

ASSESSMENT REPORT

TAHMOOR NORTH MINE

REDBANK RAIL TUNNEL DEVIATION MODIFICATION (DA 67/98 MOD 2)

1 BACKGROUND

Tahmoor Coal Pty Ltd (Tahmoor), wholly owned by Xstrata Coal, owns and operates the Tahmoor Mine, an underground coal mine located approximately 7 kilometres (km) south of Picton in the Southern Highlands (refer to **Figure 1**).

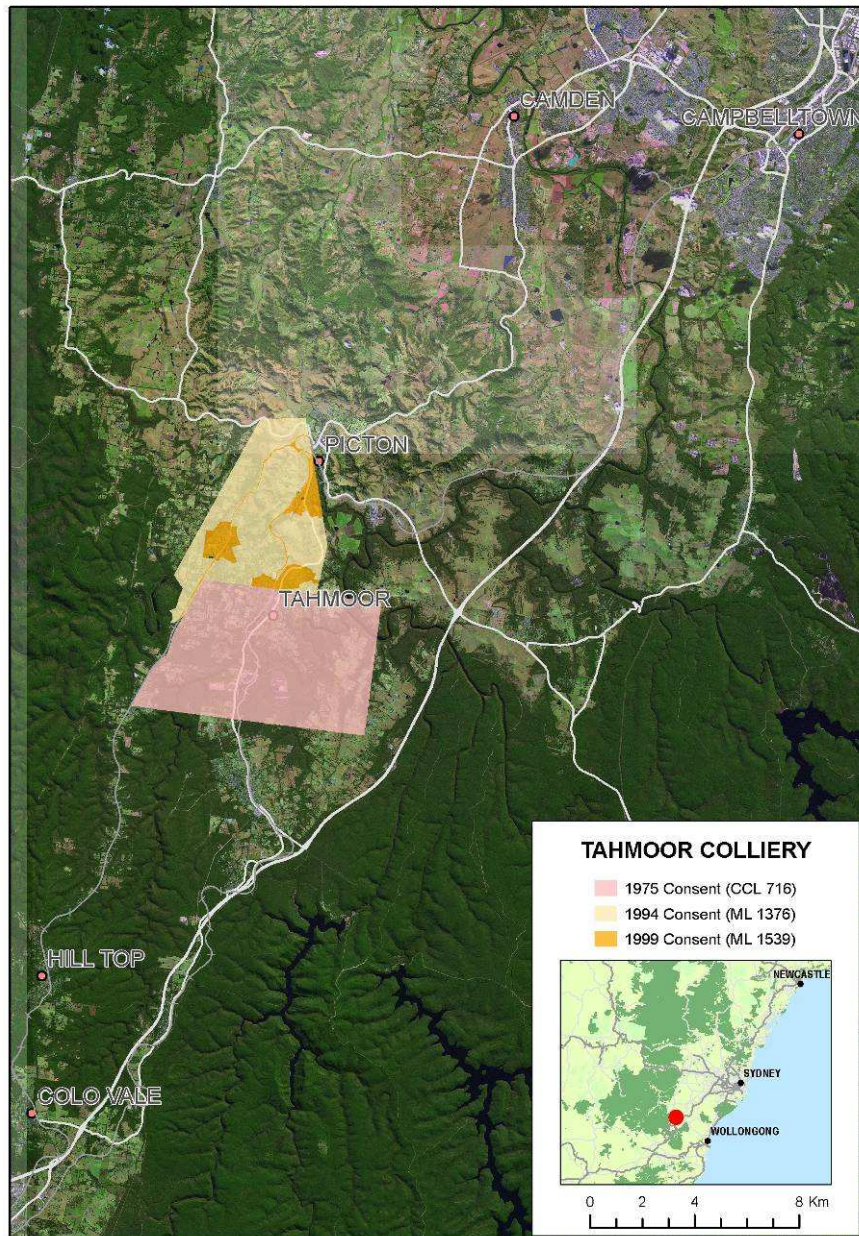


Figure 1: Regional Context

Mining operations first began in 1975 at the Tahmoor Mine (now known as Tahmoor South) under consent granted by Wollondilly Council. In 1994, consent was granted by the Land and Environment Court for an expansion of underground mining to the north (now known as Tahmoor North). However, in some parts of Tahmoor North, mining was prohibited under the *Wollondilly Local Environmental Plan 1991*, and consent was not able to be granted for mining in these areas.

In 1999, following a Commission of Inquiry, consent was granted by the Minister for Planning (DA 67/98) for mining to occur within these parts of Tahmoor North, with the exclusion of 6 small areas (then known as Areas 1 to 6), including beneath the Redbank Rail Tunnel (known as Area 3).

In 2006, Tahmoor submitted an application to modify the 1999 consent (DA 67/98) under section 96(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to allow for mining in Areas 1 to 6. During the assessment of this modification, it was determined that further information was required to accurately assess the potential subsidence impacts on the Redbank Rail Tunnel. To expedite the modification application, Tahmoor removed Area 3 from the application, and approval for the remaining areas was granted in August 2006 (refer to **Figure 2** and the current consolidated consent in **Appendix B**).

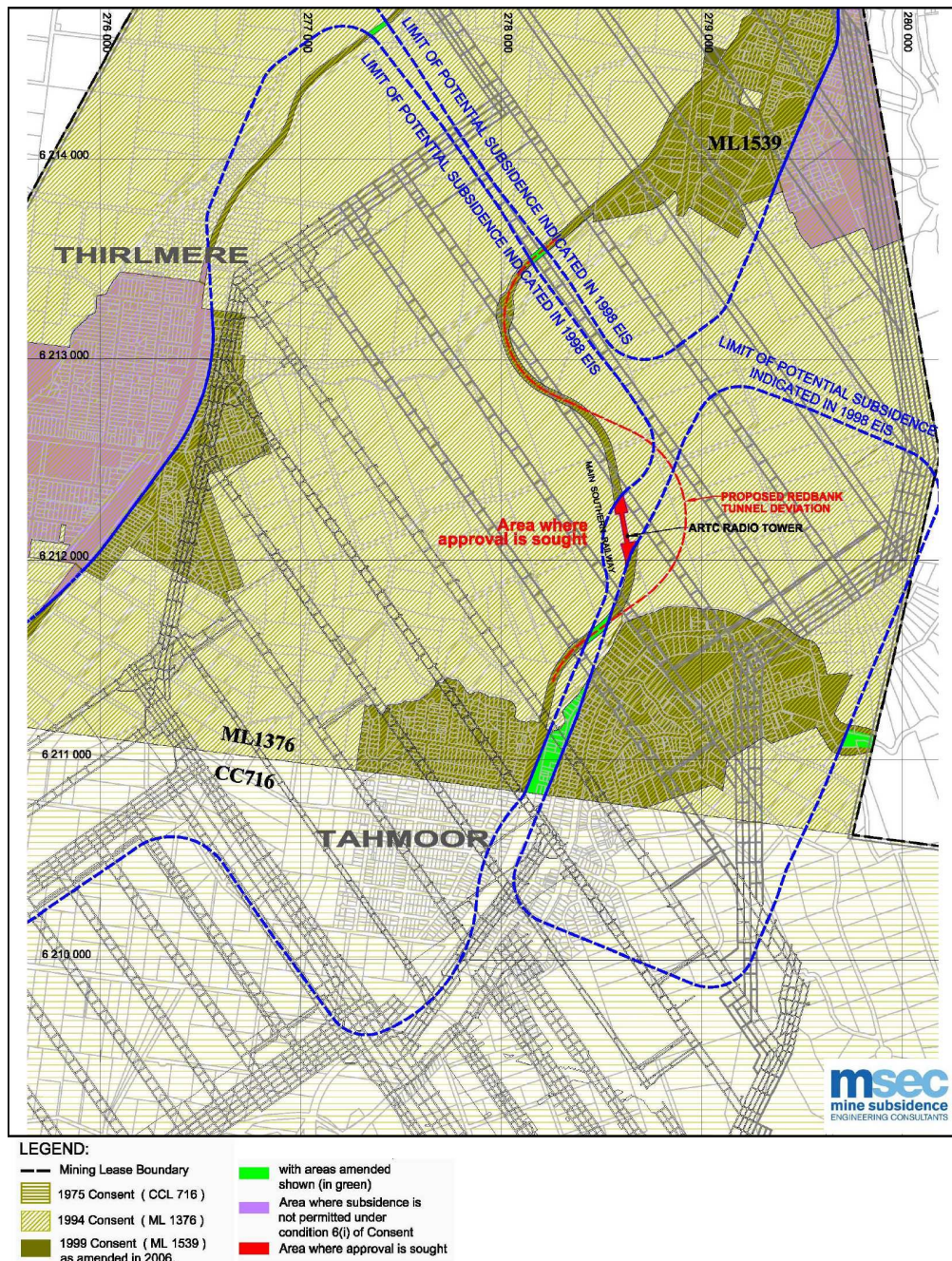


Figure 2: Area 3 (Redbank Tunnel) – no current approval for mining (marked in red)

2 PROPOSED MODIFICATION

Tahmoor has now undertaken modelling of subsidence impacts on Redbank Tunnel as a result of mining within and adjacent to in Area 3. This modelling has concluded that subsidence impacts would be significant (up to 1130 mm of vertical subsidence) and likely would impact on the structural integrity of the tunnel, resulting in a risk to rail safety on the Main Southern Railway Line which runs through the tunnel. For mining to avoid any significant risk of impact to the Tunnel would require the Tahmoor to avoid mining large areas of its proposed Longwalls 27, 28, 29 and 30.

On 21 December 2010, Tahmoor submitted an application to the Department seeking to modify the Minister's consent (DA 67/98) to allow for mining impacts within Area 3, and thereby to support the proposed mining of these longwalls. In order to avoid the potential impacts on rail safety, Tahmoor proposes to build a major deviation of the Main Southern Railway line for 1.9 km around the tunnel (refer to **Figure 3**).

Table 1 contains a summary of the main components of the proposed modification. The proposal is described in full in the Environmental Assessment (EA) for the modification, which is attached in **Appendix C**.

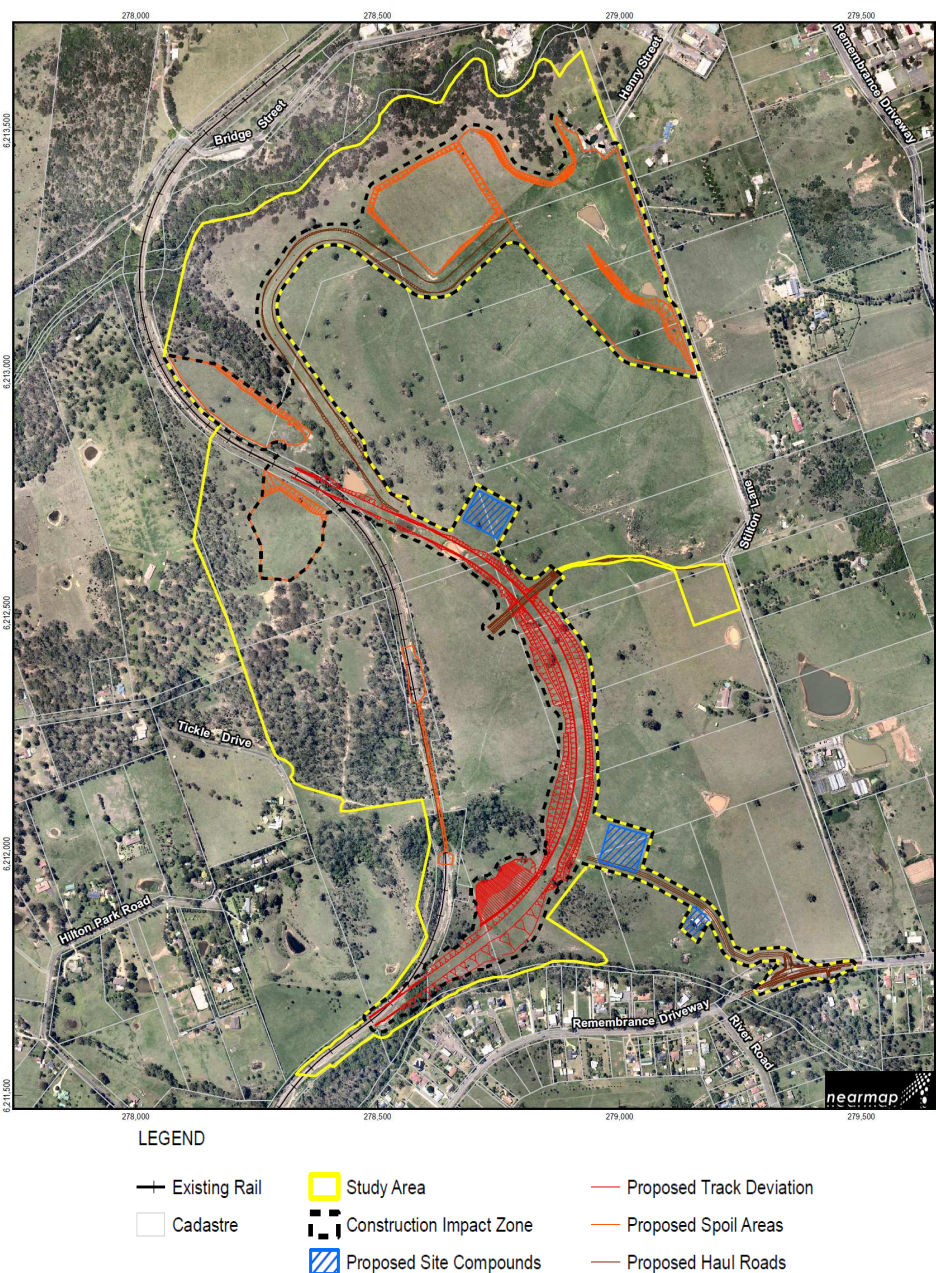


Figure 3: Area 3 – Redbank rail tunnel proposed deviation

Table 1: Summary of Main Components of the Rail Deviation Construction Modification

Aspect	Description
Modification Summary	<p>The modification would involve:</p> <ul style="list-style-type: none"> • construction of a 1.9 km section of dual, standard gauge rail track to deviate around Redbank Tunnel on the eastern side; • construction of a new overbridge to facilitate landowner access to their property once the rail track has been completed; • decommissioning the existing rail corridor including filling, stabilising and sealing the now-redundant Redbank Tunnel; and • the extraction of otherwise sterilised coal under Area 3.
<i>Mining and reserves</i>	The extraction of an additional 4.5 million tonnes of otherwise sterilised coal.
<i>Project Setting</i>	<p>The section of the Main Southern Railway affected by the proposal forms part of a double track railway between Picton and Mittagong.</p> <p>The project area consists of grazing land along with small areas of native vegetation. The land uses surrounding the project include:</p> <ul style="list-style-type: none"> • rural; • rural residential and cattle grazing; • urban residential (nearest residence is approximately 20 m south of the project area); • industrial (the Picton industrial estate is 3km north of the project site); • mining; and • road and rail infrastructure.
<i>Construction Hours</i>	<p>“Typically” 7am to 6pm Monday to Friday, 8am to 1pm on Saturday (ie standard construction hours). Additionally, some specific activities would need to be carried out outside of the standard construction hours, when trains are not operating.</p> <p>Construction is expected to take approximately 10 months.</p>
<i>Site Access</i>	<p>A new T intersection is proposed to provide site access from Remembrance Drive north of Tahmoor.</p> <p>Temporary haul roads would be required during construction to transfer extracted material from the site to the proposed emplacement area.</p>
<i>Utility and Services Relocation</i>	<p>Existing signalling infrastructure, services and utilities impacted by the project would need to be relocated, including:</p> <ul style="list-style-type: none"> • a Telstra mobile tower cable; • an Endeavour Energy 66kV transmission line and two 11kV distribution lines; and • RailCorp fibre optics CCTV communications cables.
<i>Cut and Fill</i>	<p>The maximum height of the cutting would be 25 metres (m). Vehicular access tracks would be located on both sides of the track on the floor of the cutting.</p> <p>The maximum height difference between the track and the toe of the embankments would be 20 m; however the maximum depth of the embankment fill would be only 10 m. Where feasible, cut and fill material for the rail earthworks would be sourced from within the study area.</p>
<i>Excess Spoil</i>	Spoil is to be used on site where possible and any remainder would be placed at the eastern fill emplacement area and permanently stored.
<i>Overbridge Construction</i>	An overbridge would be constructed as part of the deviation works to provide farm access across the track.
<i>Vegetation Clearing</i>	A total of 48.2 hectares (ha), including 0.5 ha of native vegetation, would be cleared as a result of the modification.
<i>Tunnel Decommissioning</i>	The tunnel void is approximately 14,000 m ³ and material required to backfill the void would be obtained from excess excavation material from the new cutting, with any additional material such as cement trucked to the site.
<i>Rehabilitation</i>	Approximately 0.5 ha of native vegetation (EECs) would be cleared. This clearing would be offset by revegetation with species contained in those EECs. All land disturbed by the construction of the rail deviation would be stabilised and revegetated. All compound areas, fill sites, and access and haul roads would be rehabilitated to a state equal to or better than existing.
<i>Construction Water Use</i>	Approximately 6.5 million litres (ML) of water would be required for construction activities and dust suppression.
<i>Workforce</i>	Peak of 85 people.
<i>Capital Investment Value</i>	\$72,242,983

3 STATUTORY CONTEXT

3.1 Clause 8J(8)

Under Clause 8J(8)(a) of the *Environmental Planning and Assessment Regulation 2000*, section 75W of the EP&A Act (now repealed) applies to any modification of a development consent which was granted by the Minister under section 101 of the EP&A Act. The Tahmoor North consent (67/98) was granted under section 101. In accordance with clause 12 of Schedule 6A of the EP&A Act, section 75W of the Act as in force immediately before its repeal on 1 October 2011 continues to apply to any such modification. Consequently, Section 75W of the EP&A Act is the appropriate statutory provision under which this modification application must be determined.

3.2 Approval Authority

The Minister was the consent authority for the original development application, and is consequently the approval authority for this modification application. However, the Deputy Director-General, Development Assessment and Systems Performance, may determine the application under the Ministerial delegation of 14 September 2011, as less than 25 public submissions by way of objection were received during the public exhibition period, no reportable political donations have been declared by the proponent, and Wollondilly Shire Council does not object to the proposal.

3.3 Modification

The proposed modification involves approval for mining within Area 3 at Tahmoor North. The additional area of mining is small when compared to the total area of approved mining. The Department is satisfied that it can be properly characterised as a modification to the original development consent, rather than a new project in its own right, and can therefore be determined under section 75W of the EP&A Act.

4 CONSULTATION

Under Section 75W of the EP&A Act the Department is not required to notify or exhibit the application. However, after accepting the EA for the proposed modification, the Department:

- made the EA publicly available from 27 September 2011 until 28 October 2011:
 - on the Department's website;
 - at the Department's Information Centre;
 - at the office of the Wollondilly Shire Council; and
 - at the office of the Nature Conservation Council of NSW;
- notified relevant State and local government authorities by letter; and
- advertised the exhibition in the Wollondilly Advertiser.

Following the exhibition of the EA, the Department received 8 submissions concerning the proposed modification, including:

- 7 from public authorities; and
- 1 from the general public.

These submissions (**Appendix D**) were made publicly available on the Department's website. A summary of the issues raised during the consultation process is provided below.

4.1 Public Authorities

The **NSW Office of Water** (NOW) raised no objection and recommended conditions of approval requiring surface water and groundwater management plans prior to construction of the rail deviation.

The **Office of Environment and Heritage** (OEH) raised concerns over the absence of a mechanism or instrument in the EA for ensuring the conservation of a biodiversity offset in perpetuity. However, OEH did not object to the proposal, provided that Tahmoor provided a suitable offset package developed in consultation with OEH, prior to construction. Further details on mitigation measures for impacts to biodiversity are discussed in section 5.1 below.

The **Heritage Branch** of OEH raised no objection and recommended that additional commitments be included in the Statement of Commitments to ensure that all heritage values identified for both the site and the relevant areas surrounding the site are appropriately managed.

The **Mine Subsidence Board (MSB)** recommended several conditions of consent related to the management of impacts upon improvements within the local Mine Subsidence District.

The **Roads and Maritime Service (RMS)**, the **Department of Primary Industries** and the **Division of Resources and Energy (DRE)** of the Department of Trade and Investment, Regional Infrastructure and Services raised no objections to the proposal.

The **Australian Rail Track Corporation (ARTC)**, which currently manages the Main Southern Railway corridor and associated rail and signalling infrastructure, has been in consultation with Tahmoor since 2009 throughout the option assessment and design of the rail deviation. Tahmoor reached an agreement with ARTC that the most appropriate way to manage subsidence issues resulting from mining beneath the Redbank Tunnel is to relocate the rail line around the tunnel.

The operation of the railway would only be affected during the construction of the northern and southern tie-ins, which would be undertaken during ARTC track possessions (pre-scheduled track shut downs). Once completed, the rail deviation and its corridor will become the property of the Country Rail Infrastructure Authority (CRIA), from which ARTC will then lease and manage the rail network.

ARTC was sent a copy of the modification application and accompanying EA but did not provide a submission to the Department. The Department has since contacted representatives of ARTC who have confirmed that ARTC has no objection to the proposal.

Wollondilly Shire Council was also sent a copy of the modification application and accompanying EA but did not provide a submission to the Department.

4.2 General Public

The Department received only one submission from the public, which objected to the proposed modification. It raised concerns about the potential noise impacts from the rail diversion including those relating to construction work occurring outside standard construction hours. Other general concerns raised in this submission included potential visual impacts, loss of rural amenity and biodiversity impacts.

Tahmoor has provided responses to the issues raised in submissions (see **Appendix E**). The Department has considered the issues raised, and Tahmoor's response to these issues, in its assessment of the proposed modification.

5 ASSESSMENT

5.1 Noise

The EA includes a Noise Impact Assessment (NIA) undertaken by GHD Pty Ltd in accordance with applicable guidelines, including the *NSW Industrial Noise Policy (INP)*, the *Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects (IGANRIP)* and the *Interim Construction Noise Guideline (ICNG)*. The NIA was undertaken with reference to sensitive receivers within the vicinity of the modification and includes an assessment of the existing ambient noise environment by assessing the Rating Background Level (RBL) at three locations considered to be representative. The RBLs are then used as the basis for setting noise impact assessment criteria for the project. The location of nearby noise receivers is shown in **Figure 4**.

Construction Noise

The EA states that "typical" hours of construction for the project would be 7am to 6pm Monday to Friday and 8am to 1pm on Saturday (ie standard construction hours). Additionally, some specific activities would need to be carried out outside of standard construction hours, providing that trains are not operating. If works are to occur outside normal construction hours, and works would be audible, a noise and vibration assessment would be prepared in accordance with the ICNG.

To assess construction noise impacts, the NIA estimated equipment noise levels at distances ranging from 50 m to 1000 m from the construction site. The results indicate that 70 residences are located within 1000 m of the site, and that they have potential for noise to exceed the ICNG's "noise affected" criteria during standard construction hours. These ICNG criteria are intended to reflect the point above which there may be some community reaction to construction noise. The NIA also found that it is unlikely that the ICNG's "highly noise affected" criteria would be exceeded at any residences. These criteria are the level above which the ICNG judges that there may be strong

community reaction to noise. However, the NIA also notes that these predictions of noise impacts are only indicative and would need to be confirmed by monitoring at the commencement of each stage of construction.

To minimise the construction noise impacts on sensitive receivers, Tahmoor has committed to implement standard mitigation measures, including:

- all vehicles and machinery fitted with manufacturer-supplied noise suppression devices;
- quieter and non-vibration generating work methods preferred;
- fixed equipment (eg pumps, generators, compressors), material dumps and loading/unloading facilities located as far as possible from sensitive receivers;
- materials dropped from heights into or out of trucks minimised;
- no plant or equipment left idling when operating near residences; and
- where practicable, all typically noisy construction activities kept within daytime working hours.

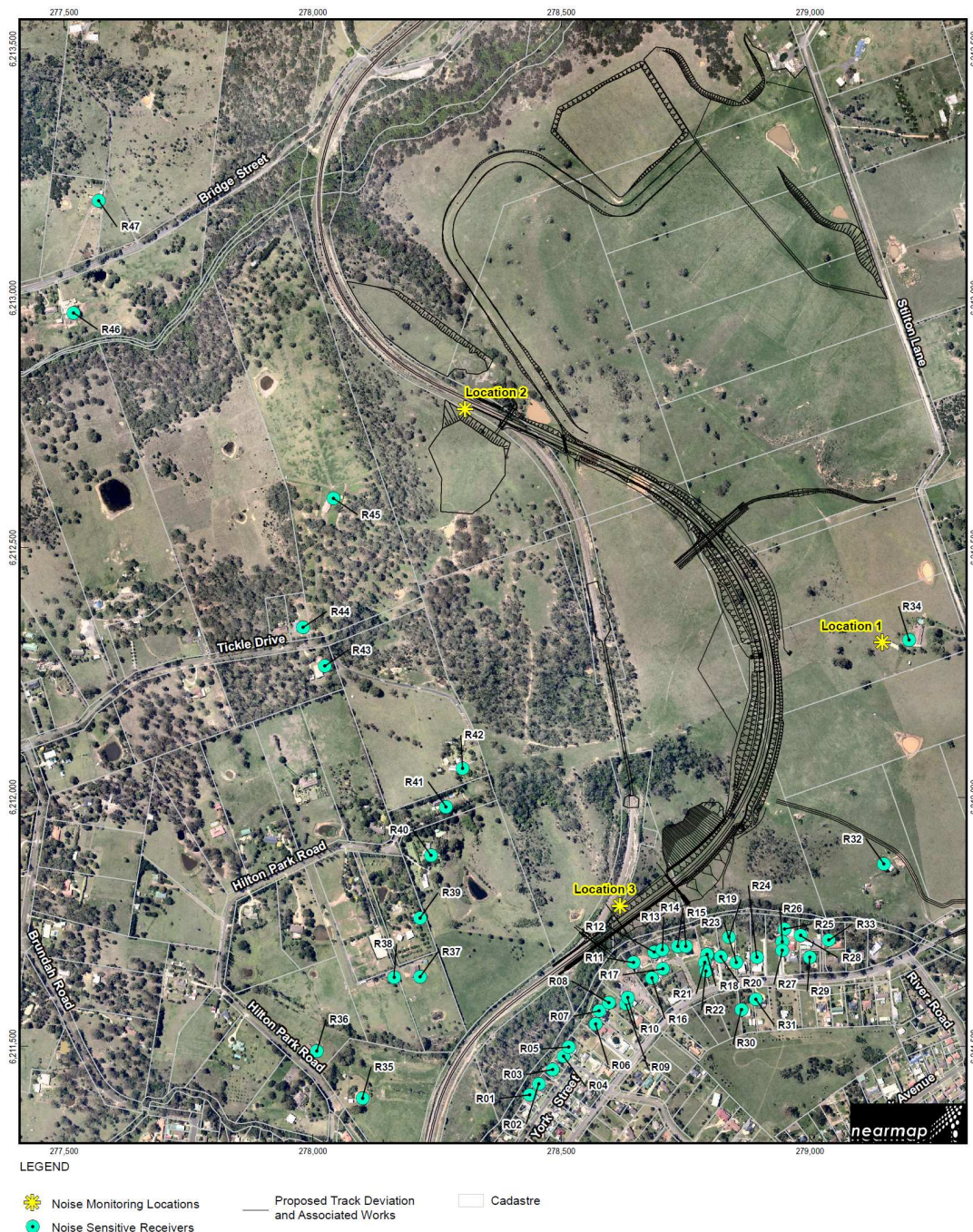


Figure 4: Sensitive receiver locations

The NIA also includes procedures for Tahmoor to respond to high levels of construction noise, particularly outside of standard construction hours. These procedures reflect a standard matrix of responses included in the Transport Construction Authority's *Construction Noise Strategy* (2010). This matrix includes a monitoring program and additional mitigation measures, ranging from compliance monitoring and letterbox drop notifications through to alternative accommodation options. The standard matrix proposes that monitoring would take place at the commencement of construction, as well as monitoring at residences that exceed 20 dB(A) above the relevant RBL during standard construction hours and evenings, and at residences that exceed 10 dB(A) above the relevant RBL for Sundays and night-time.

However, the Department considers that construction noise is better managed through appropriate restrictions on construction hours, rather than implementation of monitoring requirements which only come into play at substantial exceedances of RBLs. Consequently, it has recommended conditions which would limit construction hours to standard hours, except at the request or direction of the Australian Rail Track Corporation (ARTC).

The Department has also recommended a condition requiring Tahmoor to submit a Construction Noise Management Plan (CNMP) for the rail deviation, prepared in accordance with the *Construction Noise Strategy*, for approval by the Director-General prior to commencement of significant construction work on the deviation. The CNMP would have to describe the noise mitigation measures to be implemented to minimise noise impacts from construction activities, set out an appropriate noise monitoring program and outline the procedures to manage responses to any complaints or issues raised by noise-affected residents.

To address the possibility of construction noise impacts outside of standard construction hours, the Department has also recommended a condition requiring Tahmoor to undertake a community consultation process and associated mitigation measures in accordance with the *Construction Noise Strategy* (ie to also implement the standard matrix of measures referred to above).

The Department is satisfied that noise impacts from construction can be adequately managed through strict restrictions on construction hours, the preparation of a CNMP and the implementation of appropriate mitigation measures. Additional community consultation would occur if audible construction works are to occur outside standard hours, and additional noise mitigation measures may then result from application of the matrix of measures referred to above.

Rail Noise

The NIA compared predicted noise impacts on residential receivers from the operation of the existing and proposed rail route, in accordance with the IGANRIP. This assessment was based on noise mitigation measures proposed to be incorporated into the design of the proposed rail route, including a 2.4 m high noise barrier on the southern side of the deviation (refer to **Figure 5**).

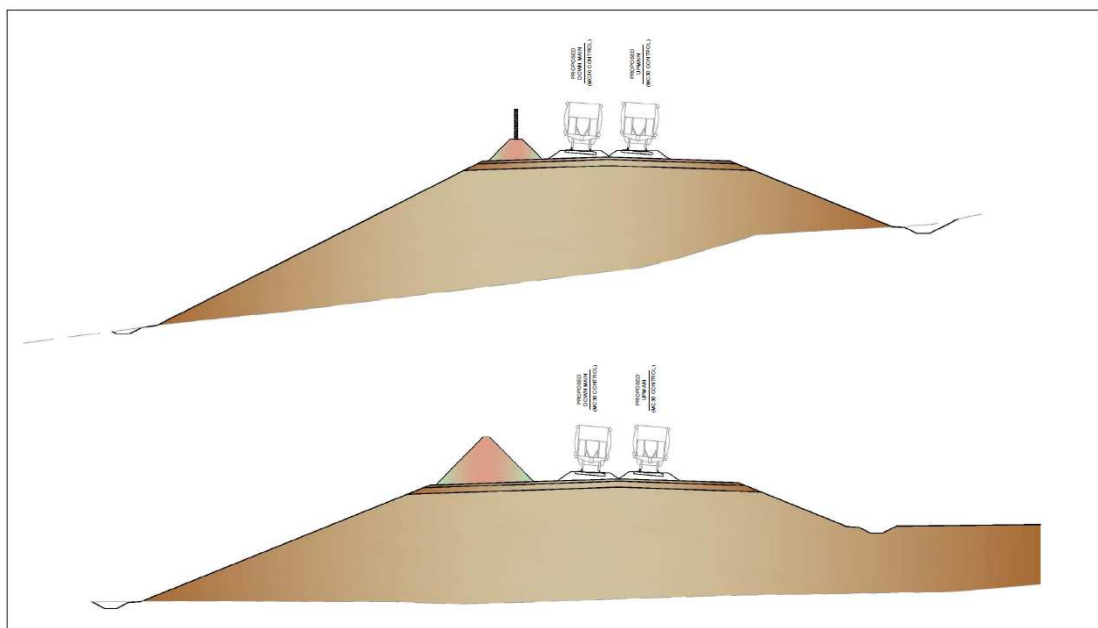


Figure 5: Cross section of proposed noise barrier options

The results of the assessment found that resultant rail noise would actually *decrease* at 40 of the 47 receivers, as a result of the proposed modification, primarily due to the construction of the noise barrier. Receivers where noise levels were predicted to increase are shown in **Table 2** below, with increased noise levels shown in red. Six of these seven affected receivers are predicted to have increases of not greater than 1 dB(A), which is inaudible to the human ear. Receiver R34 is predicted to experience a significant increase in noise levels as a result of the modification. However, the higher level is well within the IGANRIP criteria for new rail line developments, and well below the noise levels experienced at the other six affected receivers.

Table 2: Receiver predicted to experience increases to operational rail noise

Receiver	Existing Scenario			Proposed Scenario		
	Day <i>L_{Aeq(15hr)}</i>	Night <i>L_{Aeq(9hr)}</i>	Max <i>L_{Amax}</i>	Day <i>L_{Aeq(15hr)}</i>	Night <i>L_{Aeq(9hr)}</i>	Max <i>L_{Amax}</i>
IGANRIP Criteria	60	55	80	60	55	80
R34	27	28	56	35	37	63
R40	48	50	78	49	50	78
R41	44	46	73	45	47	73
R42	41	42	69	41	42	70
R43	40	42	71	41	42	72
R46	41	42	72	39	40	73
R47	45	46	76	42	44	77

The Department notes the concerns raised in the public objection about the effectiveness of the proposed sound barrier. The Department's acoustic specialist has carefully considered the proposed barrier design and predicted noise levels from rail operations. The Department is satisfied that a decrease in rail noise levels would occur at the majority of receivers as a result of the proposed noise mitigation measures, and that the great majority of the remaining receivers would only experience a negligible increase. Therefore, the Department is satisfied that the predicted noise levels would not have a significant impact on surrounding sensitive receivers.

5.2 Subsidence

If Redbank Tunnel was left open after it is bypassed, then it is likely that some sections of the Tunnel's masonry lining would experience cracking, shearing and localised spalling and possible collapses as a result of mining subsidence. Tahmoor therefore proposes to fill the tunnel with material excavated during construction of the proposed deviation, mitigating any potential safety hazards to people who might enter the tunnel and reducing subsidence to the natural surface above the tunnel.

The ARTC-owned radio communication towers located on top of the hill above the tunnel would be unlikely to experience significant physical subsidence impacts; however some adjustments to antennae orientation may be required. Tahmoor has committed to consult with the ARTC and manage any risks associated with subsidence impacts on the radio towers through the rail management plan for Longwalls 27 to 30.

The proposed railway track would experience changes in track geometry and rail stress as a result of subsidence caused by mining beneath the deviation. Tahmoor would manage these impacts through measures similar to those successfully undertaken for other sections of the Main Southern railway at Tahmoor and the Appin Colliery, including:

- installation of expansion switches and zero toe load clips;
- regular monitoring and inspections; and
- rapid response measures if required.

DRE supports Tahmoor's proposed subsidence management measures, provided that the proposed rail deviation is completed prior to the initiation of any subsidence impacts on the tunnel. The Department is satisfied that subsidence impacts, mitigation, management and monitoring, including any impacts to the tunnel, would be most appropriately managed through a Subsidence Management Plan, approved by the Executive-Director Mineral Resources, within DRE.

5.3 Other issues

Other environmental issues associated with the proposed modification are considered in **Table 3**.

Table 3: Assessment of other issues

Issue	Potential impact and consideration	Recommendation
Biodiversity	<ul style="list-style-type: none"> • The EA included a biodiversity assessment undertaken by GHD in accordance with the <i>Draft Threatened Species Part 3A Assessment Guidelines</i>. The assessment found that the modification is unlikely to have a significant impact on any flora and/or fauna species listed under the <i>Threatened Species Conservation Act 1995</i> (TSC Act). • The modification would result in the clearing of 0.5 ha of native vegetation consisting of: <ul style="list-style-type: none"> - 0.3 ha of Cumberland Plain Woodland, which is classified as an endangered ecological community (EEC) under both the TSC Act and the Commonwealth's <i>Environment Protection and Biodiversity Conservation Act 1999</i>; and - 0.2 ha of Shale/Sandstone Transitional Forest, which is listed as an EEC under the TSC Act. • Following consultation with OEH, Tahmoor has committed to offset the impact on the EECs using OEH's biobanking scheme. This offset would secure, in perpetuity: <ul style="list-style-type: none"> - 15 credits for <i>Grey Box – Forest Red Gum grassy woodland on the flats of the Cumberland Plain</i> [HN528]; and - 13 credits for <i>Narrow-leaved Ironbark – Broad-leaved Ironbark – Grey Gum open forest of the edges of the Cumberland Plain</i> [HN556]. • OEH has seen Tahmoor's revised Statement of Commitments and has confirmed that the offset commitments are satisfactory. 	<p>No recommended conditions of consent.</p> <p>Biodiversity offsets are included in Tahmoor's revised Statement of Commitments, which forms part of the recommended conditions of consent.</p>
Surface Water	<ul style="list-style-type: none"> • During construction of the rail deviation, surface water quality may be affected by increased sediment export and reduced bed and bank stability through the disturbance of riparian vegetation. In order to minimise these impacts, Tahmoor has committed to: <ul style="list-style-type: none"> - apply appropriate erosion and sediment control measures; - revegetate all disturbed areas; - implement a surface water monitoring program; and - ensure the suitable placement and protection of fill material during and after construction. • Outlet structures included in the southern part of the deviation construction would be located within 40 m of Myrtle Creek. To reduce the impact on Myrtle Creek, the outlets would be natural and provide stability and energy dissipation prior to transitioning to the natural surface. Infilling of an unnamed 3rd order stream for fill emplacement west of Stilton Lane is also required. This fill emplacement has been designed in consultation with NOW. • NOW's submission noted that all activities that would occur on waterfront land (such as excavation, fill emplacement, drainage outlets and other construction works), would require a Controlled Activity Approval under the <i>Water Management Act 2000</i> (WMA Act) and should be conducted in accordance with NOW's <i>Guidelines for Controlled Activities</i>. Tahmoor would seek and obtain these approvals. • The Department is satisfied that surface water impacts can be adequately managed through the proposed mitigation measures and in accordance with the requirements of the WMA Act. 	<p>Tahmoor must obtain all relevant Controlled Activity Approvals for activities on waterfront land.</p> <p>The preparation of a Surface Water Management Plan (SWMP) for the modification is included in Tahmoor's revised Statement of Commitments, which forms part of the recommended conditions of consent.</p>
Groundwater	<ul style="list-style-type: none"> • Upwelling of groundwater at the rail track level would be unlikely, however it is possible that groundwater may be intercepted in the rock mass of the rail cutting. Any flows from this interception are not predicted to be significant and would not impact regional groundwater flows or quality. • Coal extraction and the resulting subsidence may result in changes to groundwater conditions, however the Department considers these changes to be negligible when compared to changes resulting from the approved mining operations, given the extensive longwall mining that has already occurred at the Tahmoor Mine. • The NOW submission noted that, for all activities which intercept or extract groundwater, Tahmoor must obtain relevant licences under the WMA Act. 	<p>Tahmoor must obtain all relevant licences under the WMA Act.</p> <p>The preparation of a Groundwater Management Plan for the modification is included in Tahmoor's revised Statement of Commitments.</p>

Issue	Potential impact and consideration	Recommendation
<i>Erosion and Sediment control</i>	<ul style="list-style-type: none"> The key potential impacts are an increase in stream bed degradation, bed and bank instabilities and scour on Redbank and Myrtle Creeks. The Department is satisfied with the range of both temporary and permanent sediment and erosion control measures proposed in the EA for incorporation in the relevant management plans. In particular, a method known as rock breaching may be utilised to minimise impacts and reduce the risk of scour. Rock breaching involves the placement of quarried rock on stream banks, which minimises the velocity of stormwater flows, provides protection from erosion and stabilises stream beds and banks. 	<p>Mitigation measures must be outlined in the SWMP and Construction Environmental Management Plan (CEMP), which are included in Tahmoor's revised Statement of Commitments.</p>
<i>Visual</i>	<ul style="list-style-type: none"> The proposed modification would have impacts on the character of the landscape and visual amenity for receptors at a range of locations; however these would reduce in significance over time. The greatest visual impact would be caused by the temporary presence of key components during construction; including construction compounds, material storage areas, haul roads, fill emplacement areas and vegetation clearance. In order to mitigate visual impacts during construction, Tahmoor has committed to: <ul style="list-style-type: none"> minimise loss or damage to existing vegetation; minimise light spillage; remove all signage and temporary barriers when no longer required; and distribute fill emplacement to produce a naturalistic, undulating landform where practicable. The main visual impact during operation of the rail track would be from Remembrance Driveway due to the height and scale of the proposed fill batters. In order to minimise visual impacts during operation, Tahmoor has committed to prepare and implement a Landscape Management Plan which would include: <ul style="list-style-type: none"> integration of infrastructure through finish, texture and colour; minimising vegetation clearance in sensitive areas and where vegetation provides screening; and planting of vegetation on fill batters. The Department notes that visual impacts were raised in the one submission from the general public, but is satisfied that the proposed mitigation measures for both construction and operation are adequate in the circumstances. 	<p>No recommended conditions of consent.</p> <p>Preparation of a Landscape Management Plan and other mitigation measures are included in Tahmoor's revised Statement of Commitments, which forms part of the recommended conditions of consent.</p>
<i>Aboriginal Heritage</i>	<ul style="list-style-type: none"> The EA's Aboriginal Heritage assessment included a desk top and literature review, as well as consultation with the Aboriginal community and representatives from a registered Aboriginal stakeholder association. A total of 31 Aboriginal sites and two 'potential archaeological deposits' were identified within the study area. The predicted subsidence within Area 3 is not expected to impact on any known items of Aboriginal heritage or cultural significance. However, the assessment indicated that there would be potential impacts resulting from construction and operation of the proposed track deviation on three identified Aboriginal sites within the study area. Based on the relatively low significance of these sites, the moderate to high levels of existing ground disturbance, and the presence of similar heritage resources in these areas, OEH's Heritage Branch and the Department are both satisfied that the cumulative impacts on these items would be low. Tahmoor has also committed to a range of mitigation measures to protect Aboriginal heritage during construction and operation of the track deviation, including: <ul style="list-style-type: none"> fencing off sites containing artefacts; avoiding disturbance of areas containing artefacts; and obtaining an Aboriginal Heritage Impact Permit from OEH. 	<p>No recommended conditions.</p> <p>Mitigation measures are included in Tahmoor's revised Statement of Commitments, which forms part of the recommended conditions of consent.</p>
<i>Traffic and Transport</i>	<ul style="list-style-type: none"> Site access during construction would be from Remembrance Driveway. A new intersection is proposed, in addition to a decrease in speed limit on this section of the Driveway for the duration of construction. RMS supports these proposals. During construction, an additional 80 cars and 8 trucks would 	<p>No recommended conditions.</p> <p>Mitigation measures are included in</p>

Issue	Potential impact and consideration	Recommendation
	<p>access the site via Remembrance Driveway each day. The EA's Traffic Assessment found that the additional traffic during peak periods would not adversely affect the level of service during peak periods for this road.</p> <ul style="list-style-type: none"> • To mitigate any potential impacts on Remembrance Driveway, Tahmoor has committed to: <ul style="list-style-type: none"> - undertake a road dilapidation survey prior to construction and restore any affected roads post construction; - minimise truck movements on the local road network between 7 – 9 am and 3 – 5 pm where possible; and - use traffic controllers on Remembrance Driveway during periods of high activity. • There are no operational changes to traffic and transport. 	<p>Tahmoor's revised Statement of Commitments, which forms part of the recommended conditions of consent.</p>
Vibration	<ul style="list-style-type: none"> • The EA included an assessment of the vibration impacts on structures located in the vicinity of the project during both construction and operation. Vibration impacts to human comfort were only assessed during operation, as impacts during construction would only be temporary in nature. • The assessment compared typical vibration levels for different plant activities at various distances. As no Australian Standard exists for the assessment of building damage caused by vibration, the predicted vibration levels were compared to German Standard DIN 4150-3: 1999-02. The assessment found that, as there are no sensitive receivers located within 25 m of construction works, vibration impacts resulting in structural damage are not expected to occur. Vibration levels during the operation of the rail tunnel deviation were also predicted to be below the relevant structural damage criteria. • Vibration levels caused by trains passing by would also be below the human comfort criteria contained in <i>Assessing vibration: A technical guideline</i> (OEH, 2006). • Consequently, the Department is satisfied that any impact as a result of vibration during both construction and operation of the project would be minimal and could be appropriately managed. 	<p>No recommended conditions.</p>
Air Quality	<ul style="list-style-type: none"> • During construction, the primary potential impact to air quality would be dust emissions generated through mechanical disturbance and exposed soil surfaces. Modelling in the EA showed that, even without the implementation of control measures such as watering of haul roads and stockpiles, levels of 24 hour and annual average PM₁₀ and annual average TSP would all remain below relevant criteria. • Nevertheless, Tahmoor has committed to apply dust mitigation measures during construction including: <ul style="list-style-type: none"> - ensuring that all construction traffic travels on designated haul routes with limited speed limits; - covering loads when hauling loose material on public roads; and - ensuring equipment is available to wash off excessive dirt, mud or debris from any vehicles leaving the site. • During operation of the rail deviation, potential impacts to air quality could result from emissions from diesel locomotive engine exhausts and dust from uncovered loads of coal. Modelling of the existing and proposed rail track showed that a minor increase in some pollutants such as CO, SO₂, NO₂ would occur at nearby sensitive receivers. However, the increased level of these pollutants still remains well below the relevant OEH air quality criteria. • The Department is satisfied that the proposed modification would not result in exceedance to any relevant air quality criteria during either construction or operation. 	<p>No recommended conditions.</p>

6 RECOMMENDED CONDITIONS

The Department has given consideration to the existence of 3 separate development consents, dating to 1975, 1994 and 1999, for the Tahmoor Mine. It has sought to develop a contemporary suite of conditions, which although attached to the 1999 consent, would have effect across the whole of the Tahmoor Mine site and ensure that the mine can be effectively regulated. It has therefore revised the existing 1999 consent to be consistent with contemporary mining approvals. In

particular, it has proposed requirements for a Noise Management Plan and an Air Quality and Greenhouse Gas Management Plan for the Tahmoor Mine.

The Department has also incorporated conditions to specifically address the construction noise impacts of the modification, while Tahmoor has provided a Statement of Commitments (SOC) for the modification that addresses other impacts of the modification, including surface water, groundwater, biodiversity and visual impacts. The SOC is required to be implemented by Tahmoor under the recommended conditions of consent.

Tahmoor, OEH, DRE, NOW and Council were consulted over the draft conditions of approval. The Department has carefully considered the responses by agencies and made appropriate changes to the draft conditions. Tahmoor has reviewed the final draft conditions and has accepted them.

7 CONCLUSION

The Department has assessed the modification application, the EA, submissions and Tahmoor's Response to Submissions in accordance with the relevant requirements of the EP&A Act, including the objects of the EP&A Act and the principles of ecologically sustainable development.

The assessment has found that the proposed modification may have minor noise impacts during construction; however these are addressed through recommended conditions of consent. The recommended conditions require Tahmoor to submit a Construction Noise Management Plan (CNMP) to the Director-General for approval, prior to commencement of construction work on the rail deviation. The conditions also set standard hours and require Tahmoor to undertake community consultation in accordance with the *Construction Noise Strategy* if construction is to take place outside these standard hours. The Department has also required implementation of Tahmoor's SOC in the recommended conditions of consent. The SOC includes the preparation of a number of management plans that are aimed at mitigating and managing impacts on surface water, groundwater, biodiversity and visual amenity.

With the implementation of these recommended conditions, the Department is satisfied that the impacts of the proposed modification would be adequately minimised and/or managed. In addition, the Department believes that its proposed revision and updating of many other conditions relating to noise, air quality and general reporting and monitoring within the mine's existing 1999 consent would substantially improve overall management and regulation of the overall mine.

The proposed modification would allow for the production of an additional 4.5 million tonnes of otherwise sterilised coal, which would deliver significant socio-economic benefits to the region and the State of New South Wales. Given the relatively minor impacts, and the mitigation measures proposed, the Department believes the benefits of the modification substantially outweigh its costs, and that the proposed modification is in the public interest and should be approved subject to conditions.

8 RECOMMENDATION

It is RECOMMENDED that the Deputy Director-General, as delegate of the Minister:

- **consider** the findings and recommendations of this report;
- **determine** that the proposed modification falls within the scope of section 75W of the EP&A Act;
- **approve** the application under section 75W, subject to conditions; and
- **sign** the attached Notice of Modification (in **Appendix A**).


Howard Reed
A/Director
Mining and Industry Projects
30.3.12


Daniel Keary
A/Executive Director
Major DA Assessment
4/4/12


Richard Pearson
Deputy Director-General
Development Assessment & Systems Performance
8/4/12