



# ***Newstan Colliery***

**Modification 8**

**Extension of Time**

*Section 75W  
Modification Assessment  
(DA 73-11-98 MOD 8)*



January 2019

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### **Cover photo**

Red Helmet Orchid (*Corybas dowlingii*) located during the flora survey conducted for this modification.

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## *Executive Summary*

Centennial Coal Fassifern Pty Ltd, a subsidiary of Centennial Coal Company Limited (Centennial), owns and operates Newstan Colliery (Newstan), an underground coal mine located approximately 25 kilometres southwest of Newcastle, within the Lake Macquarie local government area.

The proposed modification seeks to undertake investigations for the recommencement of mining in the southern portion of Newstan. These investigations would include mining by first workings to determine the presence, strike and throw of major geological faults projected from previous mining at Newstan. Centennial is seeking an extension of its existing approval to mine coal for 12 months (until 6 July 2021) to allow for these investigations. In the process, around 2.0 million tonnes (Mt) of coal would be mined.

During exhibition of the modification application, nine government agencies provided advice on the proposal and submissions were received from Lake Macquarie City Council (Council) and one community group (Five Bays Sustainable Neighbourhood Group). No submissions were received from the general public. No submission or advice received objected to the proposed modification.

The Environment Protection Authority (EPA) initially raised concerns about potential water management impacts and Council was concerned about potential subsidence impacts, particularly to its Biodiversity Offsets land that partially overlies an area of proposed underground first workings.

The provision of additional information in Centennial's Response to Submissions satisfied the EPA's concerns. Centennial met with Council to further discuss its concerns about unplanned subsidence events and its need for assurance that its biodiversity assets would be fully protected from subsidence impacts. Following this meeting and after consideration of draft conditions of consent, Council indicated that its concerns had been adequately addressed.

The Department is satisfied that the proposed first workings would produce subsidence effects so small that they would not be able to be accurately measured by standard monitoring (ie surveying) techniques. The maximum predicted vertical subsidence is 11 mm, which is less than the 20 mm limit to which subsidence monitoring is usually conducted. This value is often exceeded by natural ground movements caused by swelling and shrinking in soils that occur in response to wetting and drying events.

The Department is satisfied that the proposed modification would cause negligible or no impacts to the land surface overlying the proposed first workings. Consequently, it is unlikely that there would be any discernible impact to any biodiversity asset, watercourse, Aboriginal site or built feature on that land. The Department is satisfied that any residual matters, such as management of groundwater and Aboriginal heritage, would be appropriately managed by existing conditions of consent and Centennial's existing Environment Protection Licence (EPL) and Aboriginal Cultural Heritage Management Plan.

The Department considers this proposed modification to be in the public interest as it would allow for the efficient and orderly acquisition of geological and mining information to allow Centennial to better plan its future mining operations. In the process, an additional 2.0 Mt of coal would be mined, which would contribute to the economic development of the State through the payment of coal royalties and the employment of mine workers. Impacts from this modification are expected to be negligible and could be managed by minor updates to existing management plans and Newstan's EPL.



# 1. Introduction

This report provides an assessment of an application to modify the development consent DA 73-11-98 for the Newstan Colliery (Newstan).

The modification application (MOD 8) seeks approval to:

- extend the approval to mine coal for a further 12 months to 6 July 2021; and
- extract up to 2.0 million tonnes (Mt) of run-of-mine (ROM) coal, using first workings methods, from the West Borehole Seam.

The application was lodged on 26 February 2018 by Centennial Coal Company Limited (Centennial) pursuant to section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

## 1.1 Background

Centennial Coal Fassifern Pty Ltd, a subsidiary of Centennial, owns and operates Newstan, an underground coal mine located approximately 25 kilometres (km) southwest of Newcastle, within the Lake Macquarie local government area (see **Figure 1**).

Mining has taken place at Newstan in both the upper seams (Great Northern and Fassifern) and the lower seams (West Borehole, Borehole, Young Wallsend and Yard Seams) using a combination of bord and pillar, pillar extraction and longwall mining methods. Newstan produces thermal coal for export and domestic markets, along with smaller quantities of semi-soft coking coal for export.

Mining operations began at Newstan in 1887, well-prior to the commencement of the EP&A Act, and for many years continued under existing use rights. Development consent was first obtained on 14 May 1999 (DA 73-11-98), and it is this consent that Centennial is seeking to modify. In August 2014, operations at Newstan were placed on care and maintenance, as a response to low coal prices. Economic circumstances have improved, and Centennial is working towards a new State significant development (SSD) application to extend longwall mining operations at Newstan for a significant length of time.

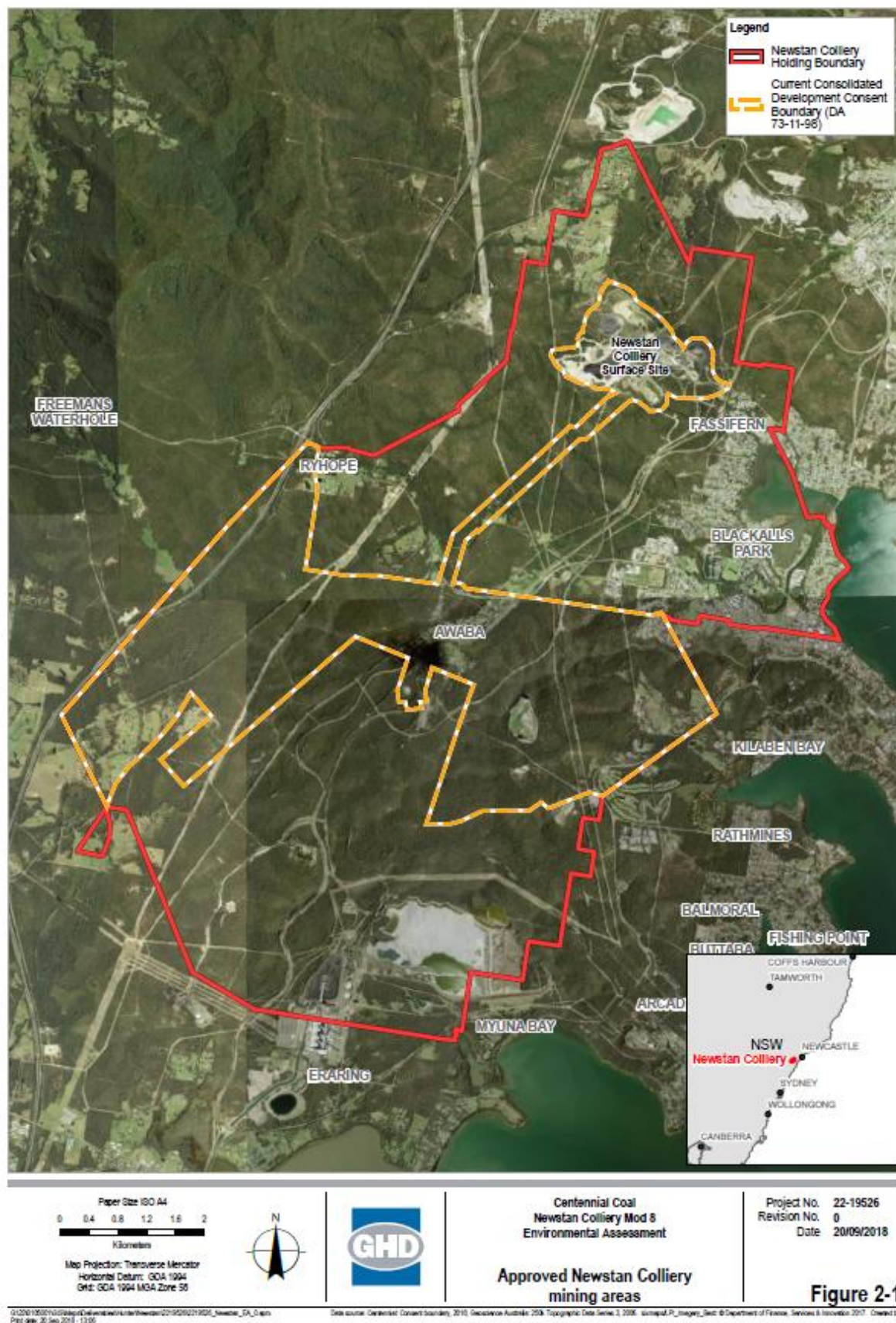
The MOD 8 application would allow for mining operations to be undertaken while the SSD application is being considered and determined.

## 1.2 Approval History

Centennial was granted development consent (DA 73-11-98) for the Newstan Lease Extension Area on 14 May 1999 by the then Minister for Urban Affairs and Planning under Part 4 of the EP&A Act. This consent enabled mining to continue within the existing mining areas as well as allowing expansion of the mine. The approved Newstan Colliery Lease Extension Area addressed a gap in approved coal extraction areas between Newstan and the neighbouring Awaba Colliery lease areas.

This development consent has been modified on seven previous occasions (see **Table 1**).





**Figure 1:** Approved Newstan Colliery mining areas

**Table 1** | Summary of Previous Modifications

Mod No.	Summary of Modification	Consent-Approval Authority	Type	Approval Date
MOD 1	To allow for one additional longwall panel outside of the approved mining area and relocation of approved ventilation shafts, fans and associated service corridors	Delegate of Minister for Planning	Section 96(2)	2007
MOD 2	To facilitate road transport of coal from Mandalong Mine to Newstan for processing	Delegate of Minister for Planning	Section 96(1A)	2009
MOD 3	To transport and wash 880,000 tonnes per annum of coal from Awaba Colliery, accept coarse reject material from Mandalong Mine and establish a 30,000 tonne emergency coal stockpile at the Newstan Colliery Services Site (NCSS)	Delegate of Minister for Planning	Section 75W	2010
MOD 4	To allow first workings extraction of 3.2 Mt of ROM coal from the Newstan West Mining Area	Planning Assessment Commission	Section 75W	2010
MOD 5	To increase the amount of coal received by road from Mandalong Mine at the NCSS from 2.0 Mt to 4.0 Mt per annum and to allow transport of coal and coarse reject material from Awaba Colliery to Newstan	Planning Assessment Commission	Section 75W	2012
MOD 6	To make minor adjustments to the development consent boundary to enable the extraction of an additional 60,000 tonnes of coal	Planning Assessment Commission	Section 75W	2013
MOD 7	To remove duplicated conditions and amend conflicting conditions, to ensure consistency with the consent for the Northern Coal Logistics Project	Delegate of Minister for Planning	Section 75W	2015



## 2. Proposed Modification

The proposed modification seeks to undertake investigations for the recommencement of mining in the southern portion of the Newstan Colliery Holding. As part of these investigations, Centennial proposes to undertake first workings to determine the presence, strike and throw of geological faults projected to exist in the West Borehole Seam due to their presence elsewhere in Newstan's workings (see **Figures 2** and **3**). Land ownership in the proposed extension area is shown in **Figure 4**. Centennial is seeking an extension of its approval to mine coal by 12 months (until 6 July 2021) to allow for these investigations. In the process, around 2.0 Mt of ROM coal would be mined.

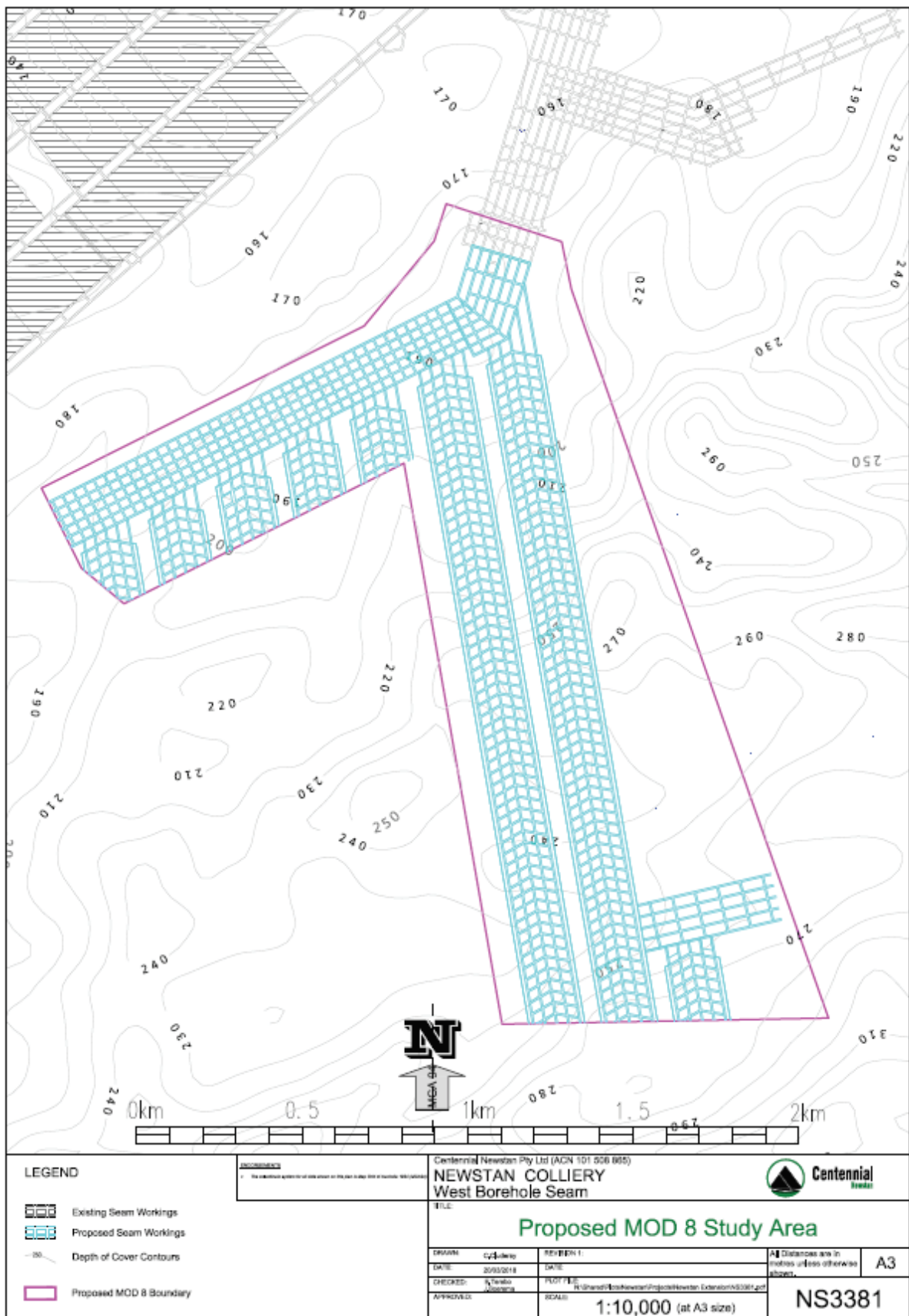
This modification would involve:

- extending the approval to mine coal under DA 73-11-98 for 12 months, to 6 July 2021;



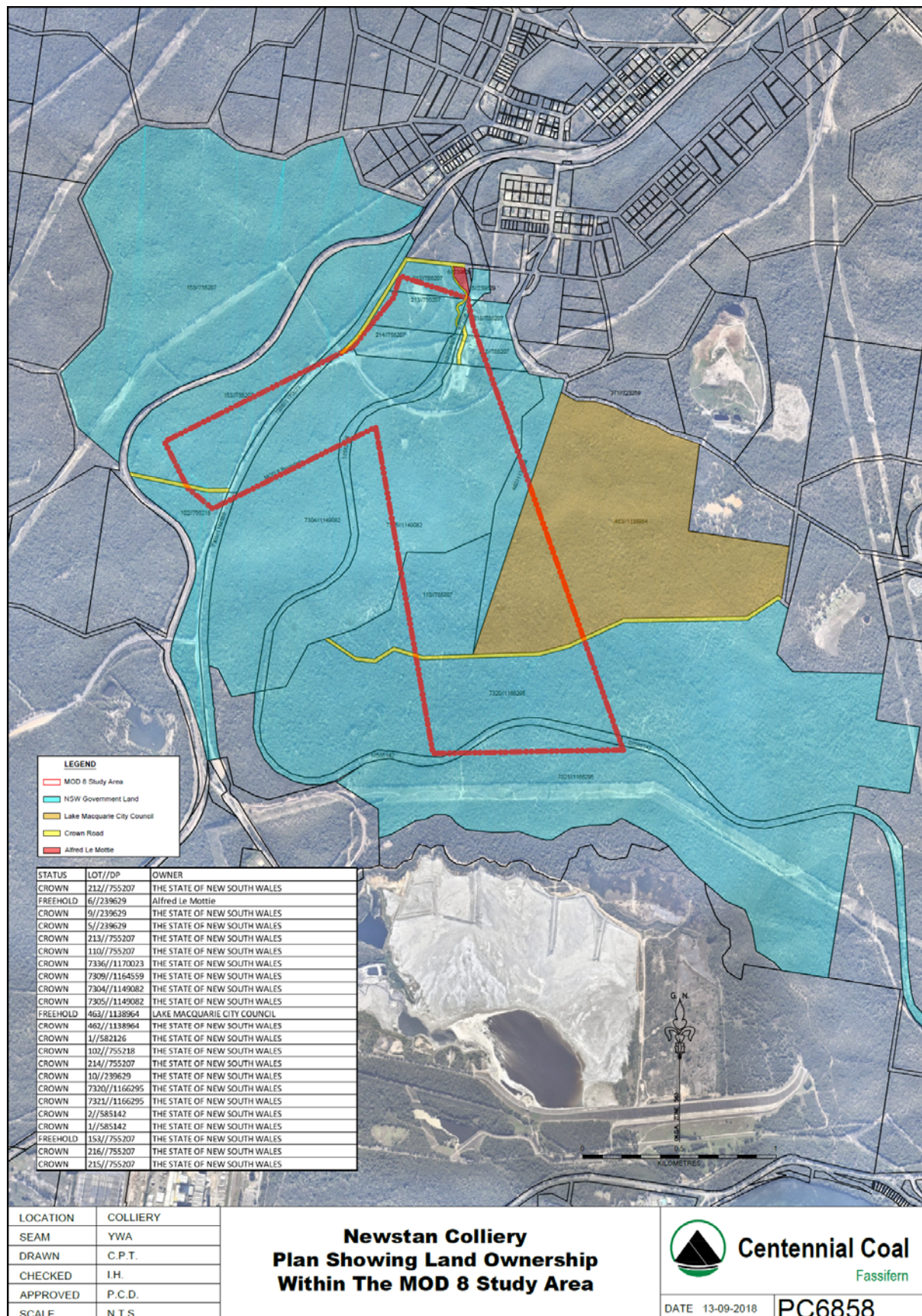






**Figure 3:** Proposed first workings in the West Borehole Seam





**Figure 4:** Land ownership with Council-owned land shown in yellow

- extending the development consent boundary to include an additional 193 hectares (ha) within the existing Newstan Colliery Holding;

- undertaking 'first workings' coal extraction (see **Figure 3**) using continuous miners within the West Borehole Seam in an area of approximately 229 ha, which is within Newstan's existing Colliery Holding; and
- production of up to 2.0 Mt of ROM coal.

There would be no change to Newstan's approved annual extraction limit of 4.0 million tonnes per annum (Mtpa) as per DA 73-11-98. Other approved elements of the development, such as personnel, operating hours, ventilation and water management, would be unchanged and remain consistent with currently approved operations.

## 2.1 Justification

Centennial has commenced feasibility studies into the possible recommencement of longwall mining at Newstan (the proposed Newstan Extension Project). The proposed modification would allow Centennial to gain a more comprehensive understanding of mine design options, methods of extraction and infrastructure requirements for the Newstan Extension Project.

The proposed modification would allow Centennial to recover additional coal resources and provide ongoing employment for the mine's workers. Additional positive economic benefits would accrue to the local, regional and State economies through the payment of wages and royalties associated with mining 2.0 Mt of ROM coal.



# 3. Statutory Context

## 3.1 Scope of Modification

DA 73-11-98 was granted under Part 4 of the EP&A Act. The project is a transitional Part 3A project under Schedule 2 of the *EP&A (Savings, Transitional and Other Provisions) Regulation 2017*. The power to modify transitional Part 3A projects under section 75W of the Act, as in force immediately before its repeal on 1 October 2011, is being wound up. However, as the request for this modification was made before the 'cut-off date' of 1 March 2018, the provisions of Schedule 2 (clause 3) continue to apply.

Consequently, this report has been prepared in accordance with the requirements of Part 3A and associated regulations, and the Minister (or his delegate) may determine the proposed modification under section 75W of the EP&A Act.

The Department has reviewed the scope of the modification application and considers that the application involves limited environmental impacts as the proposal would:

- not significantly increase the environmental impacts of the development as approved;
- remain substantially the same development as originally approved; and
- not involve disturbance outside the already approved disturbance areas for the development.

Therefore, the Department is satisfied the proposed modification is within the scope of section 75W of the EP&A Act and may be determined accordingly.



### 3.2 Consent Authority

The Minister for Planning is the consent authority for the proposed modification application, under section 4.5(a) of the EP&A Act. However, under the Minister's delegation of 11 October 2017, the Director Resource Assessments may determine the application, as no objections from the public were received, Council did not object, and Centennial has not reported any political donations. The proposed modification meets the terms of this delegation.

### 3.3 Environmental Planning Instruments

The following environmental planning instruments (EPIs) apply to the development:

- *State Environmental Planning Policy (SEPP) (State and Regional Development) 2011;*
- *SEPP (Mining, Petroleum Production and Extractive Industries) 2007;*
- *SEPP No. 33 (Hazardous and Offensive Development);*
- *SEPP No. 44 – Koala Habitat Protection;*
- *SEPP (Infrastructure) 2007; and*
- *Lake Macquarie City Council Local Environmental Plan (LEP) 2014.*

The Department has considered the proposed modification against the relevant provisions of these EPIs. The Department is satisfied that the proposed modification is permissible and can be undertaken in a manner that is generally consistent with the aims, objectives and provisions of these instruments.

### 3.4 Objects of the EP&A Act

The Minister or delegate must consider the objects of the EP&A Act when making decisions under the Act. The objects of the EP&A Act changed on 1 March 2018. The Department has assessed the proposed modification against the current objects of the EP&A Act. The objects of most relevance to the decision on whether or not to approve the proposed modification are found in section 1.3 of the EP&A Act and are reproduced below:

- *1.3(a): to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources;*
- *1.3(b): to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment;*
- *1.3(c): to promote the orderly and economic use and development of land;*
- *1.3(e): to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats;*
- *1.3(f): to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage); and*
- *1.3(j): to provide increased opportunity for community participation in environmental planning and assessment.*

The Department has considered these objects in its assessment of the proposed modification and is satisfied that the proposal can be approved while meeting these objects.

### 3.5 Commonwealth Approval

Centennial considers that the proposed modification is not likely to have a significant impact on any matters of national environmental significance (MNES) listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Therefore, a referral to the Commonwealth Department of Environment and Energy has not been made in relation to this application.





## 4. Engagement

### 4.1 Department's Engagement

After accepting the Environmental Assessment (EA) see **Appendix A** for the proposed modification, in accordance with clause 10 of Schedule 1 of the EP&A Act and clause 118 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), the Department:

- placed a public exhibition notice in the *Newcastle Herald* on 5 October 2018; and
- publicly exhibited the application and accompanying EA from 8 to 22 October 2018 on the Department's website; at Service NSW Centres; in Council's office; and the NSW Nature Conservation Council's office.

The Department also requested advice from the **Environment Protection Authority** (EPA), **Roads and Maritime Services** (RMS), **Subsidence Advisory NSW** (SA NSW), the **Office of Environment and Heritage** (OEH), the Department's **Division of Resources and Geosciences** (DRG), the Department's **Resources Regulator** (RR), **NSW Rural Fire Service** (RFS), **Sydney Trains**, **Department of Industry – Lands and Water** (DoI-Water), **Water NSW** and **Lake Macquarie City Council** (Council).

In response to the notification process, the Department received nine submissions from government agencies, and one submission from Council, none of which objected to the proposal. One public submission from a special interest group was received commenting on the proposal. A summary of the advice received from agencies and the issues raised in all submissions is provided below. Copies of all advice and submissions are provided in **Appendix B**.

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

### 4.2 Key Issues – Government Agencies

None of the government agencies objected to the proposed modification. All issues raised by agencies have been addressed through the provision of additional information by Centennial, or through the recommended conditions of consent.

The main issue raised by agencies concerned the potential impacts of mining-induced subsidence, particularly potential impacts to natural resources such as biodiversity assets, surface stream morphology and water quality. Most of these concerns were resolved by information contained in Centennial's Response to Submissions (RTS). Some concerns were based on potential impacts from proposed future mining operations that are not part of this modification application. Other concerns were based on inaccurate interpretation of technical subsidence reports or potential for unexpected and unpredicted mining impacts. These concerns were based on former significant mining impacts within the Lake Macquarie district caused by either very shallow underground mining operations or by poorly-planned secondary extraction.

Neither of these circumstances are relevant to this modification application. This proposed modification is for first workings only extraction at depths exceeding 180 metres (m). Subsidence impacts are predicted to be so negligible that they would not be able to be measured by standard subsidence monitoring techniques.

These issues were resolved by improved communications and explanations by Centennial.

**OEH** considered Centennial's *Aboriginal Cultural Heritage Management Plan: Northern Region* which covers the land subject to this modification application. OEH recommended that this Plan be updated to monitor the three Aboriginal sites (two scarred trees and an isolated find) known to occur in the application area.

OEH recommended that if subsidence impacts were greater than predicted, any impacts to biodiversity values be quantified by the use of its Biodiversity Assessment Method (BAM). OEH advised that the development should not adversely affect flood behaviour on privately-owned lands.

**EPA** raised concerns about the potential interaction of the proposed modification with the Eraring Power Station Ash Dam Expansion and groundwater seeps from the now-closed and flooded Awaba Colliery.

The Department is satisfied that the proposed modification would not have any physical connection to either of these facilities. For the Ash Dam, the proposed underground workings are well-outside the Dams Safety Committee's "Prescribed Dam" notification boundaries. The proposed workings would have sufficient vertical separation (more than 140 m) from the Awaba mine workings to prevent groundwater interactions.

EPA conducted a detailed review of the technical information and predictions in the EA regarding groundwater volumes and quality as well as the potential effects of regulated discharge of groundwater pumped from the proposed workings to surface waters. Existing discharges from the Newstan Colliery Surface Site (NCSS) are controlled by an EPL issued by EPA. EPA requested additional information on how this additional groundwater would be treated, whether existing water treatment facilities could adequately treat the additional volumes and what would be the impacts to local receiving waterways, particularly LT Creek. EPA also posed questions about the accuracy and presentation of water quality data and asked that these data be reviewed and clarified.

Following its review of the RTS, EPA indicated that all the matters it had raised had been adequately addressed and that Centennial would be able to continue to operate its Newstan water treatment and discharge facilities in accordance with its EPL.

**DRG** was satisfied that the proposed plan for mining in the modification area represented an efficient recovery of the State's coal resources, considering the constraints of the site. It was confident that the proposal's mining risks and opportunities could be effectively regulated under the conditions of the mining leases that it administers under the *Mining Act 1992*.

**SA NSW** stated that it intended to redefine the proposed modification area from a 'non-active' to an 'active' mining area for the purposes of the *Coal Mine Subsidence Compensation Act 2017*. It noted that, although subsidence was unlikely to occur as a result of the proposal, Centennial would be liable to repair or compensate any damage to improvements should it occur.

**RR** advised that the Newstan /Awaba area is prone to development or reactivation of sinkholes above shallow workings. These risks would need to be addressed in Newstan's Mining Operations Plan (MOP). Sustainable rehabilitation outcomes for the proposal could be regulated through the conditions of mining leases.

**RFS** did not object to the modification, subject to the mine's bush fire management plan being reviewed and, if necessary, updated to reflect any additional approved development.

**DoI – Water** reviewed the proposal and had no comments.

**WaterNSW** informed the Department that the proposal was outside its area of operations and consultation.

### 4.3 Key Issues – Council and Special Interest Groups

**Council** expressed dissatisfaction at the level of engagement Centennial had undertaken to advise Council of the proposed modification.

Council's main concerns were the protection of its land assets located above the proposed mining area and the potential for significant unplanned subsidence impacts.

Centennial's EA had incorrectly identified this land as belonging to the NSW Aboriginal Land Council (NSW ALC). This land is part of Council's Awaba Biodiversity Conservation Area (ABCA) and its biodiversity values form part of Council's biodiversity offsetting obligations for its Awaba Waste Management Facility in accordance with Land and Environment Court (LEC) orders as part of the Court's development consent and also under the Commonwealth's EPBC Act.

Council considered that it must be assured that any proposed mining operations would not impact its ability to manage the ABCA in accordance with the existing approved Plan of Management which was previously prepared in consultation with relevant stakeholders, including Centennial. Council was disappointed that Centennial did not specifically consult it about the proposed modification, did not know that it was a relevant landowner and had accessed its land to undertake environmental surveys without seeking permission.

The second main concern to Council was that significant unplanned mine subsidence events had previously occurred in the Lake Macquarie district (including at Awaba Colliery) and Council was not convinced by the EA that such events could not occur under this modification.

Council was also concerned that the EA did not note the presence of a threatened plant, *Tetratheca juncea*, which is known to occur on the site. Council also considered that groundwater impacts to Groundwater Dependent Ecosystems (GDEs) had not been adequately assessed in the EA. This concern was based on a figure in the EA which supported Council's conclusions, although the figure was at odds with the content of the groundwater assessment, which did not predict any impacts to GDEs.

Council recommended that, if the proposal were to be approved, conditions of consent shall require Centennial to:

- undertake surface and groundwater monitoring for the Kilaben Creek catchment;
- undertake biodiversity monitoring on Council's land and provide monitoring data to Council;
- indemnify Council for any loss or damage to its land; and
- make good any loss of Biodiversity Offset assets, caused by the proposal.

**Five Bays Sustainable Neighbourhood Group** (Five Bays SNG) did not object to the proposal, however it raised concerns that Centennial should work closely with Council to ensure the integrity of Kilaben Creek and surrounding ecosystems located within the ABCA. Five Bays SNG stressed the important biodiversity values of this land and provided a copy of the ABCA Plan of Management as part of its submission.

The group also clarified that a parcel of land within the ABCA was owned by Council and not by the NSW ALC, as stated in the EA.

**No public submissions** were received during the public exhibition period.

#### 4.4 Response to Submissions (RTS)

On 16 November 2018, Centennial provided a Response to Submissions (RTS, see **Appendix C**). The RTS was made publicly available on the Department's website. A copy was also forwarded to those agencies that raised issues, and to Council and the Five Bays SNG.

Following review of the RTS, further advice was provided by EPA, OEH and Council. All agencies were satisfied that the RTS document had responded the concerns that they had raised by way of provision of additional information, clarification of issues or commitments made by Centennial.



Given the nature of Council's concerns, and following the receipt of the RTS, the Department met with Council officers on 30 November 2018. While some interpretations of technical data in the EA were resolved, matters relating to potential impacts to GDEs and interactions between Council and Centennial remained outstanding.

On 7 and 13 December 2018, Council met with Centennial and the issue of potential interaction with GDEs was resolved by the presentation of clearer mapping which showed groundwater drawdown would be confined to underground geological strata, well-away from GDEs.

However, the issue of potential subsidence impacts to the surface and, in particular, Council's Biodiversity Offsets on Lot 463 DP 1138964 (see **Figure 4**) remained unresolved. Centennial's view is that no subsidence impacts are predicted from first workings. Accordingly, there is no need for any additional monitoring of streams, groundwater, Aboriginal heritage or biodiversity than is currently applicable under existing management plans.

Council's view remained that it wishes to be prepared for unexpected subsidence impacts and ensure the protection of the quality of its Biodiversity Offset lands, which are a valuable asset obtained at a significant cost and which would be difficult to replace if damaged.



## 5. Assessment

The Department considers that there are two main issues for consideration in the assessment of MOD 8, being:

- whether the predicted negligible subsidence impacts from first workings coal extraction are reliable in all circumstances and the resulting environmental consequences are also negligible; and
- additional groundwater 'make' from extending underground mine workings in the West Borehole Seam.

Once errors in the EA had been addressed by Centennial regarding land ownership, incorrect references to threatened species and interpretation of a groundwater drawdown figure, the greatest concern to agencies and Council was whether Centennial's predictions of less than 11 mm of vertical subsidence and tilts of less than 0.1 mm/m would be correct in all circumstances. Agencies and Council were mindful of previous incorrect predictions for particular secondary extraction mining operations in the Lake Macquarie district which led to, at times, very serious environmental and social consequences. This contributed to agencies seeking to explore fully whether there is any chance of unintended consequences resulting from the proposal.

### 5.1 Subsidence Impacts and Environmental Consequences

The key conclusions of Centennial's subsidence predictions are:

- predicted maximum vertical subsidence of 7 to 11 mm;
- predicted maximum strain deformation at the surface of 0.1 mm/m;
- tensile cracking and compression heaving not expected to occur;
- no interaction of subsidence effects of mining operations in the West Borehole Seam with mine workings located at least 140 m above in the Great Northern Seam (ie in the Awaba Colliery); and
- no potential for subsidence effects to cause sink holes by the collapse of surface areas above shallow workings in the Great Northern Seam.

The predicted subsidence effects are so small that they are impossible to accurately measure and monitor.

For at least 30 years, 20 mm of vertical movement has been used by the mining industry and regulators as the definition of “the limit of measurable subsidence”. This is because the ground surface rises and falls as soils swell and shrink in response to wetting and drying events. Such ground movements have been measured in the Lake Macquarie area as being of 50 to 70 mm. The district is known to have soils composed of expandable clays.

While modern surveying techniques are quite capable of measuring smaller movements in the ground’s surface, they are incapable of separating movements due to subsidence effects from those caused by the wetting and drying of clay-based soils. The commonly-used standard of 20 mm as the limit of measurable vertical movement resulting from mining subsidence has been applied over a long period of time and remains appropriate.

The maximum predicted movement at the surface resulting from the proposed extension of mining at Newstan is 11 mm. The Department considers that these impacts are so small that they would not be able to be accurately monitored.

The Department considers that there would be no ground movements caused by the proposed mining operations that would cause:

- damage to infrastructure on the surface such as electricity transmission lines or forest tracks;
- alteration to stream flows or the bed profiles of those streams;
- alteration to erosional processes;
- damage to the biodiversity of overlying lands, either to the flora of the area or the fauna dependent upon it;
- damage to known Aboriginal cultural heritage objects; or
- alteration to aquifers close to the surface, water holding capacity in alluvium or to any associated GDEs.

The Department acknowledges the importance of the ABCA to Council. This land forms part of Council’s LEC-imposed obligation to offset biodiversity impacts resulting from operation of its Awaba Waste Management Facility. Council is also required to conserve biodiversity values on this land by the Commonwealth’s approval of a controlled action under the EPBC Act.

The first workings proposed to be undertaken in the modification area would extract, at the most, 35% of the coal seam. That is, at least 65% of the coal would remain in place to support the overlying rock strata and to prevent and/or control subsidence effects. Centennial provided calculations of the Factor of Safety for the coal pillars that would remain following first workings. The proposed coal pillars would have Factors of Safety between 2.1 and 3.4. The minimum Factor of Safety of 2.1 is equivalent to a one in one million chance that an individual coal pillar would fail and lead to additional subsidence effects and impacts. Higher Factors of Safety represent a significantly lower chance.

Given that significant unplanned subsidence impacts have historically occurred in the Lake Macquarie district, it is understandable that Council and the EPA were concerned about what would happen to the natural environment if such events should again occur. However, the Department is confident that the proposed first workings would be long-term stable and effectively lead to nil (at the most, negligible) subsidence impacts at the surface.

The Department supports continued open and cooperative communication between Centennial and Council regarding Council’s ABCA. Centennial needs access to these lands to undertake environmental monitoring and it is reasonable to expect that Council facilitates this access and that Centennial share its monitoring data with Council.

The Department appreciates that the biodiversity values of the ABCA are an asset to Council that would require replacement if it were no longer able to fulfil its role as a Biodiversity Offset. Council has sought conditions of consent that would:

- protect this asset;
- monitor its condition;
- provide for the repair of any damage;
- provide a legal indemnity against damage to the Biodiversity Offset; and
- provide for its replacement if its biodiversity values were to be impaired.

The Department considers that the risk of damage to the ABCA is close to zero. However, it understands Council's desire to ensure its asset is protected. In addition, compensation under the *Coal Mine Subsidence Compensation Act 2017* does not apply to natural features, such as biodiversity offsets. The Department considers that Council's request for the provision of a legal indemnity to cover potential loss or damage to the ABCA is not justified by the predicted nil to negligible impacts. However, other aspects of Council's requested conditions are supported by the Department in order to provide certainty that any proposed mining would not diminish the value of its Biodiversity Offset.

To this end, the Department has recommended conditions of consent to give protection to Council's Biodiversity Offset, which require environmental monitoring of biodiversity values and surface and groundwaters within the Kilaben Creek Catchment. Centennial would be required to perform baseline monitoring of surface and groundwater in the Kilaben Creek catchment occurring within the modification area, in consultation with Council, and provide such reports to Council.

Acknowledging Council's concerns over its ABCA, the Department has recommended conditions requiring Centennial to conduct both baseline and post-mining biodiversity monitoring within the ABCA portion of land in the Mod 8 area, in consultation with Council and to provide these monitoring reports to Council. These conditions also require Centennial to remediate the land or compensate Council for associated costs, should damages occur to the land as a result of the modification. This condition includes provision for any impacts caused by surface disturbance caused by the modification which results in a diminishing of biodiversity values as viewed by the Commonwealth for offset purposes.

The Department has also recommended conditions that require Centennial to undertake regular surface monitoring inspections of mined areas in consultation with Council and provide these monitoring reports to Council. Centennial would also be required to remediate any subsidence impacts to ensure public safety.

Centennial considers that these conditions are not needed as the impacts of mining by first workings are negligible and do not justify the costs of environmental monitoring. The Department is not convinced by Centennial's views on this matter, as it considers it is reasonable to provide an on-going assurance to Council that its biodiversity asset will be protected, or else compensated for.

Council also requested that Centennial's right to conduct mining operations not be extended by 12 months. The Department considers that an extension of this right by 12 months is justified on the basis of allowing the orderly investigation of geological features to guide Centennial's future mining plans. Further, there is no significant environmental impact associated with such an extension.



A significant subsidence-related question is whether mining operations in the West Borehole Seam would cause interactions with the overlying historical mine workings in the Great Northern Seam at Awaba Colliery. These potential interactions include whether subsidence from the West Borehole Seam would cause:

- re-activation of subsidence impacts in the Great Northern Seam;
- any drainage from the flooded Awaba Colliery workings to the Newstan workings; and
- any increase in surface seeps of groundwater from the flooded Awaba Colliery workings.

The EA contains an assessment of the height of rock fracturing that would occur above the proposed workings in the West Borehole Seam. This concludes that any potential caving of overlying rock strata would be limited to the area immediately overlying the coal seam. A peer review of this assessment, conducted by Dr Ismet Canbulat, supported this conclusion. Dr Canbulat also predicted that any 'chimney style' failures over the intersections between underground tunnels (the weakest component of a first workings layout) would be mostly in the order of 10 metres and with a predicted maximum of 37 metres.

As there would be a minimum of 140 m of rock strata between the West Borehole Seam workings and the base of the Great Northern Seam workings, this results in a very low risk of any connection between these workings. Consequently, there is almost no risk of drainage of waters from the flooded Awaba Colliery workings.

The Department is therefore confident there would be almost no subsidence impacts caused by the proposed first workings in the West Borehole Seam in the overlying mine workings in the Awaba Colliery. There would be no re-activation of subsidence within the Great Northern Seam and no additional sink hole events that would be attributable, even in part, to the proposed coal extraction under this modification application, or interference with the existing seeps to the surface that occur from the flooded Awaba Colliery workings.

## 5.2 Groundwater and its Impacts on Surface Waters

The water balance in the EA predicts that, under the proposed modification, groundwater inflows to the mine would increase from 923 to 929 megalitres (ML) per year, which is less than 1%. Groundwater pumped from the mine is transferred to the NCSS where it is treated in a water treatment plant with capacity to treat 11 ML/ day. Once treated, the water is discharged to LT Creek via the NCSS's EPL Licensed Discharge Point, from where it eventually discharges to Lake Macquarie.

Once water is transferred to the NCSS, water management is undertaken in accordance with the Northern Coal Logistics project approval and the site's EPL. The proposed increase of 1% in water volumes, without any significant change in water quality, means the proposed modification would have a negligible effect on water quality and quantity in the receiving waters.

EPA sought clarification regarding Centennial's water management system and data presented in the EA on water quality and potential impacts to receiving waters. In its response to the RTS, EPA stated that *"the comments detailed in the EPA's letter dated 22 October 2018 have been satisfactorily addressed"*.

Council identified that a figure within the EA seemed to indicate that the predicted groundwater drawdown would impact surface alluvial groundwater and surface streams. This is not correct, as groundwater drawdown from the proposed modification is confined to sub surface geological strata. Centennial later clarified this matter during a meeting with Council.

## 5.3 Other Issues

Issues not considered to be key issues but raised either in the EA or in submissions are addressed in **Table 2** below.

**Table 2** | Summary of other issues raised

Issue	Findings	Recommended Condition
Aboriginal Cultural Heritage	<ul style="list-style-type: none"> <li>There are three known Aboriginal sites on land overlying the proposed underground workings. Two are scarred trees and one is an isolated find.</li> <li>There is no predicted impact from the proposed modification to these sites.</li> <li>Centennial's existing <i>Aboriginal Cultural Heritage Management Plan: Northern Holdings</i> (ACHMP) addresses the requirements of Newstan's consent for management of Aboriginal heritage.</li> <li>The ACHMP requires a monitoring program for identified Aboriginal sites within and immediately adjacent to mining activities prior to, during and post- mining activities.</li> <li>The Department is satisfied that the existing management measures for these sites adequately provide the monitoring requested by OEH.</li> </ul>	<ul style="list-style-type: none"> <li>No change to existing conditions.</li> <li>No change to existing ACHMP, other than updating of figures to include Site 38-4-1375.</li> </ul>
Monitoring in the ABCA	<ul style="list-style-type: none"> <li>Council expressed concerns that Centennial accessed its land without authorisation but that environmental monitoring should be undertaken in the ABCA and any collected data should be shared with it.</li> <li>Centennial has agreed to share with Council any environmental monitoring data that it collects within the ABCA.</li> </ul>	<ul style="list-style-type: none"> <li>No change to existing conditions.</li> </ul>
Rejects Management	<ul style="list-style-type: none"> <li>Concerns were raised by Council that the EA had not addressed the issue of disposal of coal rejects generated by processing an additional 2.0 Mt of coal.</li> <li>Coal rejects management is outside the scope of this modification application because it is addressed under the Northern Coal Logistics project approval.</li> <li>Centennial is required to comply with the conditions of that approval for coal rejects management. It has sufficient capacity to manage the volumes that would be generated by the proposal.</li> </ul>	<ul style="list-style-type: none"> <li>No change to existing conditions.</li> </ul>
Economic	<ul style="list-style-type: none"> <li>Centennial provided a simple consideration of the economic impacts of the proposal.</li> <li>The proposal would contribute to the economic development of the State through the payment of coal royalties and the employment of mine workers.</li> </ul>	<ul style="list-style-type: none"> <li>No change to existing conditions.</li> </ul>



## 6. Evaluation

The Department has assessed the merits of the proposed modification in accordance with the requirements of the EP&A Act. The modification application and accompanying information demonstrate that increasing the life of the consent by 12 months to allow underground first workings in an extension to the area of consent DA 73-11-98 would have negligible subsidence effects and impacts.

The Department is satisfied that the modification would cause negligible or no impacts to the land surface overlying the proposed first workings. Consequently, it is unlikely that there would be any discernible impact to any biodiversity asset, watercourse or built feature on that land. However, the Department has recommended conditions of consent to provide for environmental monitoring and assurances that Council's Biodiversity Offset assets will be protected from unpredicted mining impacts.

The Department is satisfied that any residual matters such as management of groundwater and Aboriginal heritage, would be appropriately managed by existing conditions of consent and Centennial's existing EPL and ACHMP.

The Department considers this proposed modification to be in the public interest as it would allow for the efficient and orderly acquisition of geological and mining information to allow Centennial to better plan its future mining operations at Newstan. In the process, an additional 2.0 Mt of coal would be mined, which would contribute to the economic development of the State through the payment of coal royalties and the employment of mine workers. Impacts from this modification are expected to be negligible and could be managed by existing conditions of consent and minor updates to existing management plans and Newstan's EPL.

A notice of modification (see **Appendix D**) and a consolidated version of the development consent (see **Appendix E**), as proposed to be modified, have been prepared.

Centennial has accepted the proposed modified conditions of Consent.



## 7. Recommendation

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

- **considers** the findings and recommendations of this report;
- **accepts and adopts** the findings and recommendations in this report as the reasons for making the decision to grant approval to the application;
- **grants approval** for the application DA 73-11-98 MOD 8, subject to the conditions in the attached notice of modification; and
- **signs** the attached notice of modification (see **Appendix D**).

Recommended by:

 15/11/19

**Melissa Anderson**

Environmental Assessment Officer  
Resource Assessments

Recommended by:

 16/01/19

**Colin Phillips**

Team Leader  
Resource Assessments





## 8. Determination

The recommendation is: **Adopted** / ~~Not adopted~~ by:

*Howard Reed*

**Howard Reed**

Director

Resource Assessments

*17.1.19*



# ***Appendices***

**Appendix A – Environmental Assessment**

**Appendix B – Submissions**

**Appendix C – Response to Submissions**

**Appendix D – Notice of Modification**

**Appendix E – Consolidated Consent**