

Mandalong Southern Extension Project Longwalls 22 & 23 First Workings Modification (SSD 5144 MOD 2)

Environmental Assessment Report Section 96(1A) of the *Environmental Planning and Assessment Act 1979*

1. BACKGROUND

Centennial Mandalong Pty Limited (Centennial) owns and operates the Mandalong Mine, located near Morisset, approximately 35 kilometres (km) southwest of Newcastle, in the Central Coast and Lake Macquarie local government areas (see **Figure 1**).

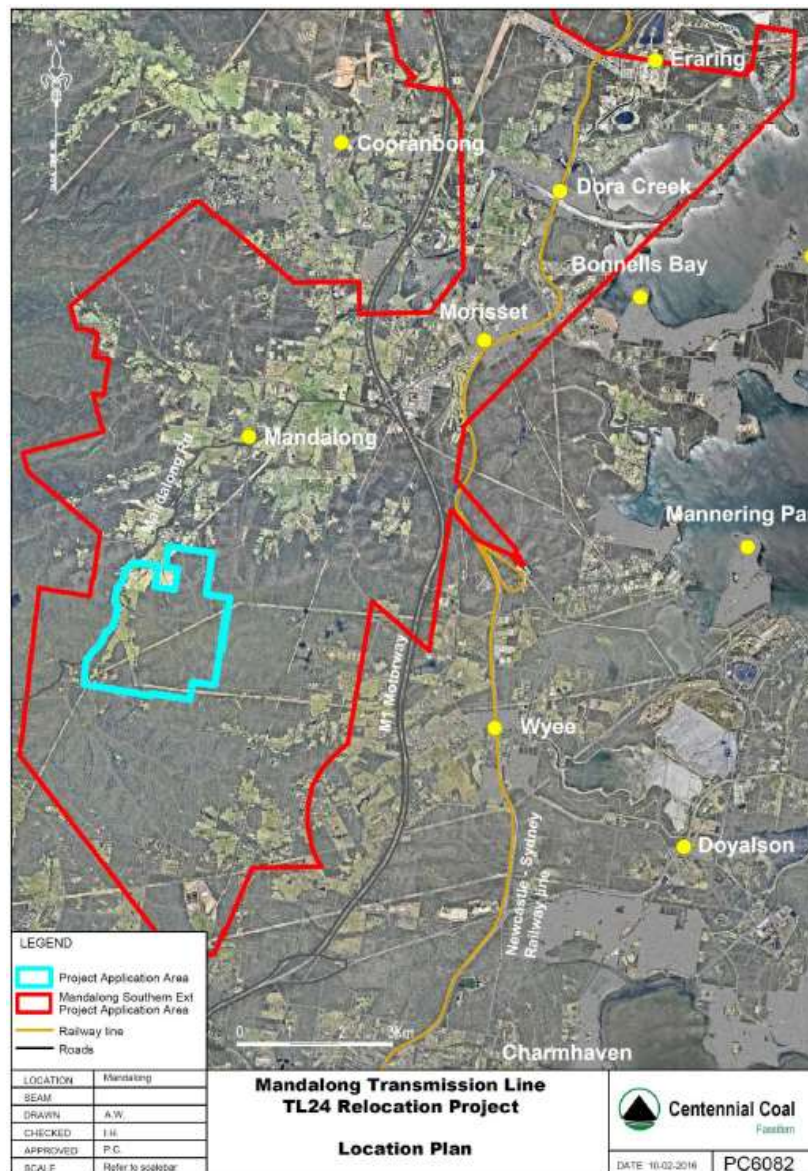


Figure 1: Location of the Mandalong Coal Mine

The Mandalong Mine was originally approved under development consent DA 97/800 granted in 1998. Centennial acquired the mine in 2002, and commenced longwall mining in 2005. In October 2015, consent was granted for the Mandalong Southern Extension Project (MSEP) under SSD 5144. The MSEP involves the continuation of existing mining operations, as well as the development of an additional 40 longwall panels in the Southern Extension Area (see **Figure 2**), with an overall extraction rate of up to 6 million tonnes per annum of run-of-mine coal over a 25 year period.

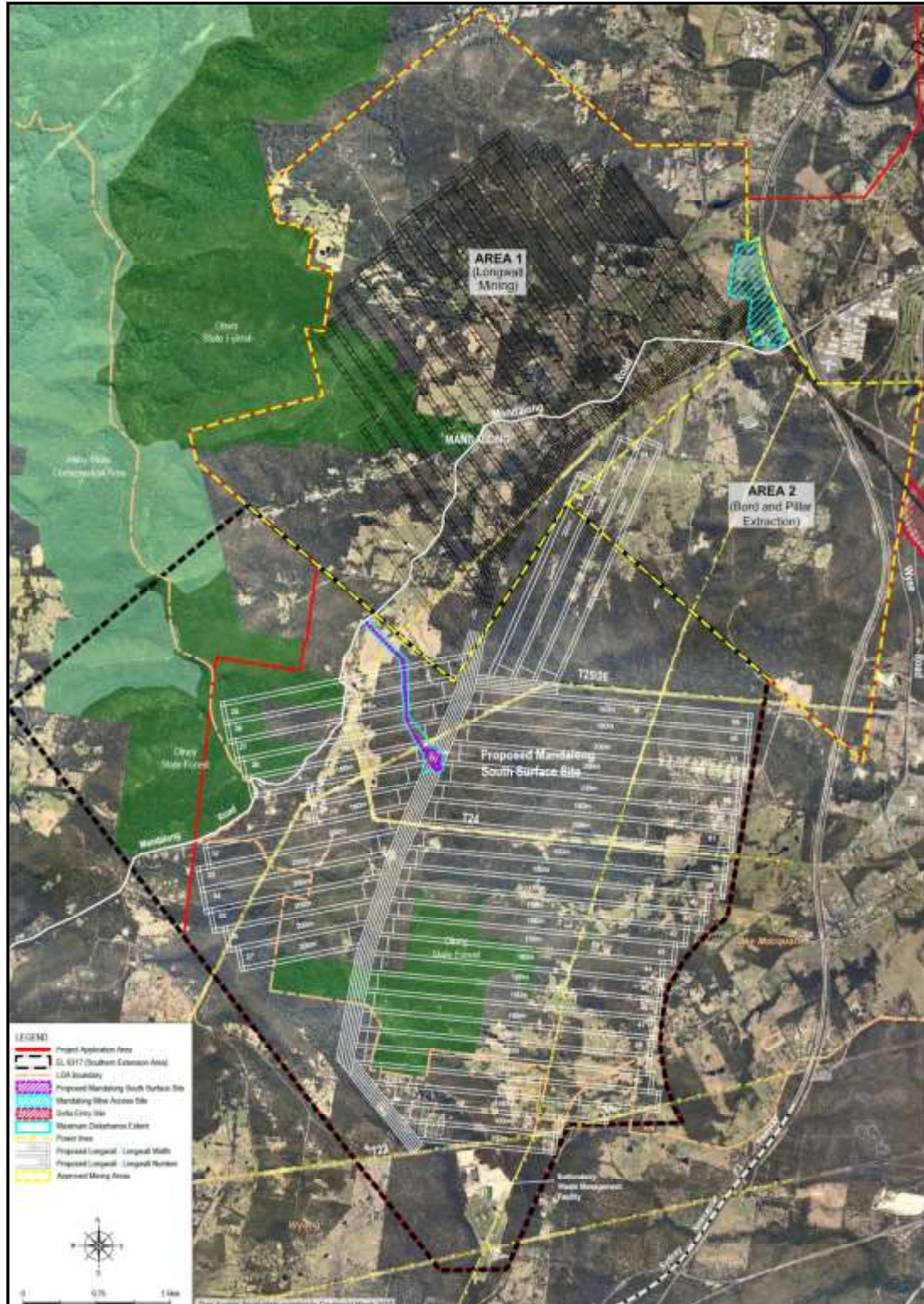


Figure 2: Approved Mine Plan – Mandalong Mine and Mandalong Southern Extension

2. PROPOSED MODIFICATION

On 19 August 2016, Centennial lodged a modification under section 96(1A) of the EP&A Act. The modification involves:

- extension of first workings associated with Longwalls 22 and 23; and
- minor administrative changes to the existing conditions of SSD 5144 to provide a degree of flexibility with respect to the layout of underground operations.

When Centennial designed its current mine plan, Longwalls 22 and 23 were shortened due to historic uncertainties regarding the extent and condition of an igneous sill located to the west. However, subsequent geological investigations have provided further information with respect to this sill, and confirmed that the longwalls can, in fact, be lengthened. Consequently, Centennial is seeking to extend Longwalls 22 and 23 in line with Longwall 21 (see **Figure 3**).

At this stage, Centennial is seeking approval for first workings only, to establish the extended chain pillars. Secondary extraction of the extended longwalls would be subject to a separate modification application. This arrangement would permit continuity of development in accordance with Centennial's current extraction schedule.

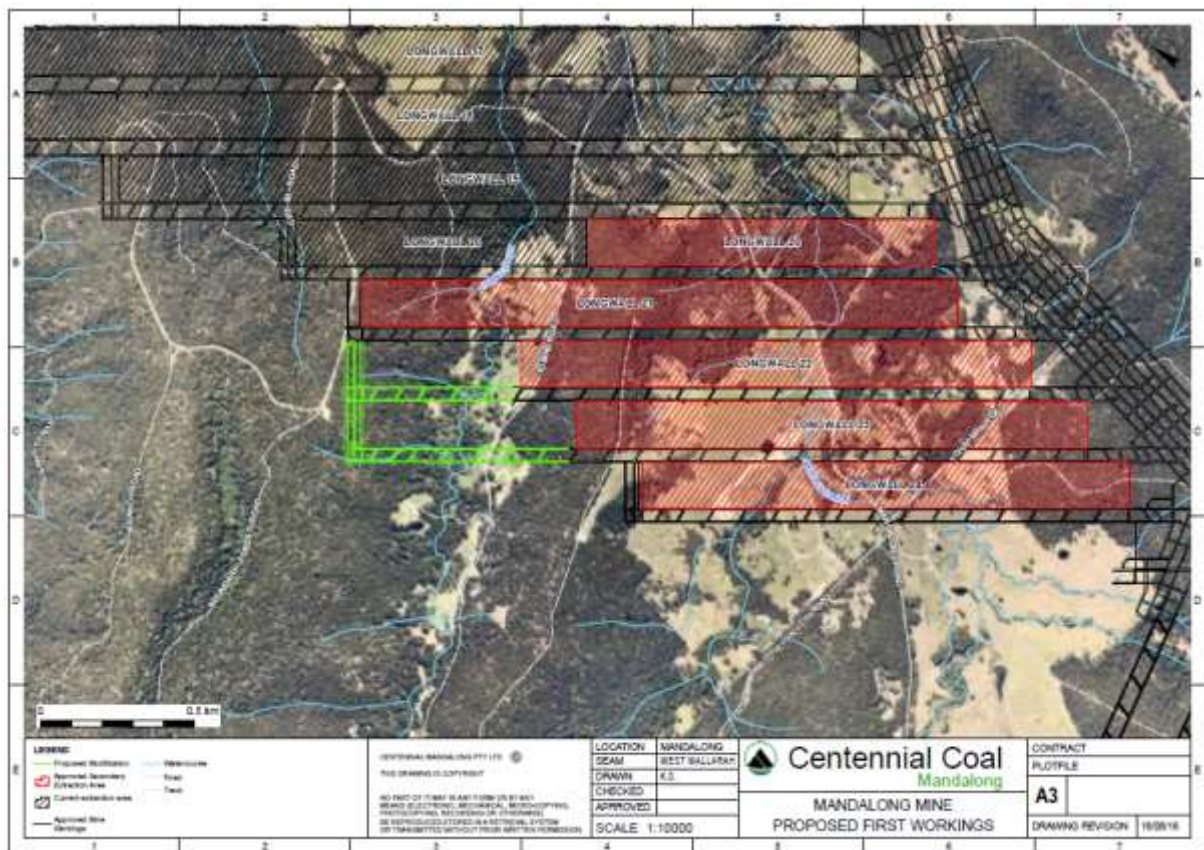


Figure 3: Proposed modification

Centennial contends that the proposed modification would optimise its current operations, yielding an increase of approximately 84,402 tonnes of coal during first workings. The proposal would also facilitate subsequent secondary extraction of the extended longwalls (subject to the further modification application). This coal is located within the boundaries of Centennial's existing mining lease, and would otherwise be sterilised.

The proposed modification also involves some minor administrative changes to the existing conditions of consent, which would enable Centennial to carry out the development 'generally in accordance' with a 'Conceptual Mine Plan'. At present, condition 2 of Schedule 2 requires Centennial to carry out the development in strict accordance with an 'approved layout plan'. Centennial contends that this provides no flexibility for the company to adapt its operations in response to geological and mine safety constraints. Centennial argues that the proposed change would allow for adaptive management, whilst maintaining compliance with the existing performance criteria under SSD 5144.

3. STATUTORY CONTEXT

3.1 Section 96(1A)

The modification application proposes to modify the consent granted under SSD 5144 in accordance with section 96(1A) of the EP&A Act. By operation of section 96(1A)(b), a consent cannot be modified unless the consent authority is satisfied that the modified proposal is substantially the same development as the development for which consent was originally granted. The modification application involves an extension of two longwalls, which represents a relatively minor expansion of underground mining operations. On this basis, the Department is satisfied that the proposed modification is within the scope of section 96(1A), and may be determined accordingly.

3.2 Approval Authority

The Minister for Planning is the approval authority for the application. However, the Director, Resource Assessments may determine the application under the Minister's delegation of 16 February 2015, as there were no public objections, Central Coast and Lake Macquarie City councils did not object to the proposal, and no political donations have been reported by Centennial.

3.3 Environmental Planning Instruments

A number of environmental planning instruments apply to the modification, including:

- State Environmental Planning Policy (SEPP) (*Mining, Petroleum and Extractive Industries*) 2007;
- SEPP (*Infrastructure*) 2007;
- SEPP (*State and Regional Development*) 2011;
- SEPP No 33 – *Hazardous and Offensive Development*;
- *Lake Macquarie Local Environmental Plan 2004*;
- *Lake Macquarie Local Environmental Plan 2014*; and
- *Wyong Local Environmental Plan 2013*.

The Department has assessed the proposed modification against the relevant provisions of these instruments. Based on this assessment, the Department is satisfied that the proposed modification can be carried out in a manner that is consistent with the aims, objectives and provisions of these instruments.

4. CONSULTATION

Due to the minor nature of the proposed modification, public exhibition was not required. However, the Department notified:

- affected private landowners;
- relevant NSW government agencies;
- infrastructure providers; and
- Lake Macquarie and Central Coast Councils.

The Department is satisfied that the notification process met the requirements of the EP&A Act and the *Environmental Planning and Assessment Regulation 2000*.

4.1 Agency Submissions

The Department received a total of 5 submissions from government agencies.

The **Environment Protection Authority** did not raise any concerns regarding the proposed modification, noting that the proposal would not require any variation of Centennial's Environmental Protection Licence (EPL).

The **Department of Primary Industries** (DPI) noted that Centennial would need to ensure that it holds sufficient water entitlement for the development, and that it implements adequate metering of its water take. DPI also recommended that the Water Management Plan for the MSEP is finalised to ensure that groundwater and surface water monitoring are adequate for the continued operations. The Department has noted DPI's comments with respect to water take, and is satisfied that these matters can be dealt with under the relevant water access licences. The Department also notes that the Water Management Plan has been submitted to the Department for review, and is currently being finalised.

The **Division of Resources & Energy** (DRE) within the NSW Department of Industry raised no objections to the proposed modification. In its submission DRE supported the proposed changes to conditions. The submission also noted that sustainable rehabilitation outcomes can be achieved as a

result of the project, based on implementation of existing conditions. On this basis, no further changes to existing conditions were proposed.

The **Office of Environment and Heritage** (OEH) advised it has few concerns with respect to the proposed extension of first workings, in light of the minor surface impacts expected. However, OEH advised that it does not support the proposed changes to conditions, on the basis that it would 'significantly weaken' the Department's capacity to enforce the consent. This issue is addressed in **Section 5.5** of this report.

The **Mine Subsidence Board** advised that it has no objections to the proposed modification.

4.2 Public Submissions

The Department did not receive any public submissions.

5. ASSESSMENT

The Department has assessed the merits of the proposed modification in accordance with the relevant objects and requirements of the EP&A Act. In assessing these merits, the Department has considered the:

- Environmental Impact Statement (EIS) for the original development application;
- conditions of consent for the development as originally approved;
- modification application and associated Statement of Environmental Effects (SEE); and
- relevant environmental planning instruments, policies and guidelines.

The Department considers the key impacts of the modification relate to subsidence, biodiversity, Aboriginal cultural heritage and water resources.

5.1 Subsidence

The SEE included a Subsidence Predictions Report prepared by Seedsman Geotechnics Pty Ltd. This report reviewed the proposed pillar design for Longwalls 22 and 23, with regard to stability and the potential for deformation during first workings.

Previously recorded deformations of the surface associated with first workings at the Mandalong Mine have typically been less than 10 millimetres (mm). These observations fall below the commonly-accepted detectable threshold of 20 mm for mining-induced movements. These observations have been based on longwalls with a chain pillar width of 46 metres (m), and a depth of cover ranging between 250 m and 330 m.

Longwalls 22 and 23 would incorporate narrower chain pillars, with a width of 37 m. This is consistent with the consent's Approved Mine Plan, which provides for narrower chain pillars from Longwall 20 onwards. The report indicates that the increased stress resulting from the narrower chain pillars would be negligible. Consequently, surface deformations associated with the 37 m wide chain pillars are also predicted to fall below the detectable threshold (6 mm to 11 mm), with a depth of cover ranging from 200 m to 350 m.

The report concludes that the 37 m wide chain pillars 'will be long term stable during maingate development and the associated surface deformations will be undetectable with standard survey tools'. On this basis, the Department is satisfied that subsidence impacts associated with the proposed modification would be negligible.

5.2 Biodiversity

In preparing the SEE, ecological surveys were undertaken by Hunter ECO. The proposed extension area contains four native vegetation communities: MU1 Coastal Wet Gully Forest, MU5 Alluvial Tall Moist Forest, MU15 Coastal Foothills Spotted Gum – Ironbark Forest and MU12C Hunter Valley Moist Spotted Gum – Ironbark Forest. Two of these communities (MU1 and MU5) are potentially commensurate with Endangered Ecological Communities (EECs) listed under Schedule 1 of the *Threatened Species Conservation Act 1995* (TSC Act), being Lowland Rainforest in the NSW North Coast and Sydney Basin Bio Region EEC, and River-Flat Eucalypt Forest on Coastal Floodplains EEC, respectively.

RPS Australia then prepared a 'likelihood of occurrence assessment', which is included in the SEE. This assessment considered all threatened flora and fauna species listed under both the TSC Act and the *Environment Conservation and Biodiversity Conservation Act 1999* (EPBC Act) that have been recorded

within a 10 km radius of the site. Eight listed flora species and 25 fauna species were identified as occurring or potentially occurring within the study area. However, Centennial contends, given that pillar deformations are expected to be undetectable, that 'no impacts to vegetation communities, threatened flora, threatened fauna or their habitats are predicted as a result of the proposed modification.'

A full assessment of the likely effects of underground mining on local biodiversity values was undertaken as part of SSD 5144. This assessment concluded that the subsidence impacts of the project were unlikely to have a significant impact on any flora or fauna species, and that any residual impacts could be suitably mitigated. In particular, the Planning Assessment Commission considered the likely impacts of subsidence on the Alluvial Tall Moist Forest vegetation community. As part of this process, Centennial committed to monitoring this community for two years before and after undermining as part of its Biodiversity Management Plan.

In its submission OEH agreed that the impact of the proposed modification on biodiversity values is 'likely to be very minor.' The submission did note, however, that a more detailed assessment would be required for any subsequent modification for secondary extraction. The Department agrees with this.

OEH also recommended the inclusion of a precautionary condition in any approval of the proposed modification. This condition would provide that, in the event of unexpected mine subsidence above first workings that leads to harm to threatened species, populations, communities or their habitats, such harm must be offset in accordance with OEH's offsetting policy. The Department notes that similar requirements are already in place under the conditions of SSD 5144. Condition 1 of Schedule 4 specifies performance measures for subsidence impacts. In particular, Centennial must ensure that the environmental consequences of its operations on threatened species, populations, and EECs are negligible. Centennial must also ensure that first workings remain long-term stable and non-subsiding. In the event that these performance measures are exceeded, and the impacts cannot be suitably remediated, condition 3 of Schedule 4 provides that Centennial must provide a suitable offset to compensate for those impacts, to the satisfaction of the Secretary.

On this basis, the Department is satisfied that any biodiversity impacts associated with the proposed modification would be minimal, and that any unexpected exceedance could be appropriately managed under existing conditions.

5.3 Aboriginal Heritage

Centennial's search of the Aboriginal Heritage Information Management System (AHIMS) identified one Aboriginal site (#45-3-3454) in the vicinity of the proposed extension area. This is a grinding groove site, located beyond the northern end of Longwall 21, and well outside of the proposed extension area (see **Figure 4**). Centennial also engaged an Archaeologist from RPS Australia to undertake a field survey in June 2016. No Aboriginal heritage sites were identified within the proposed extension area. OEH has reviewed Centennial's Aboriginal Cultural Heritage Assessment for the project, and advised that it has 'no concerns with respect to Aboriginal cultural heritage management'.

Given that surface-level impacts are expected to be minimal, and that no Aboriginal sites have been identified within, or in close proximity to, the proposed extension area, the Department is satisfied that impacts to Aboriginal heritage items are unlikely to occur. Furthermore, the Department is satisfied that any potential impacts can be appropriately managed through existing conditions of consent, and Centennial's Heritage Management Plan.

5.4 Water Resources

5.4.1 Surface Water

The ground surface above the proposed extension area is traversed by Tobins Creek, an intermittent, second-order creek with limited or zero flow during low rainfall periods. Given that surface deformations associated with the proposed first workings are predicted to be undetectable, no impacts on Tobins Creek are anticipated.

5.4.2 Groundwater

The groundwater resources in the vicinity of the Mandalong Mine are typically low yielding, and predominantly within Quaternary alluvium, weathered and/or fractured sandstone and coal seams. The alluvium within the extension area forms an unconfined shallow aquifer with a water table ranging from approximately 1 to 3 m in depth, and an aquifer thickness of less than 20 m. As surface deformations associated with the proposed first workings are predicted to be undetectable, no impacts on alluvial groundwater sources, or registered alluvial bore users are anticipated.

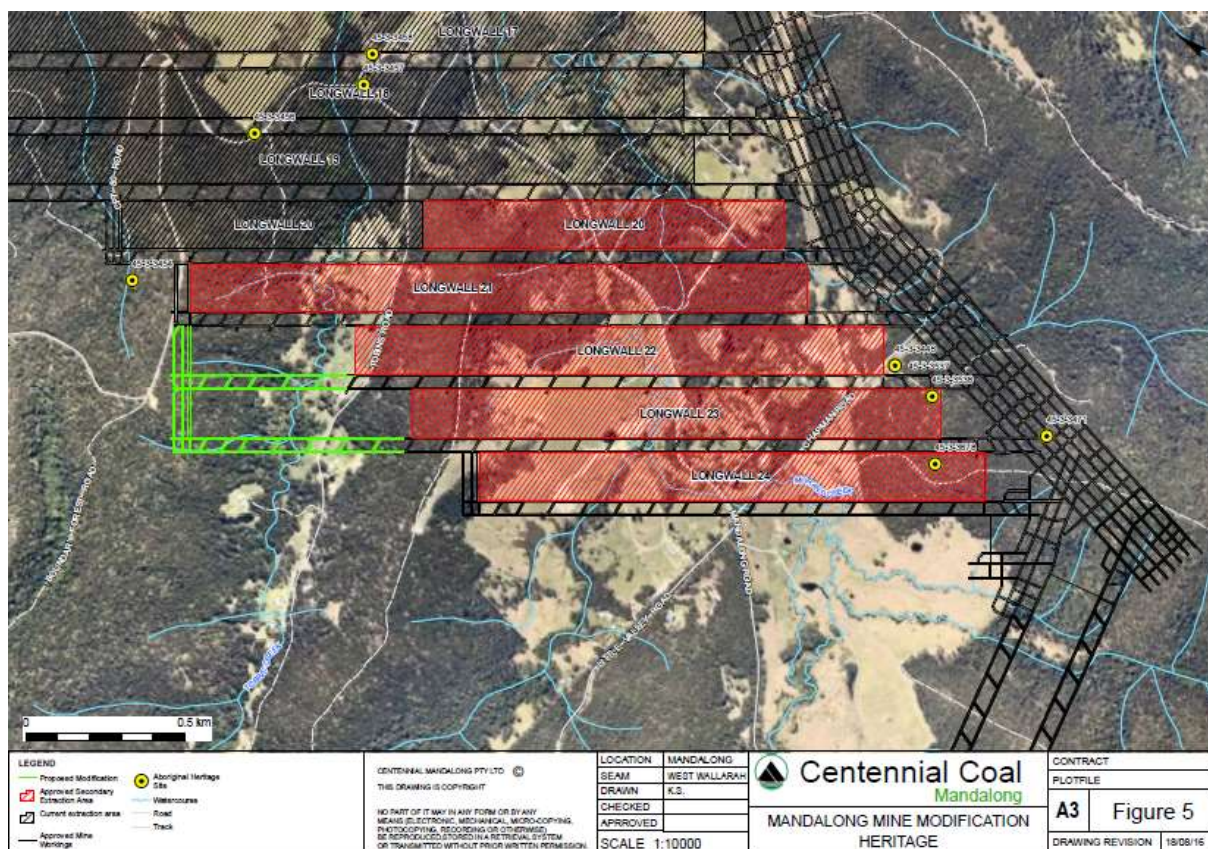


Figure 4: Location of Aboriginal Heritage Sites

Groundwater inflows into the Mandalong mine from the coal seam and adjacent rock strata are relatively limited. At present, these inflows are dewatered to the Cooranbong underground water storage area. Discharges are managed under existing conditions of the MSEP (SSD 5144), in conjunction with the conditions of the Northern Coal Logistics Project (SSD 5145) and Centennial's EPL. The development consent for the MSEP also imposes performance measures for subsidence-related impacts on groundwater. For example, Centennial must ensure that there is no connective cracking between the surface, or the base of the alluvium, and the underground workings.

On this basis, the Department is satisfied that any groundwater impacts would be minimal, and could be appropriately managed under the conditions of Centennial's existing consents and licences.

5.5 Other impacts

The Department is satisfied that the other impacts of the proposed modification are likely to be minor. In addition to the proposed extension of first workings for Longwalls 22 and 23, Centennial is also proposing minor administrative changes to the existing conditions of SSD 5144. At present, condition 2 of Schedule 2 requires Centennial to carry out the development 'in accordance with the Development Layout Plan.' Centennial contends that this wording does not provide adequate flexibility to make minor alternations to the layout of underground mining activities as safety and geological constraints arise.

In response, Centennial proposes two changes. Firstly, the company is seeking to amend condition 2 to require the company to carry out the development 'generally in accordance' (rather than strictly in accordance) with the development layout plan. Secondly, Centennial proposes to amend other references to the 'Approved Mine Plan' throughout the development consent. This 'Approved Mine Plan', forms part of the 'Development Layout Plan' referred to in condition 2 of Schedule 2, and is shown in **Figure 2** of this report. Centennial proposes to instead refer to this plan as the 'conceptual mine plan.'

Both of the proposed changes were supported by DRE. In its submission, DRE noted that the changes would be beneficial, providing the necessary flexibility for Centennial to adaptively manage risk. Conversely, OEH advised that the proposed changes would 'significantly weaken' the Department's enforcement capabilities. The Department considers that an appropriate balance can be struck between these two conflicting viewpoints.

The Department generally supports the first of the proposed changes, which would allow Centennial to make slight alterations to the underground layout, without the need for ongoing modification applications

(the need for which may arise suddenly), provided that the amended layout is still 'generally in accordance' with the Approved Mine Plan. The Department has adopted this approach for other underground mining operations, where very minor alterations can often be made without any discernible environmental impact. The Department considers that this would provide adequate flexibility for Centennial to make minor changes as needed, and as such, the second change is unnecessary. Moreover, referring to the mine plan as 'conceptual' would introduce an undesirable degree of uncertainty regarding the nature and extent of underground operations. On this basis, the Department is satisfied that condition 2 of Schedule 2 should be amended as proposed, but that the term 'Approved Mine Plan' should be retained.

The Department has also taken the opportunity to clarify condition 6 of Schedule 2, to confirm that only second workings (rather than other elements of underground mining operations) must take place within the footprint of the Approved Mine Plan as is already provided for by conditions 1 and 12 of Schedule 4.

6. RECOMMENDED CONDITIONS

The Department has drafted a recommended notice of modification (see **Appendix C**) and a consolidated version of the consent as it is proposed to be modified (see **Appendix D**). The Department considers that the environmental impacts of the project can be appropriately managed through the proposed amended conditions of consent.

The Department has also taken the opportunity to make some minor changes to existing conditions to reflect its current drafting standards.

Centennial has reviewed the recommended conditions and provided feedback. The Department has considered the company's comments in finalising the recommended notice of modification. Following these subsequent amendments, the company has advised that it has no objections to the recommended conditions.

7. CONCLUSION

The Department has assessed the modification application, SEE and submissions in accordance with the relevant requirements of the EP&A Act. The Department has carefully considered the likely impacts of the proposal on the natural and cultural environment, and on nearby residents. The Department is satisfied that the proposed modification is of minimal environmental impact. Moreover, the Department is satisfied that these impacts can be appropriately managed by existing, modified and/or updated conditions of consent.

The proposed modification would utilise the existing operational workforce and equipment fleet to optimise coal recovery from an area already subject to underground mining, with minimal consequential environmental impact. The Department is therefore satisfied that the proposed modification is in the public interest and should be approved, subject to conditions.

8. RECOMMENDATION

It is recommended that the Director, Resource Assessments, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report;
- **determines** that the modification request falls within the scope of section 96(1A) of the EP&A Act;
- **approves** the modification application SSD 5144 MOD 2, subject to conditions; and
- **signs** the attached notice of modification (**Appendix C**).


Jessie Evans
Team Leader
Resource Assessments
22.9.16


Howard Reed
Director
Resource Assessments
22.9.16

APPENDIX A: STATEMENT OF ENVIRONMENTAL EFFECTS

See: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7907

APPENDIX B: SUBMISSIONS

See: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7907

APPENDIX C: NOTICE OF MODIFICATION

APPENDIX D: CONSOLIDATED CONSENT
