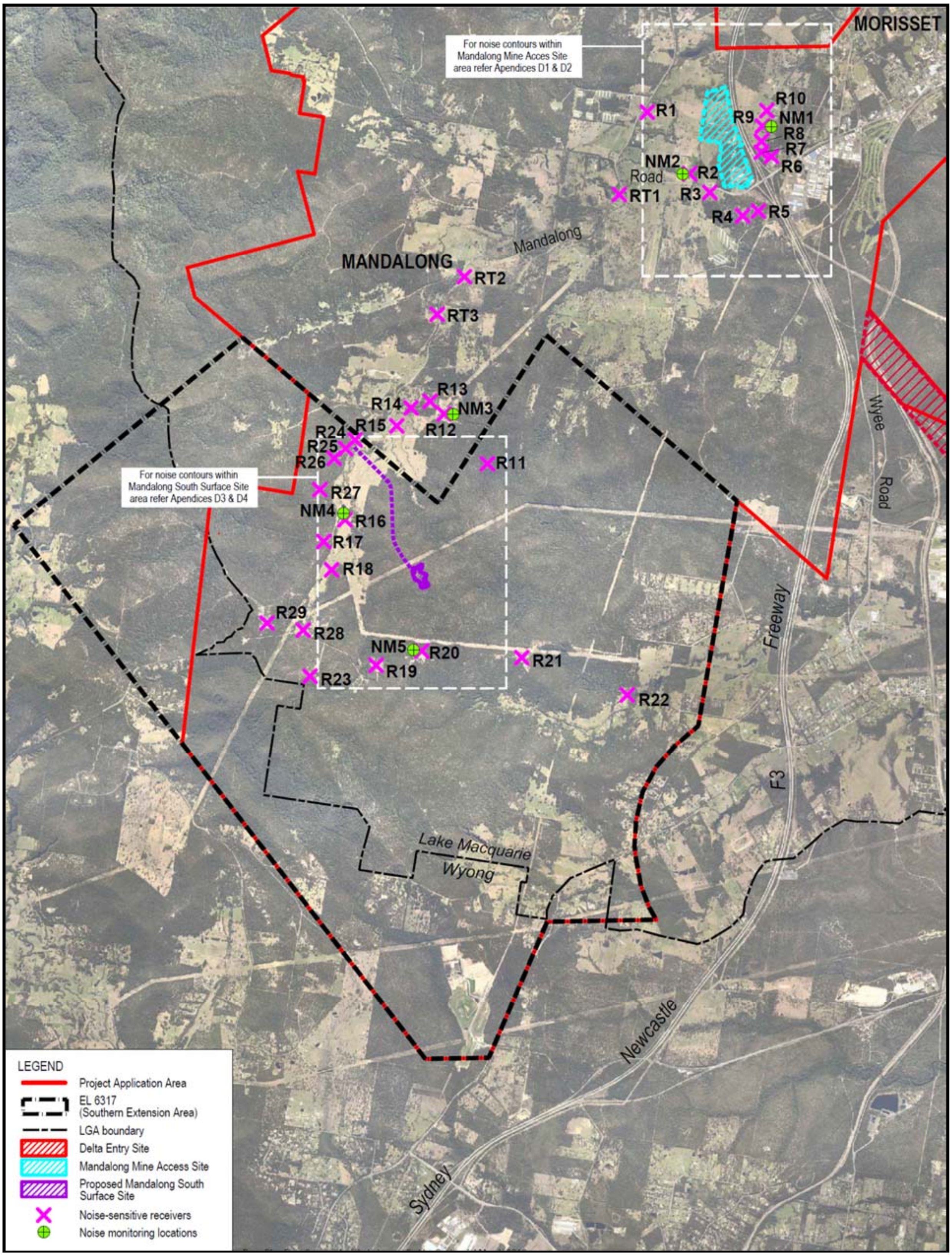

Figure 1: *Representative noise receivers*

APPENDIX 5: BUILT FEATURES

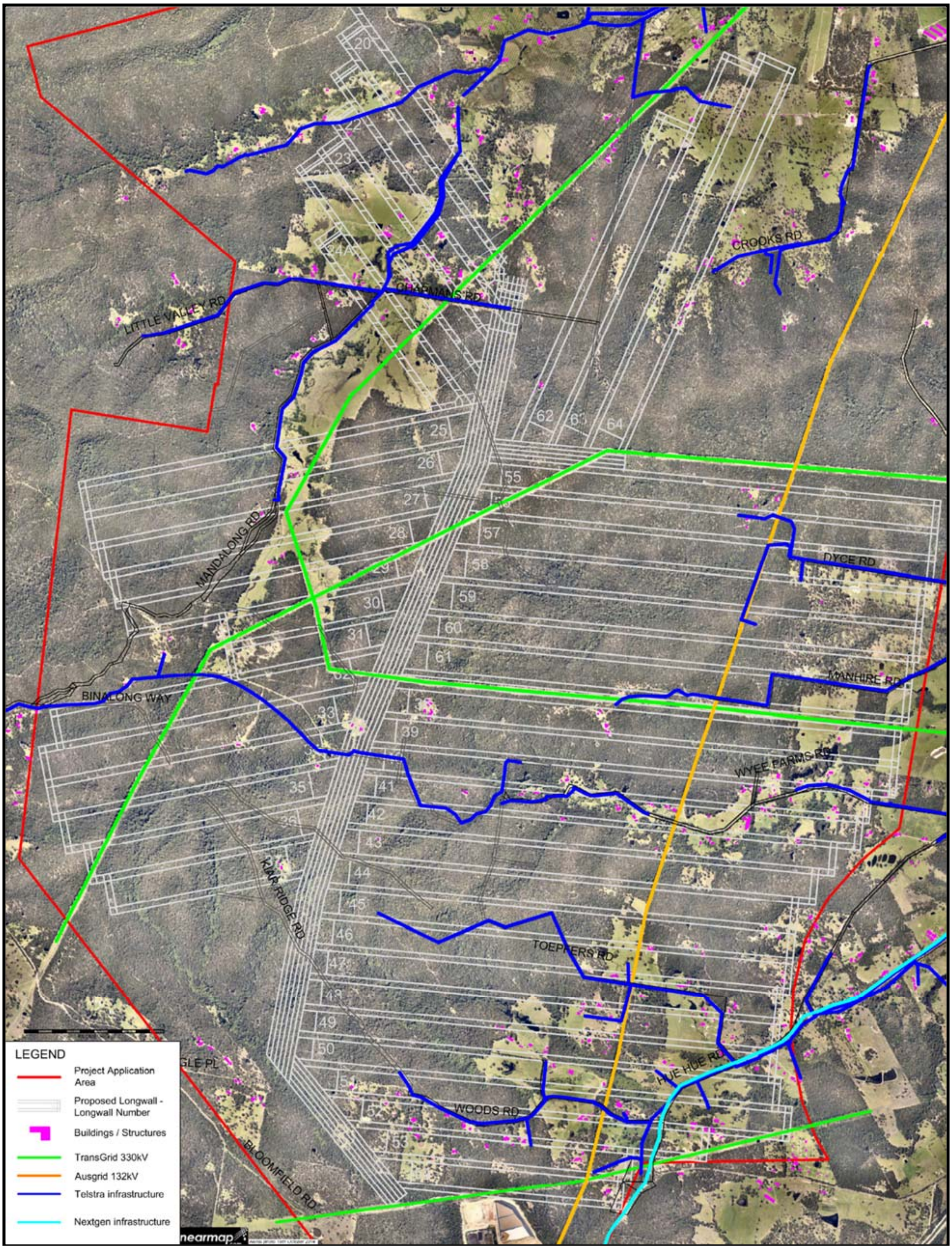

Figure 1: *Built features in the Southern Extension Area*

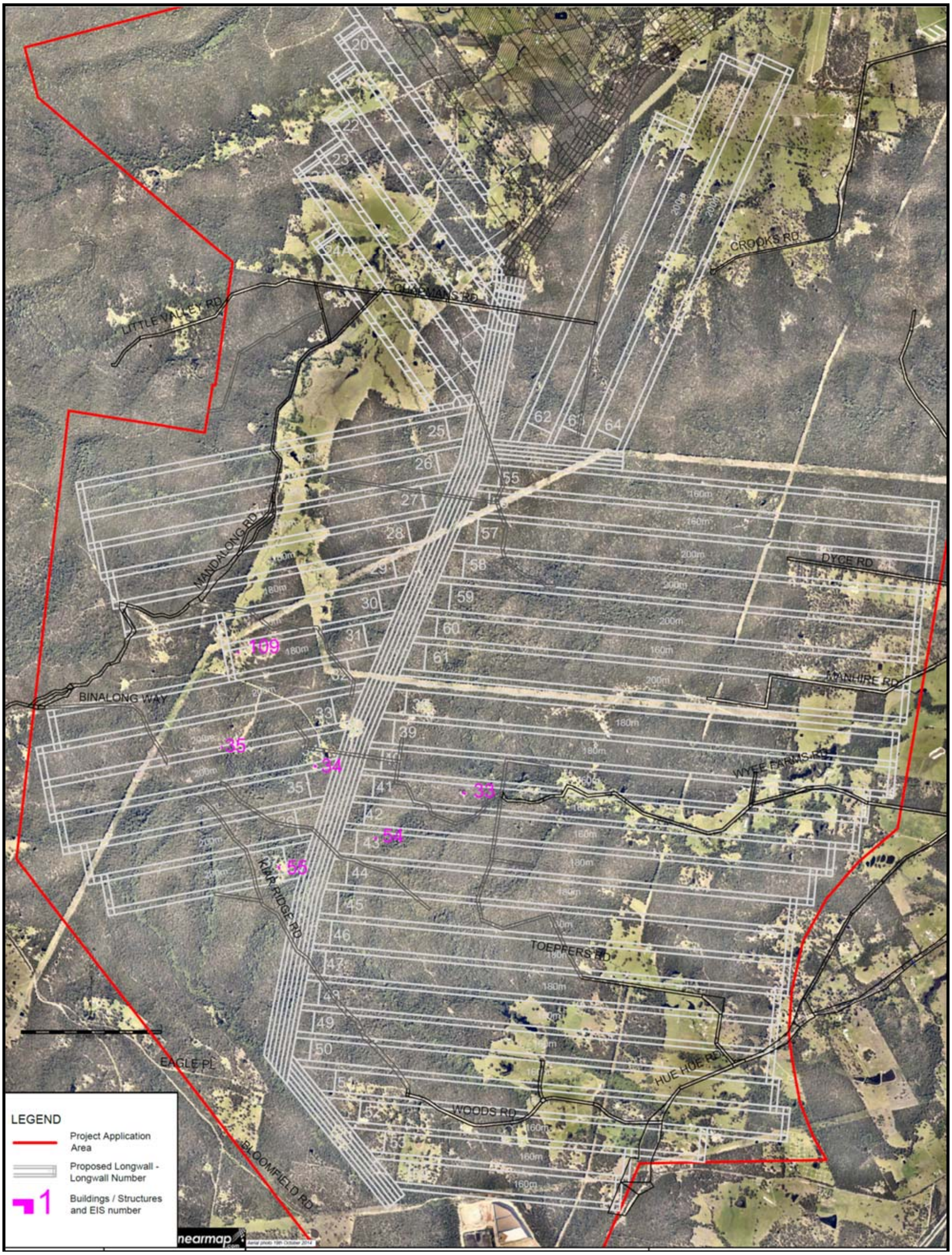

Figure 2: *Residences potentially affected by slope instability or rock rollout*

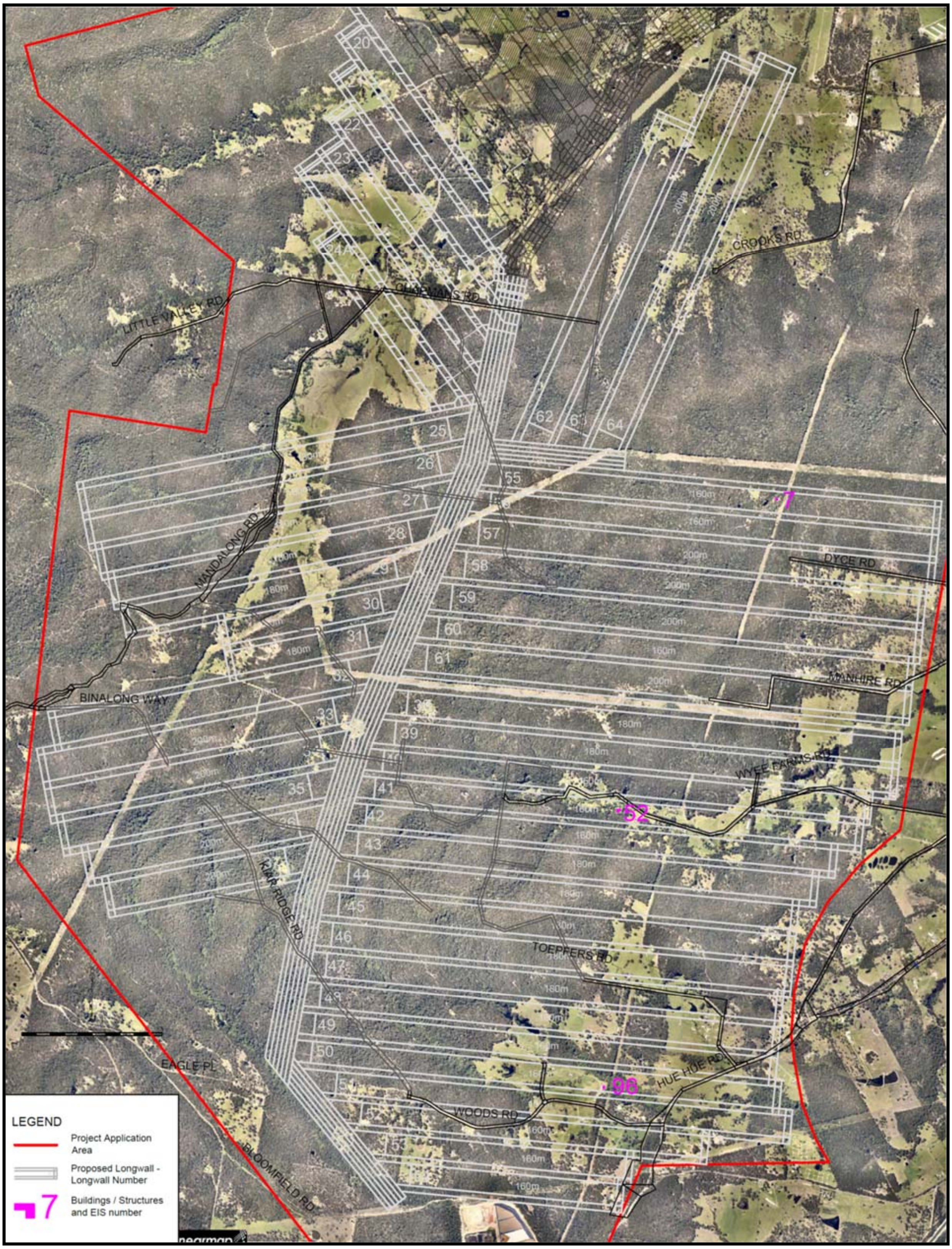

Figure 3: *Properties potentially affected by a 1 in 100 year ARI flood event*

APPENDIX 6: ABORIGINAL CULTURAL HERITAGE

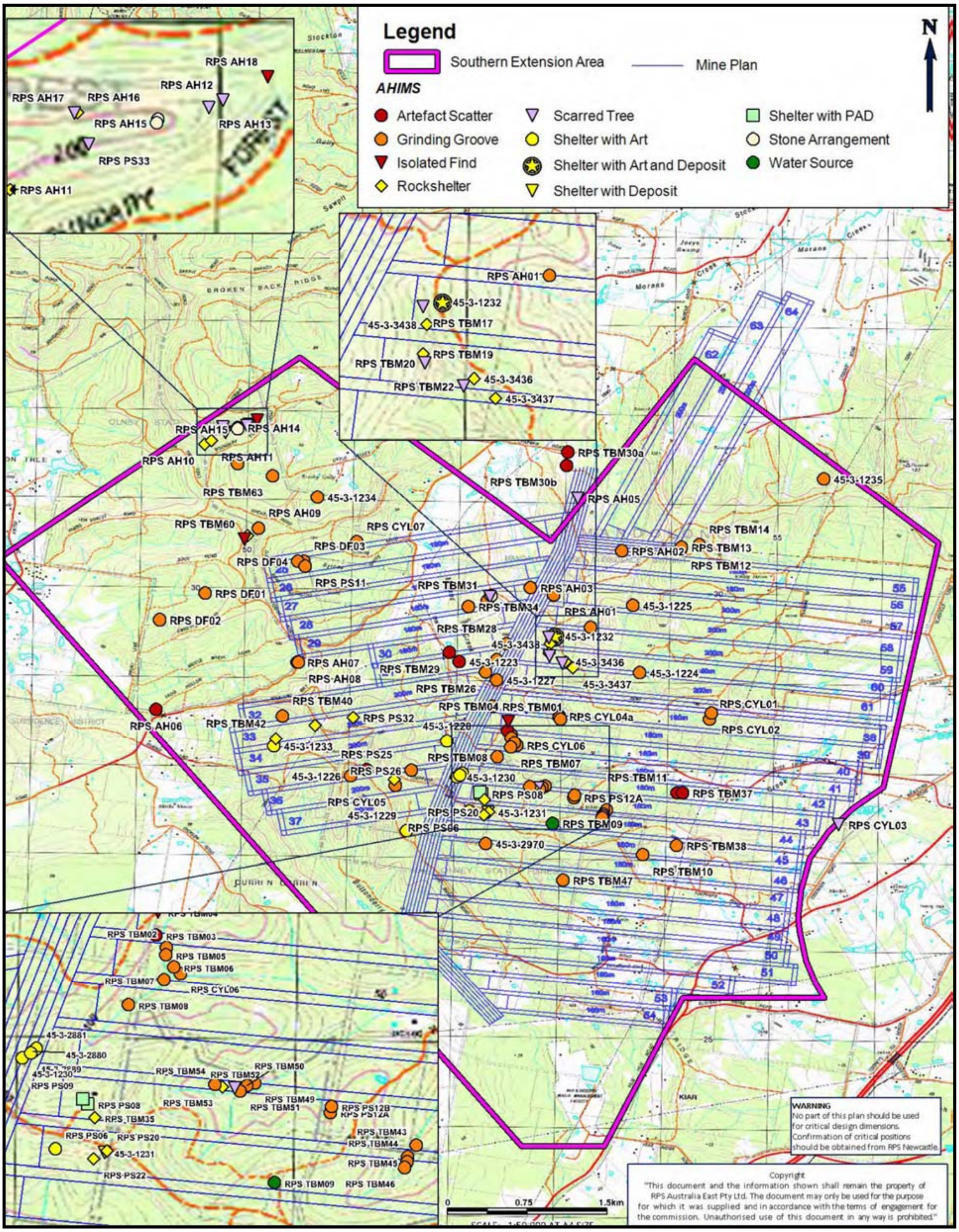

Figure 1: *Aboriginal Cultural Heritage Sites*

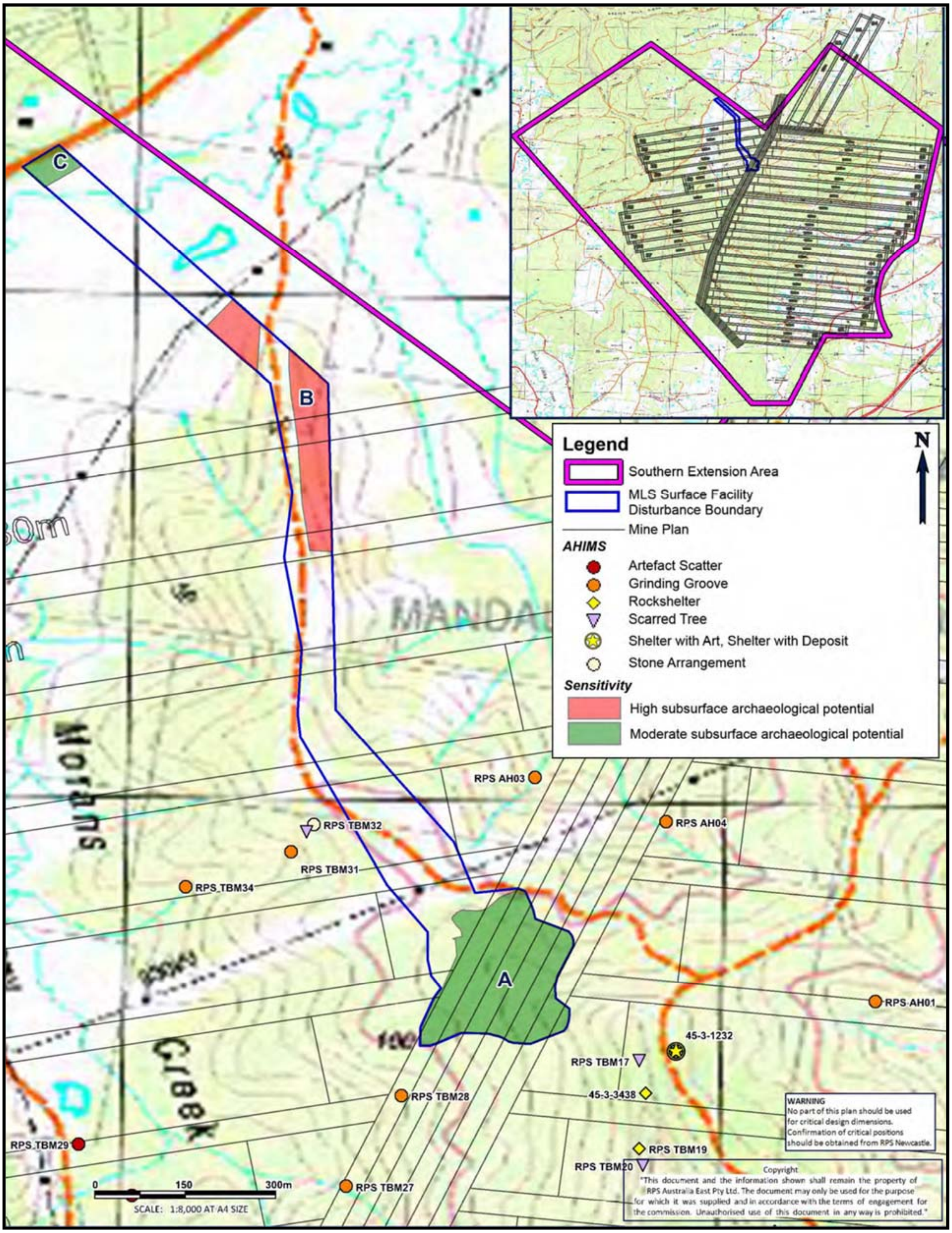

Figure 2: *Areas of the MSSS subject to additional archaeological survey*

Table 1: *Registered Aboriginal Parties*

Awakabal Descendants Traditional Owners Aboriginal Corporation
Awakabal Traditional Owners Aboriginal Corporation
Bahtabah Local Aboriginal Land Council
Biraban Local Aboriginal Land Council
Cacatua Culture Consultants
Darkinjung Local Aboriginal Land Council
Guringai Tribal Link
Wonn 1
Yula-Punaal Education and Healing Aboriginal Corporation

APPENDIX 7: LAND MANAGEMENT STRATEGY

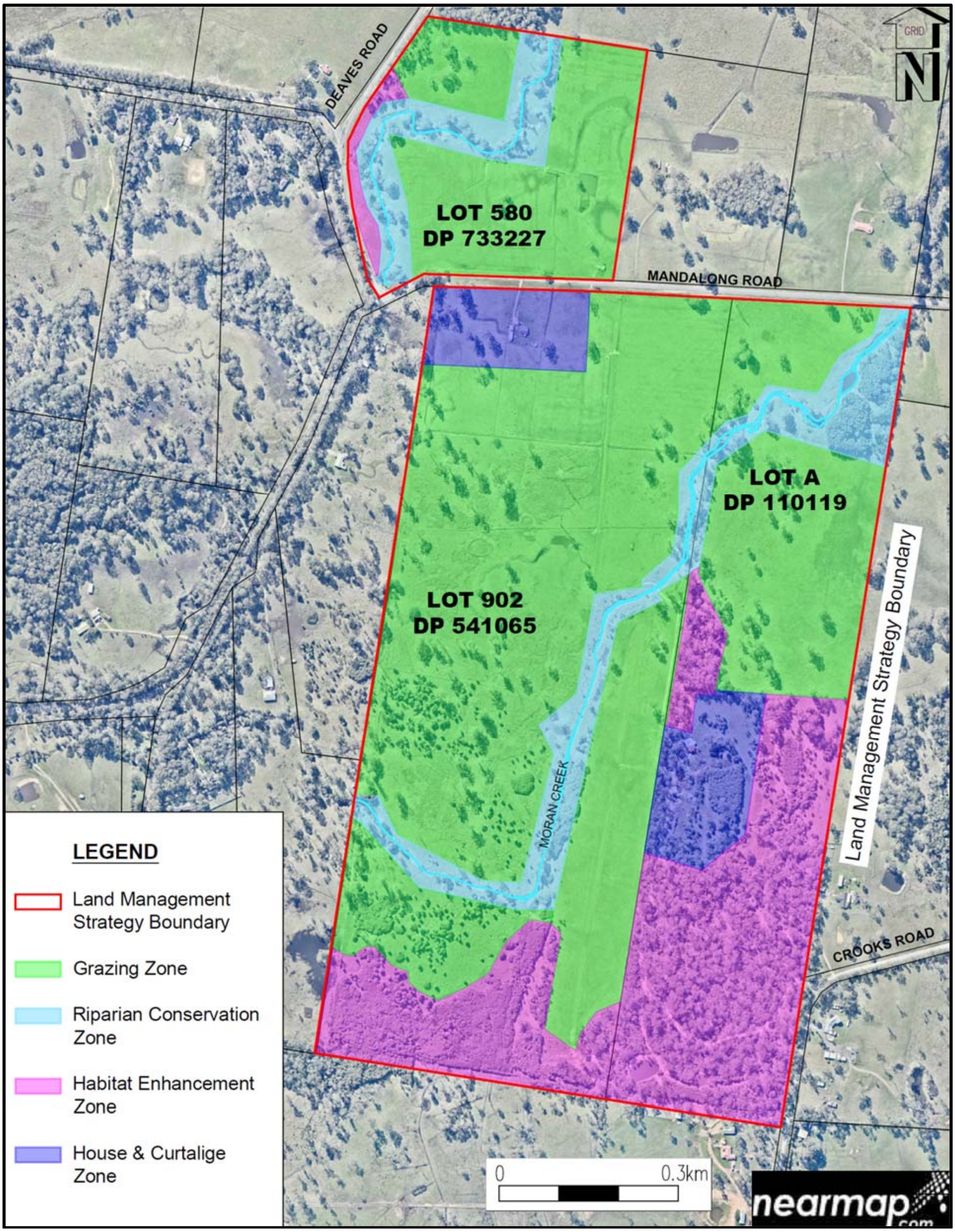

***Figure 1**: Land Management Strategy*

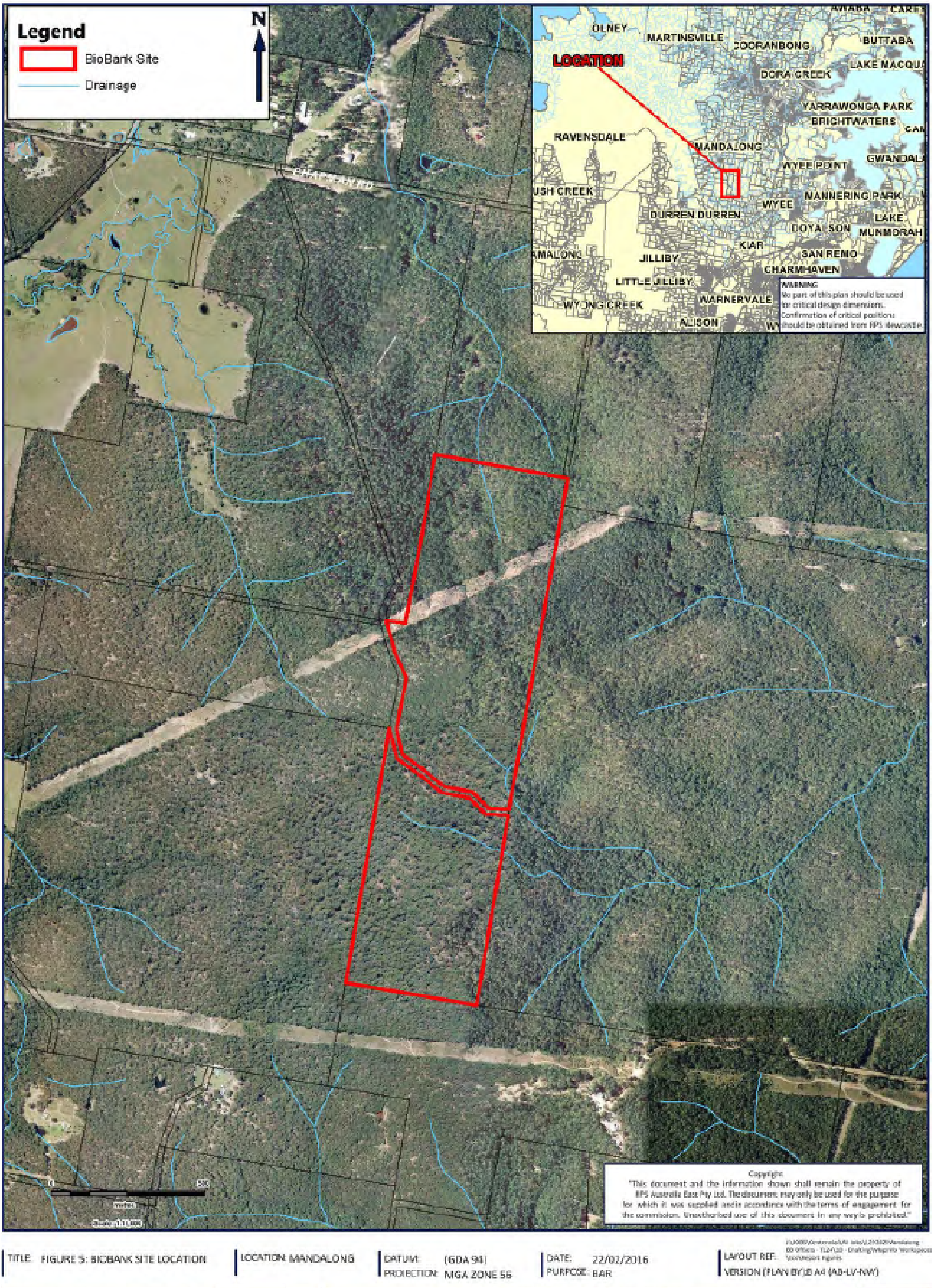

Figure 2: *Land Management Strategy*

APPENDIX 8: APPLICANT'S STATEMENT OF COMMITMENTS

Desired Outcome	Commitment/Action
Construction Management	
Minimise impacts from construction activities from the Mandalong South Surface Site on the environment and sensitive receivers.	Six months prior to the commencement of construction activities at the Mandalong South Surface Site (MSSS), Centennial Mandalong will develop a Construction Environmental Management Plan for the construction phase of the Mandalong South Surface Site and access road. The Construction Environmental Management Plan will ensure: • That vegetation to be removed is clearly marked using temporary fencing (flagging tape or similar) to delineate boundaries and minimise the potential for equipment to accidently enter areas to be retained. • That vegetation adjacent to the disturbance footprint of the proposed Mandalong South Surface Site and access road is fenced (fauna friendly fencing) prior to construction activities to reduce damage from uncontrolled or accidental access. • That material stockpiles are established within already disturbed areas and not within areas of retained vegetation. • Appropriate topsoil management including: – Topsoil will be maintained in a slightly moist condition during stripping, and material will not be stripped in either an excessively dry or wet condition. – Stripping will be timed to take place in unison with any vegetation clearing activity. If planning to mix groundcover/grass with the soil (i.e. not removing groundcover prior to soil stripping), a weed assessment will be undertaken prior to stripping. – Where possible, grading or pushing soil into windrows with graders or dozers for later collection will be undertaken as a preferential less aggressive soil handling systems. – The surface of soil stockpiles will be left coarsely structured (as much as possible) in order to promote infiltration and minimise erosion until vegetation is established, and to prevent anaerobic zones forming. – Topsoil stockpiles will generally be maintained no higher than three metres. – If long-term stockpiling is planned (i.e. greater than three months), the stockpiles will be seeded and fertilised as soon as possible. An annual cover crop species that produces sterile florets or seeds will be sown. A rapid growing and healthy annual pasture sward will provide sufficient competition to minimise the emergence of undesirable weed species. The annual pasture species will not persist in the rehabilitation areas, however will provide sufficient competition for emerging weed species and enhance the desirable micro-organism activity in the soil. – Prior to re-spreading stockpiled topsoil, an assessment of weed infestation on stockpiles will be undertaken to determine if individual stockpiles require herbicide application and / or 'scalping' of weed species prior to topsoil spreading. • That clearing activities are timed, where possible, to avoid removal of hollow-bearing trees during breeding season of threatened species. • That a specialist ecologist is engaged to supervise vegetation clearing and ensure vegetation clearing, particularly the removal of hollow-bearing trees, is undertaken as outlined in this EIS. • Noise impacts are minimised with mitigation measures included in the Noise Management Plan. • Air quality impacts are minimised with mitigation measures included in the Air Quality and Greenhouse Gas Management Plan. • Traffic impacts are minimised by covering loads of bulk material haulage trucks travelling to and from the proposed MSSS and included in the Construction Traffic Management Plan.

Desired Outcome	Commitment/Action
	A copy of the Construction Traffic Management Plan will be provided to Lake Macquarie City Council for review and comment on construction traffic management prior to the commencement of construction activities.
	Rock hammering activities will be undertaken in areas that are away from the majority of residences and limited to between 8.00 am and 4.00 pm Monday to Friday and between 9.00 am and 1.00 pm on Saturdays (no rock hammering on Sundays or public holidays).
	Where necessary, and in consultation with potentially affected residents, temporary noise barriers will be established and maintained.
	To provide acoustic shielding for the shaft sinking activity at the Mandalong South Surface Site, a temporary barrier measuring seven metres high and 20 metres long will be installed at a distance of 20 metres from the drill rig at the intake shaft site (see **Figure 54** of the EIS).
	In exceptional circumstances, Centennial Mandalong will include in the Construction Environmental Management Plan the consideration of (a) installing double glazing, (b) subsidising residents to relocate during noisy periods and (c) residents with existing medical conditions.
Exploration Drilling	
Enable Centennial Mandalong to conduct exploration activities in an environmentally responsible manner with due consideration to the community	Due-diligence field inspections and targeted surveys of proposed drill sites and access tracks will be undertaken by a qualified ecologist prior to commencement of works to ensure the potential for localised issues are minimised and, where necessary, appropriately managed.
	Prior to the commencement of works, Centennial Mandalong will ensure that the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010) is followed prior to the commencement of works. Proposed drill sites and access tracks will be inspected according to the protocols in the approved ACHMP.
	Consultation with potentially noise affected landholders will be undertaken in accordance with a Stakeholder Engagement Strategy in which all neighbouring landholders and any residents within 450 metres of a drill rig are notified of the timing, location and anticipated duration of the exploration drilling activities. Where drilling is to be undertaken in close proximity of residents, noise mitigation measures will be implemented.
	Specific bushfire risk treatment actions will be implemented, including: • No drilling will be conducted on total fire ban days; • Firefighting equipment will be kept on active sites at all times; and • Hot work activities will be required to obtain internal work permits. Access provisions to each drill site will be identified prior to commencement of works.
	Upon completion of exploration activities, all boreholes and surface disturbance will be sealed and rehabilitated in accordance with the appropriate guidelines at the time.
Mining Operation	
Continue mining operations of the Mandalong Mine	Centennial Mandalong will continue to extract ROM coal at a rate of up to 6 Mtpa.
	Centennial Mandalong will continue to operate Mandalong Mine 24 hours a day, seven days per week.
Environmental Management and Reporting	
Enable Centennial Mandalong to manage its operations in an environmentally appropriate manner	Centennial Mandalong will review and update the Mandalong Mine Environmental Management Strategy (EMS), including issue-specific environmental management plans and monitoring programs. The review will take into consideration the environmental assessments undertaken as part of this EIS, the commitments made in this EIS and all relevant consent conditions.
	Centennial Mandalong will include a process to review the groundwater, surface water and flood models as part of the Water Management Plan.
	Centennial will consult with NSW Fisheries in the development of the Water Management Plan.
Enable Centennial Mandalong to	Centennial Mandalong will continue to report environmental monitoring results on Centennial's website in accordance with the POEO Act requirements.

<table>
<tr><th>Desired Outcome</th><th>Commitment/Action</th></tr>
<tr><td>meet its statutory reporting obligations</td><td>Each year, Centennial Mandalong will prepare an Annual Review, which will report environmental monitoring results and evaluate performance for the previous 12 month period, to be distributed to the relevant government agencies and the Mandalong Mine Community Consultative Committee.</td></tr>
<tr><td colspan="2">Subsidence Monitoring and Management</td></tr>
<tr><td rowspan="2">Manage subsidence associated with coal extraction from Mandalong Mine</td><td>Six months prior to the development of longwall 25, Centennial Mandalong will prepare the first Extraction Plan to manage subsidence associated with the proposed mining in the Southern Extension Area.</td></tr>
<tr><td>As part of the development of each Extraction Plan, Centennial Mandalong will update the Public Safety Management Plan and Built Features Management Plans in consultation with the relevant infrastructure owners.</td></tr>
<tr><td colspan="2">Soil and Land Capability</td></tr>
<tr><td rowspan="2">Appropriate management of topsoil during construction activities</td><td>Centennial Mandalong will incorporate soil stripping, handling, stockpiling and transportation management activities into the Construction Environmental Management Plan for the Mandalong South Surface Site.</td></tr>
<tr><td>Centennial Mandalong will ensure that soils in the Wyong Soil Landscape Unit are not disturbed as a result of construction activities so that they do not pose a risk to Acid Sulphate Soil mobilisation.</td></tr>
<tr><td>Managing topsoil resources for future rehabilitation uses</td><td>During construction of the Mandalong South Surface Site, Centennial Mandalong will develop and maintain a soil inventory to keep track of topsoil materials available for planned rehabilitation activities.</td></tr>
<tr><td colspan="2">Groundwater</td></tr>
<tr><td rowspan="4">Minimise and monitor groundwater impacts on the environment and registered water users</td><td>For each Extraction Plan, Centennial Mandalong will include in the Water Management Plan (Condition 6 of Schedule 4) the following:
Proposed locations of nested monitoring bores at locations where the depth of cover is less than 250 metres. This is primarily throughout the north-eastern extent within the Wyee Creek and Mannering Creek catchments. It is intended to install three monitoring bores (nested) above each of the proposed longwall panels (2 years prior to mining and pending landholder granting access) where the depth of cover is less than 250 metres to monitored groundwater levels, pH and electrical conductivity. Monitoring will continue for a period of 2 years following the completion of mining in the subsequent adjacent panel.
Groundwater monitoring bores and/or vibrating wire piezometers within the Southern Extension Area to monitor the height of groundwater depressurisation prior to extraction of longwalls with lower depth of cover. An adaptive management approach will be adopted to ensure that if there is a risk of fracturing extending up to alluvial aquifers (based on monitoring data) actions will be taken to mitigate these impacts.
Installation of groundwater monitoring bores within areas of groundwater dependant ecosystems.
Monitoring of bore GW078601, which is the only registered water supply bore within the Southern Extension Area, subject to landowner approval.</td></tr>
<tr><td>Centennial Mandalong will commit to implement “make good provisions” to any water supply work where the drawdown impacts exceed the 2 metre criteria as specified in the NSW Aquifer Interference Policy.</td></tr>
<tr><td>Each year, Centennial Mandalong will engage a specialist to undertake an analysis of alluvial groundwater levels to identify non-rainfall related trends.</td></tr>
<tr><td>During construction of the shafts at the Mandalong South Surface Site and where blind boring techniques are employed, Centennial Mandalong will ensure groundwater loss is limited by minimising the construction time and the time that the shafts are unlined.
Centennial Mandalong will also use non-hazardous polymer drilling muds during boring to reduce the flow of groundwater into the hole.</td></tr>
<tr><td colspan="2">Surface Water</td></tr>
</table>

Desired Outcome	Commitment/Action
Monitor surface water impacts on the environment	For each Extraction Plan, Centennial Mandalong will include in the Water Management Plan (Condition 6 of Schedule 4) the following: • Monitoring of the watercourses within the Southern Extension Area to be undermined, particularly in locations identified as potential scouring points, to evaluate watercourse stability. Monitoring will be undertaken before and after undermining of the areas, with additional inspection of these locations following significant rainfall events. • Surface water quality monitoring at the same locations within the Southern Extension Area used to gather background information. • Continuous stream flow monitoring on Morans Creek, Mannering Creek, and Wyee Creek will be undertaken 2 years prior to mining and for 2 years after the completion of mining the adjacent longwall panel. • TARPs for the management of subsidence impacts on watercourses in consultation with relevant government agencies.
Manage impacts to waterways as a result of ongoing operations within the Project Application Area	Centennial Mandalong will undertake any works within watercourses and on the floodplain in accordance with the *Guidelines for Controlled Activities on Waterfront Land (2012).*
Water Management	
Appropriate management and discharge of mine water at Cooranbong Entry Site	If the quality of mine water collected in the Borehole Dam is not suitable for discharge from the Cooranbong Entry Site, the water will be pumped back underground for recirculation (additional filtration and sediment settlement) through the Cooranbong Colliery goaf storage area before returning to the Borehole Dam. The storage volume of the Borehole Dam at the Cooranbong Entry Site will be increased to increase the settling capacity. In additional baffles will be retrofitted in the Borehole Dam to provide increased residence time and a flocculent will be introduced. Aquatic macroinvertebrate monitoring and sediment sampling will be undertaken every six months (spring and autumn).
Flora and Fauna	
Minimise impacts to ecology within the Southern Extension Area	As part of the detailed design phase for the Mandalong South Surface Site, Centennial Mandalong will ensure that that proposed access road is aligned to minimise disturbance and avoid removal of any *M. biconvexa* specimens.
	Centennial Mandalong will implement a vegetation condition monitoring programme 2 years before, during and 2 years after completion of mining in the adjacent longwall panel in sensitive environments (which will include floodplains and groundwater dependant ecosystems).
	As part of the construction activities at the Mandalong South Surface Site, a wheel wash will be installed to help prevent soil-borne disease (Phytophthora), pathogenic fungus (Myrtle Rust) transmission and weed seed dispersal.
	Centennial Mandalong will develop a Biodiversity Management Plan that includes: • Identification of weed management, monitoring and control practices to minimise the spread of exotic species. • Incorporation of the existing Wetland Management Plan. • Trigger Action Response Plan.
Offset the ecological impacts of the Project	Centennial Mandalong will install nest boxes to compensate for the loss of 9 hollow bearing trees containing 18 habitat hollows as a result of the construction of the MSSS. • Nest boxes will be installed at a ratio of 1:1 (i.e. one nest box for every habitat hollow removed). • A mixture of nest box types are used to compensate for the variety of hollows being removed. • Nest box sizes will target microbats, gliders and possums. • All nest boxes will be rear entry.

Desired Outcome	Commitment/Action
	• The majority of nest boxes will be placed at a westerly aspect to maximize chances of colonization. • Standard nest box design (i.e. single walled nest boxes) will be used rather than double walled nest boxes as previous monitoring has identified a sharper uptake of animals in single-walled nest boxes.
Aboriginal Heritage	
Monitor, mitigate and manage impacts to Aboriginal heritage sites	Centennial Mandalong will update the Centennial Northern Holding's ACHMP (in consultation with the relevant government agencies and registered Aboriginal parties) to take into consideration the commitments made in the EIS and any relevant consent conditions.
	Immediately prior to and during construction of the Mandalong South Surface Site, Centennial Mandalong will ensure that a combination of silt and protective fencing is installed to ensure that run-off does not impact Aboriginal sites down slope of this area and that Aboriginal sites upslope are not inadvertently impacted by construction activities.
	Centennial Mandalong will develop a cultural heritage awareness component of the induction for contractors involved in the construction activities in consultation with the Aboriginal community.
	Centennial Mandalong will ensure all employees and contractors working within the Southern Extension Area are made aware of their statutory obligations for Aboriginal heritage under the NPW Act 1974 as part of the site induction process.
Offset the Aboriginal heritage impacts of the Project	Within 12 months following development consent, Centennial Mandalong will formalise an agreement to authorise the local Aboriginal community access to suitable areas within its land holdings in the Southern Extension Area that contain Aboriginal cultural heritage sites.
Non-Indigenous Heritage	
Minimise impacts to items of European heritage	Six months prior to the commencement of construction activities associated with the Mandalong South Surface Site, Centennial Mandalong will ensure that the Landing Skid 2 is recorded by a qualified historical archaeologist.
	In the event that any additional non-Indigenous cultural heritage material is identified or uncovered during construction and/or exploration works, Centennial Mandalong will ensure that any surface works in the area ceases and will contact a heritage consultant to assess the condition of the item. Centennial Mandalong will adopt the appropriate mitigation measures, as provided by the heritage consultant, before recommencement of work.
	Centennial Mandalong will ensure that all employees and contractors working within the Southern Extension Area will be made aware of their statutory obligations for non-Indigenous heritage under the *NSW Heritage Act 1977* as part of the site induction process.
Air Quality	
Monitor air quality impacts	Centennial Mandalong will update the Air Quality and Greenhouse Gas Management Plan to include the following: • Additional deposited dust gauges around the proposed Mandalong South Surface Site for both the construction and operational phases. • A PM10 and PM2.5 monitoring system, which will be used for model verification purposes and particulate management at the Mandalong Mine Access Site. The optimal location for these additional monitoring activities, along with the method and frequency of the monitoring activities, will be determined in consultation with a suitably qualified consultant.
Mitigate air quality impacts	The fan evasée at the Mandalong South Surface Site will be designed and constructed to face away from nearby surrounding residential receivers.

Desired Outcome	Commitment/Action
	The proposed MSSS access road will be sealed.
	All trucks carrying bulk materials (gravel, sand etc.) to the MSSS will have their loads covered.
Understand the source of particulate matter	Within six months following development consent, Centennial Mandalong will commission additional studies to establish the source of the particulate matter entering the mine and the contribution of this to the total emissions from the ventilation's fans at the Mandalong Mine Access Site. These studies will inform the need for and scope of mitigation measures and management strategies considered necessary to address particulate matter emission from the ventilation fans.
Greenhouse Gas	
Reduce energy and diesel usage	Centennial Mandalong will update the existing Energy Savings Action Plan to include: • Use of power factor correction units at the Mandalong South Surface Site, which will improve the efficiency of the electrical power used in the underground workings and hence reduce the overall power consumption. • Underground storage/goaf areas will be used in the management of mine water to enable filtration and sediment settlement prior to the water being pumped to the surface. This will reduce energy losses through the ability to pump cleaner water with the use of high efficiency positive displacement pumps. • Bulk storage tanks/silos and boreholes will be installed at the Mandalong South Surface Site for the delivery of stone dust, concrete and ballast direct to the underground mine workings. This will result in significant diesel fuel savings by avoiding the transport of such materials via the decline tunnel.
Mitigate greenhouse gas emissions from the Project	Centennial Mandalong will progress the construction and commissioning of the gas flares, along with evaluating the electricity potential and capacity of the gas engines, at the Mandalong Mine Access Site to reduce greenhouse gas emissions.
	Centennial Mandalong will continue the trial of the VAM-RAB unit currently being constructed at the Mandalong Mine Access Site in order to determine whether it is a viable strategy for VAM abatement in the future.
	Centennial Mandalong will pay the relevant price per tonne of CO2-e (carbon tax), depending on the year the liability is incurred, or purchase offsets. Where offsets are available and considered cost-effective, Centennial Mandalong will purchase only from registered suppliers under the relevant domestic or international certification scheme (the latter from July 2015 onwards).
Noise	
Monitor noise impacts from the Project	Centennial Mandalong will update the existing Noise Management Plan to include quarterly operator-attended noise monitoring at and around the Mandalong South Surface Site.
Traffic	
Provide suitable and safe vehicle access to the Mandalong South Surface Site from Mandalong Road	As part of the detailed design phase for the Mandalong South Surface Site, Centennial Mandalong will ensure: • The access intersection from Mandalong Road to the proposed Mandalong South Surface Site is designed to be constructed as an at-grade (two roadways joining at the same level) BAR/CHL intersection (basic right turn treatment / channelised left turn) providing a left turn turning lane into the site. • The intersection is designed in accordance with Guide to Road Design Part 4A – Design of Unsignalised and Signalised Intersections (Austroads 2009). • That LMCC are consulted regarding the final location of the intersection. Appropriate sight distances along Mandalong Road and appropriate turning templates for heavy vehicles are achieved.
Identify and address any impact on road pavements as a	Within 3 months of completion of construction activities at the Mandalong South Surface Site, Centennial Mandalong, in consultation with LMCC, will undertake a road dilapidation review to identify areas of road pavement deterioration requiring maintenance treatment that could be directly attributed to the construction activities. These areas will be rehabilitated to Council's satisfaction by Centennial Mandalong.

Desired Outcome	Commitment/Action
result of construction	
Visual Amenity	
Minimising visual impacts from the Mandalong South Surface Site	During construction of the Mandalong South Surface Site, Centennial Mandalong will ensure that, wherever possible, infrastructure items are dark in tone and constructed of non-reflective materials.
	Within six months of construction activities at the Mandalong South Surface Site being completed, Centennial Mandalong will undertake landscape works, including along the proposed MSSS access road, such as shrub and tree planting, to increase the level of existing screening.
Bushfire	
Provide safe egress in the event of a bushfire	During construction of the Mandalong South Surface Site, Centennial Mandalong will establish an alternative egress route from the Mandalong South Surface Site and ensure it has a carrying capacity exceeding 15 tonnes.
Reduce risk of injury to personnel at the Mandalong South Surface Site in the event of a bushfire	Prior to commissioning the operation of the Mandalong South Surface Site, Centennial Mandalong will provide a safe place or fire bunker at the Mandalong South Surface Site to address the potential for an employee/contractor/visitor to be trapped at the surface site and unable to evacuate via the access road or alternate egress route.
Reduce risk to Centennial Mandalong infrastructure and local landholders' properties from bushfire	Within six months following development consent, Centennial Mandalong will review and update the existing Emergency Management System to incorporate the findings and conclusions of the bushfire risk assessment (Ecobiological 2013), the commitments made in the EIS and all relevant consent conditions.
	Subject to approval from the NSW Rural Fire Service, Centennial Mandalong will engage a specialist to undertake mosaic burns of forest vegetation outside of the designated APZ on a cyclic basis to reduce overall fuel loads approaching the APZ.
	Within three months of the completion of construction activities, Centennial Mandalong will establish the following Asset Protection Zones (APZs) in order provide a defendable space around infrastructure and avoiding flame contact and radiant head exceeding 40 kilowatts per square metre: Mandalong Mine Access Site – an APZ will be established around the gas drainage and ventilation management infrastructure to the following distances - 20 metres to the north, south and west; and 10 metres to the east. Mandalong South Surface Site – an APZ will be established around the infrastructure to the following distances – 45 metres to the north and south; 20 metres to the east; and 30 metres to the west. Fuel reduction will be undertaken within these APZs by regular grass slashing, weed control, reducing tree canopy cover to less than 30 percent, lopping tree branches within three metres of ground fuels, reducing the shrub layer density to less than 20 percent, and removing timber piles and combustible materials.
	Within six months following development consent, Centennial Mandalong will extend the water supply system at the Mandalong Mine Access Site to include reticulated water supply and hydrant access in the area containing the gas drainage and ventilation infrastructure.
	Prior to commissioning the operation of the Mandalong South Surface Site, Centennial Mandalong will ensure the Mandalong South Surface Site has a dedicated water supply of greater than 20,000 litres for bushfire protection. This supply will be connected to a hydrant system or a stand pipe with suitable truck access.
	Centennial Mandalong will ensure buildings that contain combustible infrastructure include ember protection similar to the relevant standards in the *Australian Standard AS3959-2009 – Construction of Buildings in Bushfire-Prone Areas*. This will generally involve sealing or screening areas with gaps greater than 3 millimetres.
Dangerous Goods	

Desired Outcome	Commitment/Action
Provide safe storage, handling and disposal of dangerous goods	Within six months following development consent, Centennial Mandalong will review and update the existing Emergency Management System and Pollution Incident Response Management Plan to incorporate the Project, the commitments made in this EIS and all relevant consent conditions.
Social	
Continue to engage with stakeholders	Within six months following development consent, Centennial Mandalong will update the existing Stakeholder Engagement Strategy to provide a consistent management framework for the identification and consultation with stakeholders that have an interest in the mine.
Meet Centennial's corporate social responsibility objectives	Centennial Coal has established, in consultation with LMCC, a Morisset / Mandalong Community Fund with The Lake Macquarie Foundation. Centennial Coal has committed the following: (a) $50,000 upon the granting of the Development Consent; and (b) $50,000 on each anniversary of the granting of the Development Consent until the total amount given by the Donor is $500,000. The above payments are subject to the Mandalong Mine operating and any annual payment otherwise due will be reduced proportionally to reflect any period during which the Mandalong Mine is not operating. The Lake Macquarie Foundation will distribute the income from the fund: (a) to worthy community organisations in the Morisset and Mandalong areas; and (b) after consultation with a representative from each of the Morisset and Mandalong communities.
Post-Mining Closure and Rehabilitation	
Rehabilitate the mine to an agreed final land use	Within five years of mine closure, Centennial Mandalong will prepare a detailed Mine Closure Management Plan with the aim of creating a land use capability compatible with the pre-mining land use (unless other beneficial uses are pre-determined and agreed). In addition to addressing the removal of surface infrastructure, the Plan will include: • Rehabilitation of disturbed areas including spreading of stockpiled topsoil accordance with commitments in this EIS, revegetation using locally occurring native plant species, and rehabilitation of disturbed land to a condition that is self-sustaining or where maintenance requirements are consistent with an agreed post-mining land use; and • Final rehabilitation success criteria.

MOD 1 – MANDALONG TRANSMISSION LINE TL24 RELOCATION PROJECT

Category	Commitment/Action
General	Prior to commencement of construction activities for the Project, a Construction Environmental Management Plan (CEMP) will be developed. The CEMP will address mitigation and management actions identified for the relevant environmental values. TransGrid's existing Environmental Management System and supporting policies and procedures are in place for the operation and maintenance of TL24.
Ecology	A Flora and Fauna Management Plan will form an Appendix to the CEMP. This plan will include: • Unnecessary vegetation clearing will be avoided by marking the clearing limit with flagging tape; • All contractors will be advised of the designated work area through a site induction process; • Vehicles/machinery will use designated access tracks. Speeds will be limited to 40 kilometres per hour to reduce the potential of fauna strike and to reduce dust generation; • Measures will be implemented as required to prevent the spread of weeds and potential importation of Phytophthora;

Category	Commitment/Action
	• Where possible, clearing activities should be timed to avoid removal of hollow-bearing trees during breeding season of threatened species (avoiding winter and spring); and • A suitably qualified person is to be present to supervise hollow-bearing tree clearing within the impact area. Lot 152 DP 755238 will be included in the Mandalong Mine Land Management Strategy to offset the impacts of vegetation clearing for the Project.
Erosion and Sediment Control	An Erosion and Sediment Control Plan (ESCP) will form an Appendix to the CEMP. The ESCP will identify works as necessary to ensure the required protection is given to downslope lands and waterways. The ESCP will specifically address: • Tunnel soil erosion; and • Mitigation and management measures in accordance with Managing Urban Stormwater: Soils and Construction – Vol 1 (Landcom, 2004) – also know as the 'Blue Book'.
Traffic	A Construction Traffic Management Plan will form an Appendix to the CEMP to address the impacts of the construction works on the local road network. Construction traffic will not exceed 79 vtph.
Heritage	The CEMP will include the following: • 'No go zone' to be established at sites AHIMS#45-3-1227, AHIMS#45- 3-3534, AHIMS#45-3-3539, AHIMS#45-3-3541 and AHIMS#45-3-3540 for the duration of the proposed works; • If unrecorded Aboriginal objects are identified in the TL24 Easement during future works, all works in the immediate area must cease and the area should be cordoned off as appropriate with high visibility tape. OEH must be notified via the Enviroline (131 555) so that the site can be adequately assessed and managed; • If skeletal remains are identified all work must cease in the immediate area to prevent any further harm to the remains. Local NSW Police must be contacted immediately. No action is to be undertaken until police provide written notification. If the remains are identified as Aboriginal, the OEH Enviroline (131 555) must be contacted. No work is to continue until OEH provides written notification about the action plan for the management of the skeletal remains and formulated a management plan if required; • If during the course of development works, suspected historic cultural heritage material is uncovered, work should cease in that area immediately. The OEH Enviroline (131 555) should be notified and works only recommence when an approved management strategy has been developed; • L1 landing skid: If it is not possible to avoid harming the skid, it will be archivally recorded by a qualified historical archaeologist prior to dismantling. The archival recording should be in accordance with How to Prepare Archival Records of Heritage Items (NSW Heritage Office) and Photographic Recording of Heritage Items using Digital Film or Capture (NSW Heritage Office 2006); and • L3 landing skid: The area of the skid will be cordoned off to ensure no inadvertent physical impact.
Air Quality	The CEMP will include air quality mitigation and management strategies which will include: • Standard work procedures to minimise emissions of particulate matter for example maintaining plant and equipment to ensure optimal operating conditions; and • Utilising water sprays/carts to dampen exposed surfaces and trafficable areas including operations near R16 and R20 due to the close proximity of the tower to the residence.
Noise	The CEMP will include noise mitigation and management strategies which will include: • Restrict construction activities to the day-time period as per the NSW Interim Construction Noise Guideline (DECCW, 2009) being Monday to Friday 07:00 to 18:00, Saturday 08:00 to 13:00 and no work on Sundays or public holidays. Exceptions to this include emergency works or delivery of equipment or materials outside of standard hours as requested by police or other authorities for safety

Category	Commitment/Action
	reasons. [Noting that there may be a requirement for TransGrid to undertake some stringing or cutting in activities outside of the daytime hours stipulated in the ICNG if any of the required outages on the lines are not possible during normal construction times]; and • All equipment will be inspected and maintained on a regular basis to ensure good working order; and • Community consultation will be undertaken prior to commencement of construction.

Mod 6 – MSSS Discharge

Category	Commitment/Action
Water Quality Monitoring	Establish additional water quality monitoring locations (Sediment Dam and MCUS) and undertake water quality monitoring in accordance with Table 4 of the SEE.
	Implement quarterly water quality and annual aquatic ecology monitoring in Morans Creek upstream and downstream of the confluence of the unnamed creek to assess any downstream impacts due to discharges.
Water Management	Undertake weekly site inspections at MSSS and immediately following 40 mm of rainfall in the preceding 24 hours to inspect the capacity, structural integrity and effectiveness of the Gross Pollutant Trap and Sediment Dam.
	Review and revise where necessary the site's Water Management Plan to reflect the outcomes of the modification.
Surface Water	Undertake six-monthly visual and photographic inspections of the Unnamed Creek on Centennial owned land to assess for evidence of scouring. Implement appropriate mitigation measures should evidence of scouring be detected.
Aboriginal Heritage	Review and revise where necessary the Northern Region Aboriginal Cultural Heritage Management Plan to reflect the outcomes of the modification.
Biodiversity	If a local population of *Mixophyes balbus* is detected downstream from the MSSS Sediment Dam, hygiene protocols for controlling chytrid fungus would be instigated, including flushing of car tyres with a disinfecting solution.
Biodiversity Offsets	Any identified impacts to threatened flora or fauna will be quantified and offset in accordance with the NSW *Biodiversity Offset Policy for Major Projects*. Biodiversity monitoring will be undertaken in accordance with Section 4.2 of the Centennial Coal's Northern Region Biodiversity Management Plan (NRBMP) with any biodiversity offsets implemented in accordance with Section 4.6 of the NRBMP.

Mod 7 – Construction of a 33 kV powerline

Aspect	Commitment
Aboriginal Cultural Heritage	The following mitigation measures will be implemented: • Centennial Mandalong will ensure that its employees and contractors are aware that it is an offence under Section 86 of the NPW Act to harm or desecrate an Aboriginal object unless that harm or desecration is authorised by an approved ACHMP (as applicable to the current Project) and the requirements of that plan have been met in relation to mitigation activities; • The CEMP will include all heritage commitments from the Aboriginal Cultural Heritage Assessment Report and will address specific management requirements for the Project; • The three newly identified isolated artefacts (Mandalong IF 1-3) located within the existing power line easement (refer Figure 9) will be subject to surface collection in accordance with the methodology provided in the Aboriginal Cultural Heritage and Archaeological Assessment (Umwelt, 2019); • For the duration of the Project, temporary protection (in the form of high visibility fencing) will be put in place at grinding groove sites AHIMS 45-3-3470, 45-3-3526 and 45-3-3527 to prevent incidental impacts during Project works; • Due to the potential for additional grinding groove sites to be present (but not visible) along minor drainage lines within the Project Area, heavy vehicle movements will be avoided across any areas of sandstone exposure on minor drainage lines;

	• Following the completion of vegetation clearance in the areas of low-moderate archaeological potential (refer Figure 10) an opportunity will be provided for an additional inspection of these areas by an archaeologist and Aboriginal party representatives. Any surface artefacts may be subject to surface collection in accordance with the Aboriginal Cultural Heritage and Archaeological Assessment (Umwelt, 2019). The opportunity will be provided to an archaeologist and the registered Aboriginal parties to monitor removal of topsoil within the area of low-moderate archaeological potential (including that disturbed for excavation of the pole location) and to collect any Aboriginal objects that may be identified; and • In the event that a previously unrecorded Aboriginal object is identified within the Project Area, it will be managed in accordance with the unexpected finds protocol included in the ACHMP.
Noise	To minimise noise emissions from construction works the following reasonable and feasible controls will be implemented: • Community consultation will be undertaken prior to the commencement of and during construction. All residents who will likely experience noise levels above the noise affected levels for construction work prescribed in the ICNG will be informed of the nature of works to be carried out, the expected noise levels and duration, as well as contact details in the event of a complaint; • Construction activities will be restricted to the day period (Monday to Friday 7:00am to 6:00pm, Saturday 8:00am to 1:00pm and no work on Sundays or public holidays). It should be noted that there may be a requirement for certain activities such as stringing or cutting in to occur outside of these hours however Centennial Mandalong will consult as necessary with affected residents; • Quietest available equipment will be selected where possible for affected locations and noisy activities should be scheduled for the least noise sensitive time of day; • The mulcher will not operate within 100 m of any residence; • Clearing crews that include a mulcher will maintain a separation of 900 m when working on the proposed easement north of Schofield Road; • All equipment will be inspected and maintained on a regular basis to ensure they are in good working order; • Simultaneous operation of plant will be restricted where possible; • Operations will be modified in the event of enhancing weather conditions that cause an unacceptable increase in offsite noise levels; • The noise mitigation measures will be included in the CEMP developed for the project; and • Centennial will consult and undertake ongoing consultation with affected residents to give sufficient notice of any helicopter activity.

Biodiversity	The following mitigation measures will be implemented during construction of the Project to avoid and minimise impacts on native vegetation and habitat. These will be documented in the CEMP for the Project:
	• Impacts on Fauna and their Habitat:
	  o Retain habitat trees and significant tree limbs (where possible);
	  o Confirm habitat tree numbers and distribution;
	  o Mark habitat trees and estimate height;
	  o Identify limbs of habitat value with enough clearance below power lines for retention; and
	  o Clearly mark out a buffer area to prevent damage during construction;
	• Install substitute habitat:
	  o Habitat trees to be impacted by the proposed works are to be quantified and offset adjacent to the site; and
	  o Hollow bearing trees are to be replaced by nest boxes at a ratio of at least 1:1;
	• Fauna protection protocols:
	  o Pre-clearance surveys by qualified ecologist prior to tree removal; and
	  o Apply procedures to safely fell habitat trees and release areas for any rescued fauna;
	• Retain other habitat attributes:

	o Hollow logs and rock habitat within the clearance areas will be retained and carefully placed into the adjacent bushland; • Maintain upper catchment hydrology (maintain ephemerality): o Erosion and sediment controls will be designed to prevent permanent or semi-permanent ponding of water where possible; Indirect impacts on native vegetation and habitat: • Protect adjacent habitat or vegetation: o Boundaries for vegetation removal clearly established prior to clearing using tape/rope; o All vehicles and equipment accessing site must use established access tracks only; and o Restrict load/equipment set down areas to well within the designated impact area; • Minimise noise and light spill: o Avoid night work; and o Take measures to reduce noise. • Dust management: o Visual monitoring of dust generated during earthworks, suspending work if dust is blown into adjacent bushland and use of water carts; • Weed and pathogen management: o Good hygiene practices are to be used to reduce the risk of spreading weeds and pathogens, including ensuring that all machinery, materials and personnel are clean of any weed seed to entering the site Priority Weeds listed under Biosecurity Act 2015 to be actively managed on site to limit the spread of weeds into the adjacent forested areas; o Weeds removed from the subject site are to be disposed of appropriately at an approved waste facility; o Occurrences of pathogens (e.g. Myrtle Rust and Phytophthora) will be reported, treated and monitored; and o Quarantine controls will be applied to prevent introduction of Chytrid disease; • Partitioning off threatened flora species: o Patches of threatened plants are to be identified and marked out to minimise indirect impacts of clearing/construction activities; and o A qualified ecologist is present during initial vegetation removal to identify these environmentally sensitive areas; • CEMP: o The Project CEMP will include the safeguards included in the BDAR and detail unexpected threatened species finds procedure and rehabilitation following construction; • Staff and contractor training and site briefing to educate contractors on biodiversity management measures; o Contractors are made aware of biodiversity management measures through toolbox talks and review of the CEMP; • Sediment and erosion controls: o Erosion and sediment control measures are to be implemented and maintained to reduce sediment moving offsite, and sediment laden water entering any watercourse; o Erosion controls are to be regularly inspected for their functionality and maintained if required, especially after rainfall; o Excavated material should be stockpiled well away from areas where native vegetation is to be retained and waterways; and o Work areas stabilised progressively during works; • Prevent Water Pollution: o No release of dirty water into drainage lines/waterways. Water will be released from the easement during construction via sediment controls; o All fuel/chemicals are to be stored in either self-bunded containers or in a bunded facility;

	o An emergency spill kit is always to be kept on sites where equipment is being used; o An emergency spill response plan will be appended to the CEMP; and o Regular inspection of equipment and vehicles for fuel or oil leaks; • Avoid vehicle strike: o Vehicles will adhere to a 40 km/hr speed limit on dirt tracks.
Air Quality	To minimise air quality impacts from construction works the following measures will be implemented: • Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager. The head or regional office contact information would also be displayed; • Develop and implement an Air Quality Management Plan (AQMP), which may include measures to control other emissions, which will be included in the Contractor CEMP; • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken; • Make the complaints log available for relevant regulators as required; • Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation; • Perform daily inspections to monitor dust and record inspection results; • Carry out regular visual site inspections to monitor compliance with the AQMP and record visual inspection results; • Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged adverse weather conditions; • Cover, seed or fence stockpiles to minimise wind erosion; • Ensure all on-road vehicles comply with relevant vehicle emission standards, where applicable; • Minimise prolonged idling of vehicles; • Minimise the use of diesel or petrol powered equipment by using battery powered equipment where practicable; • Ensure an adequate water supply for the site for effective dust/particulate matter suppression/ mitigation, only using non-potable water, where possible and appropriate; • Minimise drop heights from loading or handling equipment; • Waste materials will be disposed of at an appropriate facility. There will be no burning of waste materials; • Use water-assisted dust sweeper(s) on the access and local roads to remove, as necessary, any material tracked out of the site; • Avoid dry sweeping of large areas; • Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport; • Record all inspections of haul routes and any subsequent actions.
Visual	The visual mitigation measures to implemented during the construction of the Project will be: • Undertaking a review of materials and colour finishes for selected components including the use of non-reflective finishes to structures where possible; • Minimising tree removal where possible; • Avoidance of temporary light spill beyond the construction site where temporary lighting is required; • Progressively rehabilitating any disturbed areas where necessary; • Protecting mature trees alongside transmission line easements where retained; and • These mitigation measures will be captured within the Project's CEMP.
Bushfire	The bushfire mitigation measures to be implemented during the construction of the Project will be: • The power line will be constructed in accordance with the Ausgrid vegetation clearance requirements specified in Ausgrid Network Standard NS179 Vegetation Management

	(with clearance zones of up to 63 m wide) to allow for the safe operation of the line in all meteorological conditions; • All fuels and flammable materials used during construction will be stored appropriately; • All machinery will be maintained to operate in good working order to minimise ignition risks; • Contractor vehicles and machinery will be fitted with fire extinguishers; • Staff will be made aware of their obligations for minimising bushfire risk during construction, e.g. no smoking on site, etc.; • The recognition of “Very High” (or greater) Fire Danger Rating days should inform people’s movements in bushland areas and trigger a requirement to view the “Current Fires and Incidents” page on the RFS website (https://www.rfs.nsw.gov.au/fire-information/fires-near-me); • All contractors working on site will be made aware of the emergency evacuation procedures in the event of a bush fire; and • Bushfire mitigation measures, as well as emergency evacuation procedures will be included in the CEMP.

Surface and Groundwater	The following mitigation measures will be applied:
	• Poles will be installed progressively along the alignment to ensure minimum ground disturbance at any one time;
	• As there is the potential for erosion and sediment impacts to occur during the construction phase, mitigation and management measures will be implemented as required in accordance with:
	  o *Managing Urban Stormwater: Soils and Construction – Volume 1* (Landcom 2004) also known as The Blue Book; and
	  o *Managing Urban Stormwater: Soils and Construction – Volume 2A Installation of services; and Managing Urban Stormwater: Soils and Construction – Volume 2C Unsealed roads*;
	• Install water crossings enabling works as necessary to assist with construction access within the 4.5 m disturbance width;
	• All areas temporarily disturbed during construction of the power line will be revegetated as soon as practical following completion of construction;
	• Control measures will be implemented to manage risks associated with the handling of fuel through providing spill kits in close proximity to major plant items. Any temporary fuel storage will be positioned away from waterways and bunded.

Waste	The following mitigation measures will be implemented to manage waste generated by the Project:
	• Any excess VENM will be transported to the Newstan Colliery reject emplacement areas or Hawkmount Quarry;
	• With the exception of logs/timber requested by the landholders, any green waste generated during clearing will be mulched, and then either:
	  o Used on site for sediment and erosion control;
	  o Used at the MSSS for sediment and erosion control;
	  o Transported to Newstan Colliery for rehabilitation works; or
	  o Provided to any of the landholders along the power line easement;
	• All other wastes generated during construction such as construction materials, paper/cardboard, and domestic waste will be removed from site and disposed of at an appropriately licensed waste facility; and
	• Opportunities for waste reduction will be identified in accordance with the *Waste Avoidance and Recovery Act 2001*. This will include, but not be limited to, the segregation of material for reuse, recycling and/or disposal.