



Planning &
Environment

ADDENDUM:

***STATE SIGNIFICANT
DEVELOPMENT ASSESSMENT
Warkworth Continuation Project
(SSD-6464)***



Environmental Assessment Report
Section 89E of the
Environmental Planning and Assessment Act 1979
May 2015

Cover Photos – clockwise from the top: Warkworth mine looking northwest towards North Pit and West Pit, coal seams (photo sourced from Warkworth EIS), West Pit dragline mining.

© Crown copyright 2015
Published May 2015
NSW Department of Planning and Environment
www.planning.nsw.gov.au

Disclaimer:
While every reasonable effort has been made to ensure that this document is correct at the time of publication, the State of New South Wales, its agents and employees, disclaim any and all liability to any person in respect of anything or the consequences of anything done or omitted to be done in reliance upon the whole or any part of this document.

1. INTRODUCTION

1.1 Background

This report has been prepared to consider the recommendations made in the Planning Assessment Commission's (PAC's) review of the Warkworth Continuation Project (SSD-6464) (the project), together with additional information received from Warkworth Mining Limited (Warkworth) and the Department of Planning & Environment's (the Department's) independent noise and economics experts since the PAC review.

The report should be read in conjunction with the Department's Environmental Assessment Report (November 2014) for the project, and the corresponding documents for the related Mt Thorley Continuation Project (SSD-6465).

1.2 Chronology of Events

A brief chronology of the key events relevant to this addendum report in the time since the Department's referral of the assessment package to the PAC is presented in the following table.

Table 1: Chronology of Events

Date	Event
14 Nov 14	Department's Environmental Assessment Report referred to PAC
18-19 Dec 14	PAC holds public hearings in Singleton
4 Mar 15	PAC finalises its review and refers the review report to the Department
20 Mar 15	Warkworth provides its response to the PAC review to the Department (see Attachment A)
9 Apr 15	Department receives independent Bulga mine noise audit report from Wilkinson Murray (see Attachment E)
16 Apr 15	Department's independent economics expert (Deloitte Access Economics) provides economic review report (see Attachment B)
4 May 15	Rio Tinto reaches in-principle agreement with Singleton Shire Council about the terms of a Voluntary Planning Agreement for both the Warkworth and Mt Thorley projects (see Attachment C)
6 May 15	Department's independent noise expert (Dr Norm Broner) provides noise review report (see Attachment D)
8 May 15	Roads and Maritime Services (RMS) writes to the Department concerning the upgrade of the intersection of the Golden Highway and Mitchell Line of Road (see Attachment G)

2. CONSIDERATION OF PAC REVIEW

2.1 Review Findings and Recommendations

The PAC review report for the project has the following conclusion:

"In conclusion, the Commission has made a number of significant recommendations and requires further information on a variety of matters prior to determination of the subject application. Whilst the Commission notes that the current application is very similar to the previous Warkworth Extension Project that was refused by the LEC, significant legislative and policy changes have occurred since that time. The Commission is required to consider the current legislative and policy environment in its review of the application. Further changes have been made to the application to address issues raised in the LEC decision.

The Commission recognises that the project provides for mining of a significant resource and will have very significant direct and indirect economic and social benefits for the State and the Hunter region. It further notes that if the project was not approved, there would be substantial adverse economic impacts, especially to the towns of Singleton and Cessnock. These impacts include the loss of royalties to the NSW government, a reduction in infrastructure projects to the Hunter region and lower wage and salary income for both current employees and contractors.

Notwithstanding the economic benefits of the project to the State and the region, the Commission considers that the project will undoubtedly have a range of adverse impacts on Bulga village and its community. In light of these impacts the Commission recommends that serious consideration should be given to the potential option for compensation to the villagers.

Notwithstanding the above comment, the Commission considers that, subject to the detailed recommendations outlined in the report, the project is consistent with government policy and legislation and is capable of being approved.”

The review report contains 22 recommendations relating to the following aspects of the project:

- economic impacts;
- noise;
- air quality;
- biodiversity;
- final void; and
- rehabilitation.

The Department’s consideration of these recommendations is provided below. Revised recommended conditions of approval are provided in Attachment I.

2.2 Economic Impacts

2.2.1 Recommendation 1

The Applicant’s economic assessment, including the CBA, should be updated to reflect the current economic climate.

Warkworth has updated its cost benefit analysis (CBA) for the Mt Thorley and Warkworth Continuation Projects to reflect the most recent consensus forecasts for thermal coal prices and exchange rate (see Attachment A). This includes a coal price of \$63/tonne and an exchange rate of 78 cents/\$US for 2015.

Warkworth also notes that its original CBA for the projects included sensitivity analyses that encompass the current economic climate.

The additional analysis indicates that the net benefit provided by the projects is relatively insensitive to movements in coal prices and exchange rates, with the net present value of the projects reducing by only \$10 million based on the most recent forecasts. This still results in a benefit of \$1.5 billion to NSW associated with the projects.

The Department’s independent economics expert Deloitte Access Economics (DAE) has reviewed and accepts the additional economic modelling (see Attachment B). DAE concludes that:

“We maintain our finding that the analysis contained in the original BAEconomics analysis is broadly appropriate. DAE considers that the Secretary’s Environmental Assessment Requirements in respect to economic assessment have been met.”

DAE did raise some concerns over the presentation of the CBA and the treatment of environmental externalities, however it noted that neither of these issues would affect the overall findings of the cost benefit analysis.

The Department accepts the independent economics expert’s findings and conclusions. Based on the assessments of both BAEconomics and DAE, the Department is satisfied that the CBA indicates that the projects would result in a significant net benefit to NSW of approximately \$1.5 billion based on current forecasts.

2.2.2 Recommendation 2

As part of the determination of the project, DAE should review the additional information provided by the applicant and any updated economic assessment/CBA provided by the applicant and provide updated advice to the Department as required.

DAE has updated its report having regard to the additional information provided by Warkworth (see Attachment B), and the Department notes that DAE has concluded that the project would result in a significant net economic benefit to NSW (see above).

2.2.3 Recommendation 3

The following options should be considered for the future of Bulga village:

- a. Compensating property owners who wish to sell. This compensation would be paid by the Applicant and the compensation amount would be the difference between movements in the average regional/sub-regional property price and that of local property sale prices based on an independent valuation process. A dispute resolution process would also need to be agreed*
- b. Relocating the village at the expense of the state government and Applicant. The government would be required to deliver all new infrastructure, while the Applicant would be required to pay for the construction of new houses. Any relocation decision and associated planning would need to involve the residents of Bulga*
- c. Requiring the Applicant to develop a Village Enhancement strategy in consultation with the local community and Council and to fund and implement a program of works or similar via a VPA with the Minister and Council.*

Compensation and Relocation

The Department's assessment of the Warkworth and Mt Thorley Continuation Projects shows that no privately-owned residences within Bulga village would experience noise and/or dust impacts above the applicable acquisition criteria (although one affected property is located on the northern outskirts of Bulga). An additional 5 residences located in or around Bulga would be subject to moderate noise impacts.

The Department has recommended conditions that would require Warkworth to address these impacts in accordance with established policy, namely the NSW Government's *Voluntary Land Acquisition and Mitigation Policy* (December 2014).

In summary, the assessment of the projects indicates that around 95% of the properties in Bulga would be below the acquisition and/or mitigation thresholds in the *Voluntary Land Acquisition and Mitigation Policy* for both dust and noise. These criteria are set by the NSW Government for assessing whether the impacts of a proposed development are acceptable.

Consequently, apart from those with acquisition rights (outside Bulga Village) and/or mitigation rights, the Department considers there is no justification for paying compensation to Bulga residents or relocating the village.

Property Values

The Department's assessment report includes consideration of the potential impacts of the project on property values in Bulga, noting that mining is likely to have both positive and negative influences on property values.

The Department also notes that the Warkworth mine has been operating since 1981, and Rio Tinto has held a valid mining tenement over the area subject to the current application since that time. It would therefore be reasonable to assume that the presence of open cut mining in the vicinity is a long standing factor in the valuation of properties in Bulga village and surrounds.

Further, the Department considers there is no legal basis for guaranteeing property values where an applicant is seeking to develop the site in accordance with a permissible land use.

This is supported by the NSW Land & Environment Court which has commented that if compensation were payable in respect of any development which had some impact in lowering the amenity of another property (although not so great as to warrant refusal) any applicant could be exposed to claims for compensation¹. Creating such a right to compensation would be contrary to the relevant objective of the EP&A Act to promote the orderly and economic use and development of land.

Community Enhancement

With regard to community enhancement, as outlined in the Department's Assessment Report, the project itself would not result in significant additional demand on local services and infrastructure, given that the mine has been operating for more than 30 years and the development essentially represents a continuation of these mining operations, with no significant additional employment generation.

Warkworth provides for most of its own utilities and services, with limited reliance on Council infrastructure. For example, the major access routes to and from the mine utilise State roads. The Department recognises that employees that live in the Singleton LGA would continue to create ongoing demand for local services and infrastructure. However, these employees would be required to continue to pay rates for the provision of Council services and infrastructure.

Further, as outlined in the Department's Assessment Report, the primary responsibility for the provision of key community services resides with the State Government, and Singleton Council has received approximately \$24 million in infrastructure funding through NSW Government programs in recent times.

Nonetheless, in accordance with its previous commitment, Warkworth has negotiated 'in-principle' agreement on the terms for a Voluntary Planning Agreement (VPA) with Singleton Shire Council. Under the VPA, Warkworth is offering a total of \$11 million over the 21 year life of the development consents for the Warkworth and Mt Thorley projects (see Attachment C).

In accordance with section 93F of the EP&A Act, these contributions must be used for a proper public purpose, such as towards the provision of public services, amenities, affordable housing and/or other infrastructure.

Warkworth's offer does not specify how these contributions would be allocated. However, the Department has recommended that the VPA should focus on funding community infrastructure and services in the area surrounding the mine, including Bulga Village.

In terms of the quantum of the offer, the Department notes that the proposed contribution is equivalent to approximately 1.5% of the capital investment value of the project, which exceeds the maximum percentage that a consent authority would normally be able to require under a Section 94A fixed levy.

The contribution is also greater than other community enhancement packages offered in the Singleton LGA for contemporary mining projects, such as the recently approved Bulga Optimisation Project (SSD-4960), which was equivalent to 0.44% of capital investment value. Finally, the Department notes that the offer is \$1 million greater than proposed under the now repealed 2012 approval for the Warkworth Extension Project.

Given the above, the Department considers that the offer from Warkworth is reasonable, and has added a condition requiring Warkworth to enter into the VPA within 6 months of any approval, in accordance with the terms of its offer (see condition 15 of schedule 2).

The Department notes that Council has flagged a number of matters that it believes should be incorporated into the VPA. These include compensation for the closure of Wallaby Scrub Road, and funding for a water reticulation and sewage treatment plant in Bulga Village.

However, the Department considers there are a number of issues with this request.

¹ For example, see *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd* [2007].

Firstly, as the VPA is a voluntary contribution, the specific terms of the agreement are a matter for Council and Warkworth to resolve.

Secondly, there is an established legislative process for the closure of public roads under the *Roads Act 1993*. This process would require Warkworth to pay Council for the market value of the land within the road reserve, and the money that Council has spent on the construction of the road. The Department considers that there is no reason to depart from the established statutory process under the Roads Act.

Finally, there is not sufficient justification for the Department to levy additional Section 94 contributions over and above the VPA offer for the provision of water supply and sewage infrastructure in Bulga Village.

Notwithstanding, there would be nothing to prevent Council from using VPA funds for the provision of additional infrastructure and/or negotiating additional contributions from Warkworth outside the development consent.

2.3 Noise

2.3.1 Recommendation 4

The acceptability of setting noise limits above the PSNL should be considered by the NSW government, ideally via a review of the INP.

The *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP) and the NSW Government's *Voluntary Land Acquisition and Mitigation Policy* (December 2014) specifically contemplate and regulate noise impacts where they exceed the PSNLs.

The NSW Government is also currently reviewing the *NSW Industrial Noise Policy* (INP), which is likely to address this matter further.

However, for clarity, an explanation of the application of the PSNLs in the assessment process under the current policy settings is set out below.

The INP provides that the industrial noise source criteria set down in the policy are best regarded as planning tools and *"are not mandatory, and an application for a noise-producing development is not determined purely on the basis of compliance or otherwise with the noise criteria"* (INP Section 1.4.1).

Section 1.4.7 of the INP further provides:

"In setting noise limits, the regulatory/consent authorities need to consider the technical practicalities of mitigation, the amount of noise reduction provided, community views, benefits arising from the development and cost of achieving the project specific noise levels recommended here, along with the environmental consequences of exceeding the project-specific noise levels. It is important that the project-specific noise levels are not automatically interpreted as conditions for consent, without consideration of the other factors. In many instances, it may be appropriate to set noise limits for a development above the project-specific noise levels recommended in this document."

The Department's Assessment Report has considered these matters in detail, and concluded that Warkworth is proposing all reasonable and feasible mitigation to minimise noise impacts, including spending in excess of \$30 million on noise attenuation of its mining fleet.

The Department has also concluded that any benefits of noise bunds/barriers or relocating equipment are outweighed by the costs of these measures (which are in the order of \$100 million). This is largely due to the topography of the area and the direction of mining (ie. towards Bulga Village) which means these measures would not yield significant acoustic benefits at receivers.

The modelling in the EIS indicates that the project would result in exceedances of the PSNLs at 98 privately-owned residences in the areas surrounding the mine.

However, in considering the acceptability of these exceedances, it is important to consider a number of factors.

First, the Department has recommended that the predicted exceedances of the PSNLs are addressed in accordance with the NSW Government's *Voluntary Land Acquisition and Mitigation Policy*, which gives guidance on how exceedances of project specific noise levels should be interpreted.

In this regard, it is important to note that 81 of the 98 residences are predicted to experience noise impacts of between 0 and 2 dBA above the PSNLs. Under the *Voluntary Land Acquisition and Mitigation Policy*, an exceedance of 2 dB is considered to be negligible and the Department's noise expert (Dr Broner) advises that this would not be discernible for most people. Under certain circumstances, 2dB is the 'allowance exceedance' that the EPA applies when determining compliance with statutory noise limits (see Section 11.1.3 of the INP).

Of the remaining 17 residences, 15 would exceed the PSNLs by between 3 and 5 dBA, and the Department has set the limits accordingly. However, the Department has also recommended that the landowners be able to request additional noise mitigation at the residence (such as air conditioning and double-glazing). For the remaining 2 properties, noise levels are predicted to significantly exceed the PSNLs (ie. greater than 5 dBA above the PSNLs), and the Department has recommended that these landowners be afforded acquisition rights under the consent. However, in accordance with standard practice, no limits have been set for these properties.

Second, the predictions are based on the change in noise levels relative to background noise levels that have not existed for many years, as the Warkworth mine has been part of the noise landscape for over 30 years now.

Third, the predictions in the EIS are worst case predictions under adverse weather conditions occurring in the most affected season in the most affected year, so actual impacts are likely to be lower than predicted.

Finally, both the INP and the Mining SEPP deem noise levels from specific projects to be acceptable provided they do not result in exceedances of the recommended amenity (or cumulative) criteria in the INP. In this case, the applicable amenity criteria is 40 dBA over a 9-hour night time period (which equates to an $L_{Aeq(15min)}$ level of approximately 43 dBA).

Despite the predicted exceedances of PSNLs, cumulative noise levels (which includes the project and all other industrial sources such as the Mt Thorley and Bulga mines) would remain below the recommended amenity criteria for a rural area in the INP at all privately-owned residences surrounding the mine that do not have existing acquisition rights, and therefore below the non-discretionary standards in the Mining SEPP.

When all these factors are taken into consideration with the social and economic benefits of the project, the Department considers that its decision to set noise limits above the PSNLs is justified and is consistent with the approach adopted under applicable NSW Government policy.

2.3.2 Recommendation 5

The question of how often calm conditions occur in the area should be independently verified by the Department before the application is determined.

The Department's independent noise expert, Dr Norm Broner, has reviewed the data used to support Warkworth's conclusion that calm conditions occur less than 2 per cent of an average year (and therefore the noise reduction provided by Saddleback Ridge of up to 5 dB in calm conditions would occur infrequently).

Dr Broner has verified Warkworth's conclusion (see Attachment D), noting that:

"...EMM [Warkworth's consultant] confirms the calculation of annual occurrences of calm conditions as 1.8 per cent based on an analysis of the MTW operated weather station at Charlton Ridge for data between 2006 and 2013. EMM also quotes work done by Todoroski Air Sciences which also shows that calm conditions at the Charlton Ridge station are infrequent and would remain infrequent with the removal of Saddleback Ridge. The Author accepts that calm conditions at [Saddleback Ridge] are very infrequent."

and

"The Author is satisfied that the removal of Saddleback Ridge will not result in a significant increase in noise level in noise sensitive areas in and around Bulga. This is mainly due to the presence of neutral/calm meteorological conditions which do not support enhanced propagation of mine noise being very infrequent and remaining so after the removal of Saddleback Ridge. The potential for noise levels to further increase when noise enhancing conditions are present is very limited."

Given Dr Broner's comments, and the fact that some of the data is based on separate work done by Todoroski Air Sciences, the Department considers there is a high level of certainty about the frequency of calm conditions in the area.

2.3.3 Recommendation 6

To ensure the benefits of the attenuation program will be fully realised, regular monitoring and audit of the performance of the attenuated fleet and equipment should be carried out.

The Department has amended the Noise Management Plan condition (ie. condition 7 of schedule 3) to reflect the PAC's recommendation. It has also amended the noise operating conditions (ie. condition 6 of schedule 3) to require that the noise attenuation program be 100% completed by the end of 2016.

2.3.4 Recommendation 7

A public information briefing session should be held to clarify the operation of the Trigger Action Response Plan.

The Department agrees that a public information session would assist in clarifying how the noise management and response system on the site operates in practice. Accordingly, the Department has amended the Noise Management Plan condition (ie. condition 7 of schedule 3) to require Warkworth to include:

"provisions for keeping the community informed about the operation of the noise management system and monitoring programs, including holding a public information session within 6 months of the granting of this development consent."

The Department would also be willing to attend the information session to explain its compliance and enforcement role under the conditions of consent and the EP&A Act.

2.3.5 Recommendation 8

Draft recommended conditions 8 and 9 in Schedule 2 and draft recommended conditions 4 and 5 in Schedule 3 should be amended to ensure that when the new consent commences, the new noise criteria should apply and the noise criteria in Condition 18 of DA-300-9-2002-1 be attached as an appendix to the new consent if the subject application is approved.

Warkworth has provided additional information to justify why it is not reasonable and feasible to accelerate the proposed attenuation program of its mining fleet.

In summary, Warkworth has advised that there are 53 trucks, 10 dozers, 2 excavators and 4 drill rigs that still need to be attenuated. On average, fitting the attenuation kits takes between 2 and 4 weeks. Even with the use of off-site facilities, it is not possible to complete the attenuation program before the end of 2016 without significant production losses at the mine.

However, Warkworth advises that the attenuation program would be progressive, the loudest trucks would be prioritised, and attenuated fleet would be deployed on the most exposed areas of the site.

Fitting attenuation to a typical haul truck would reduce the sound power levels from around 125 to 115 dB. While such a reduction is intuitively large, the difference of an individual truck would be negligible within the context of such a large mining fleet.

Given that around 27 out of 80 trucks (33%) have already been attenuated, a significant proportion of the acoustic benefits have already been realised. This is reflected in the lower noise predictions at many residences compared with the predicted impacts in the 2012 EIS.

Attenuation of the remaining trucks in the fleet would result in further incremental improvements in mine generated noise, but will be increasingly minor in the context of the overall noise catchment. Even when the attenuation program is complete across the entire fleet, the predicted noise benefit at receivers in the Bulga area would be no more than 2 dBA – a difference that is usually imperceptible.

Rather than applying the new noise limits from the commencement of the new consent, the Department's recommended conditions require Warkworth to comply with its current noise limits until the end of 2016, and stricter noise limits once the attenuation program is complete (i.e. from January 2017).

The Department has also amended the conditions to require Warkworth to complete its attenuation program by the end of 2016 (see condition 6 of schedule 3), and clarify the intent of the two sets of noise criteria (see conditions 4 and 6 of schedule 3). It has also added an appendix to the recommended conditions (ie. Appendix 9) reproducing the noise criteria in condition 18 of DA-300-9-2003, in accordance with the PAC's recommendation.

2.3.6 Recommendation 9

The Applicant should update its Statement of Commitments to provide acquisition and mitigation rights to those properties which were granted such rights under the now repealed approval. The terms of these rights should be similar to those that would be granted under the approval conditions should the application be approved.

In its response to the PAC review, Warkworth has reiterated that it would honour its commitment to acquiring properties which were granted such rights under the now repealed 2012 approval, and has clarified that it would acquire these properties on similar terms to those that are within the formal acquisition zone for the development.

It has also clarified that it would be prepared to extend this program to also reinstate mitigation rights under the now repealed 2012 approval.

While the Department acknowledges Warkworth's commitment to acquiring and/or mitigating these additional properties, it notes that it cannot compel the company to amend its Statement of Commitments to formalise the commitment.

Further, the Department's role is to apply government policy, and under the *Voluntary Land Acquisition and Mitigation Policy*, the impacts of the currently proposed project do not exceed the applicable acquisition or mitigation criteria at these properties. The Department also questions whether there is sufficient nexus between the current project and the impact to warrant such a condition.

The Department also notes that the situation at the time of the 2012 approval is different to the current situation in at least two important respects.

First, there was no clear policy in regard to mitigation and acquisition in 2012, whereas these matters are now regulated under the *Voluntary Land Acquisition and Mitigation Policy* which was gazetted in December 2014.

Second, the 2012 assessment assumed that the Mt Thorley and Warkworth mines were operating as a single complex, and the Department applied complex-wide criteria in its recommended conditions. The application of the complex-wide criteria resulted in stricter limits than would have otherwise been the case. However, the NSW Land & Environment Court has clearly stated that the application of complex-wide criteria to these mines is not appropriate, and the mines must be treated as separate entities. This has resulted in less stringent criteria for local residents, and hence a lower number of residences entitled to mitigation and acquisition than was the case under the 2012 approval.

In the end, Warkworth is essentially acting in good faith to honour a previous commitment that has been superseded by events, and the Department has no formal power to require Warkworth to comply with its commitment.

Consequently, the Department does not believe that the commitment can or should be formalised as a specific condition of consent.

2.3.7 Recommendation 10

The recommended public information briefing session referred to in Recommendation 4 should include a briefing on the application of the LFN modification factor and the purposes of different types of monitoring as well as the operation of the Trigger Action Response Plan.

The Department agrees with the PAC's recommendation, and has amended the Noise Management Plan condition (ie. condition 7 of schedule 3) accordingly.

2.3.8 Recommendation 11

The concerns raised in the SKM report that insufficient data was collected to enable it to assess the accuracy of ongoing routine noise monitoring carried out by the Applicant should be addressed before determination of the current application.

The Department's independent noise expert has reviewed the concerns raised in the 2012 SKM report that there was insufficient data collected in SKM's survey to enable it to assess the accuracy of ongoing routine noise monitoring carried out by the Applicant.

Dr Broner notes that (see Attachment D):

"We note that even if there was insufficient data then (and this is not clear), since that time there is a history of quarterly noise level surveys, the noise management plan execution and data supporting very substantial compliance...Non-compliant noise measurements accounted for only a very small percentage of the monitoring dataset at 0.37 per cent (10 non-compliances measured from 2,689 individual assessments undertaken). Therefore, the Author believes that this concern is no longer valid."

Dr Broner goes on to conclude:

"The Author is satisfied that this concern is no longer valid given the significant amount of data available since then."

The Department accepts Dr Broner's advice on this matter.

However, to further assess noise compliance in Bulga Village, the Department recently engaged specialist acoustics consultants Wilkinson Murray to undertake a 10 day noise audit of noise impacts in Bulga, based on extensive night-time attended monitoring at 5 residences in the village (see Attachment E).

In summary, the monitoring report found:

- there was no non-compliance with intrusive noise limits;
- all measurements were below amenity criteria in the INP;
- only one exceedance (out of the 258 measurements or 0.39%) was identified above the 2 dB(A) tolerance level specified in the INP; and
- Warkworth's real-time management systems triggered operational control measures that reduced noise levels to less than the noise limits within 75 minutes, as required under the approved Noise Management Plan.

The Department will continue to proactively monitor compliance at the Mt Thorley and Warkworth mines, and take any necessary enforcement action to ensure compliance with the noise limits. However, the Department considers this latest monitoring has provided comprehensive and independent confirmation of the findings of Warkworth's noise monitoring program, and that the mine is generally complying with the noise limits in the project approval.

The results of the monitoring in regard to Low Frequency Noise (LFN) are discussed further below.

2.3.9 Recommendation 12

The conditions in any approval should require the application of an appropriate noise modification factor for LFN during compliance testing if LFN is prevalent before comparison with the PSNL in the approval. However, if a new INP is adopted before the determination of this application, the new INP methodology and criteria should apply.

The PAC Review Report concludes that the PAC agrees with the EPA and the community that the INP methodology for assessing low frequency noise (LFN) penalties should apply, rather than the alternative methods proposed by Warkworth (ie. the Broner method and the UK Department of Environment, Food and Rural Affairs (DEFRA) method).

However, the PAC also acknowledges that the EPA has stated that the INP methodology should be applied 'except where it results in perverse outcomes' and 'unless further information is provided', as outlined in the EPA's letter to the Department dated 20 December 2010. This letter also states that:

"Where these perverse outcomes can be demonstrated in future environmental assessments, it was agreed that [the Department] would apply a 5 decibel penalty to the A-weighted level, if the C-weighted level exceeds 65dB(C), and [EPA] would not specify conditions in relation to low frequency noise in the environment protection licence for the project."

Notwithstanding its conclusions, the PAC acknowledges that there are issues associated with the LFN methodology in the INP, and recommends that if a new INP is adopted before determination of the project, then the new methodology and criteria should apply.

The current INP provides that a +5dB penalty (or modifying factor) should be applied to the noise source level if the dBC noise level minus the dBA noise level is 15dB or more – that is, where the noise has a significant low frequency component. This methodology is also known as the 'C – A method', and has been around since the introduction of the INP in 2000. It was originally developed for assessing LFN impacts associated with train locomotives in close proximity to the noise source.

The EPA, the Department and the Department's independent noise expert all agree that the C – A method has significant limitations, particularly when assessing LFN impacts in areas distant from the noise source. This is because mid and higher frequencies are naturally attenuated as distance from the noise source increases, resulting in larger differences between dBC and dBA levels due to distance alone.

To illustrate, Dr Broner notes that a C – A difference of 7dB for a nominal noise source at 1 kilometre increases to a difference of 15dB at a distance of 3 kilometres from the noise source (see Attachment D).

Therefore, adopting the C – A method as a threshold for annoyance can result in perverse outcomes where a +5dB modifying factor is required to be applied even where the LFN levels are below or near threshold of hearing levels.

The limitations of the C – A method are also widely recognised in the scientific literature. The World Health Organisation's *Community Noise Guideline (1999)* states:

"However, the difference between dBC (or dBlin) and dBA will give crude information about the presence of low-frequency components in noise. If the difference is more than 10dB, it is recommended that a frequency analysis of the noise be performed."

Further, in a detailed study on LFN annoyance and health, Leventhall HG (2004) found that:

"The (dBC – dBA) difference cannot be used as an annoyance predictor, but is a simple indicator of whether further investigations may be necessary."

The NSW Ombudsman also investigated this issue in 2014 in response to complaints from the Bulga Milbrodale Progress Association (BMPA) regarding application of the LFN modifying factor. Details of the Ombudsman's investigation are outlined in the EIS (Section 10.4.4), with the Ombudsman noting that:

"[T]here appears to be appropriate consideration of professional advice from qualified staff and experts about LFN that casts doubt as to the practicality of strict enforcement of the [C – A methodology in the INP]."

The two other contemporary LFN approaches identified above (ie. the Broner method and the DEFRA curve method) do not suffer the same distance attenuation limitation as the C – A method.

The Broner method applies simplified absolute level criteria for LFN impact, with these criteria based on extensive peer reviewed scientific study. The Broner method applies night-time criteria of 60dBC (desirable) and 65dBC (maximum), based on external noise levels at the receiver. Day-time criteria are 5dB higher than the night-time criteria. Dr Broner notes that these criteria were developed for noise sources with a significant LFN imbalance at larger distances.

The DEFRA curve method applies a range of threshold criteria across different low frequencies, again based on extensive scientific study of LFN annoyance. The DEFRA curve applies to internal noise levels (as opposed to external noise levels under the C – A and Broner methods), but can be modified for external assessment (ie. Modified DEFRA curve). The internal DEFRA curve thresholds are reproduced below.

DEFRA Internal Noise Levels *Leq* dB

	Frequency Hz	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160
Noise Source	Fluctuating noise	92	87	83	74	64	56	49	43	42	40	38	36	34
	Steady noise	97	92	88	79	69	61	54	48	47	45	43	41	39

In lieu of the revised INP being finalised, the Department intends to continue to apply a practical approach to the assessment and management of LFN and the application of the modification factors in the INP, based on good science. That is, the Department will apply the LFN modifying factors in the INP (ie. the C – A method), except where this would result in perverse outcomes. This is consistent with the EPA's approach to LFN management, and the NSW Ombudsman's findings.

With regard to LFN associated with the Warkworth Continuation Project, Warkworth has undertaken an assessment of the project using both the C – A and DEFRA methods, as well as the Broner method. The assessment indicates that whilst the C – A would exceed 15dB at some receivers, the LFN levels would not exceed the DEFRA curve thresholds, or the Broner criteria.

In relation to the DEFRA assessment, Warkworth's assessment was based on monitoring undertaken at a mine-owned residence on Putty Road to the east of Wollombi Brook (ie. 1916 Putty Road), which is considerably closer to the Warkworth mine than residences in Bulga Village³. Whilst this property experienced dBA noise levels in excess of the applicable acquisition criteria, it did not exceed the INP C – A 15dB threshold or the DEFRA curve thresholds.

Given the natural attenuation of all sound (including low and higher frequencies) with distance, it would be expected that residences in Bulga Village would have lower internal LFN levels than those experienced in the mine-owned residence (which complies with the DEFRA curve thresholds).

As mentioned above, the Department recently engaged specialist acoustic consultants Wilkinson Murray to undertake a 10 day noise audit of noise impacts in Bulga to further assess noise compliance (see Attachment E). The audit report includes LFN analysis using the C – A, Broner and DEFRA curve methods.

The audit indicates that C – A levels do exceed the 15dB threshold levels at all of the monitoring locations in Bulga Village. However, the LFN levels were found to comply with the modified⁴ DEFRA curve thresholds at all receivers. An example of the monitoring results against the modified DEFRA curve at one of the key residences in Bulga is shown in Figure 1 below.

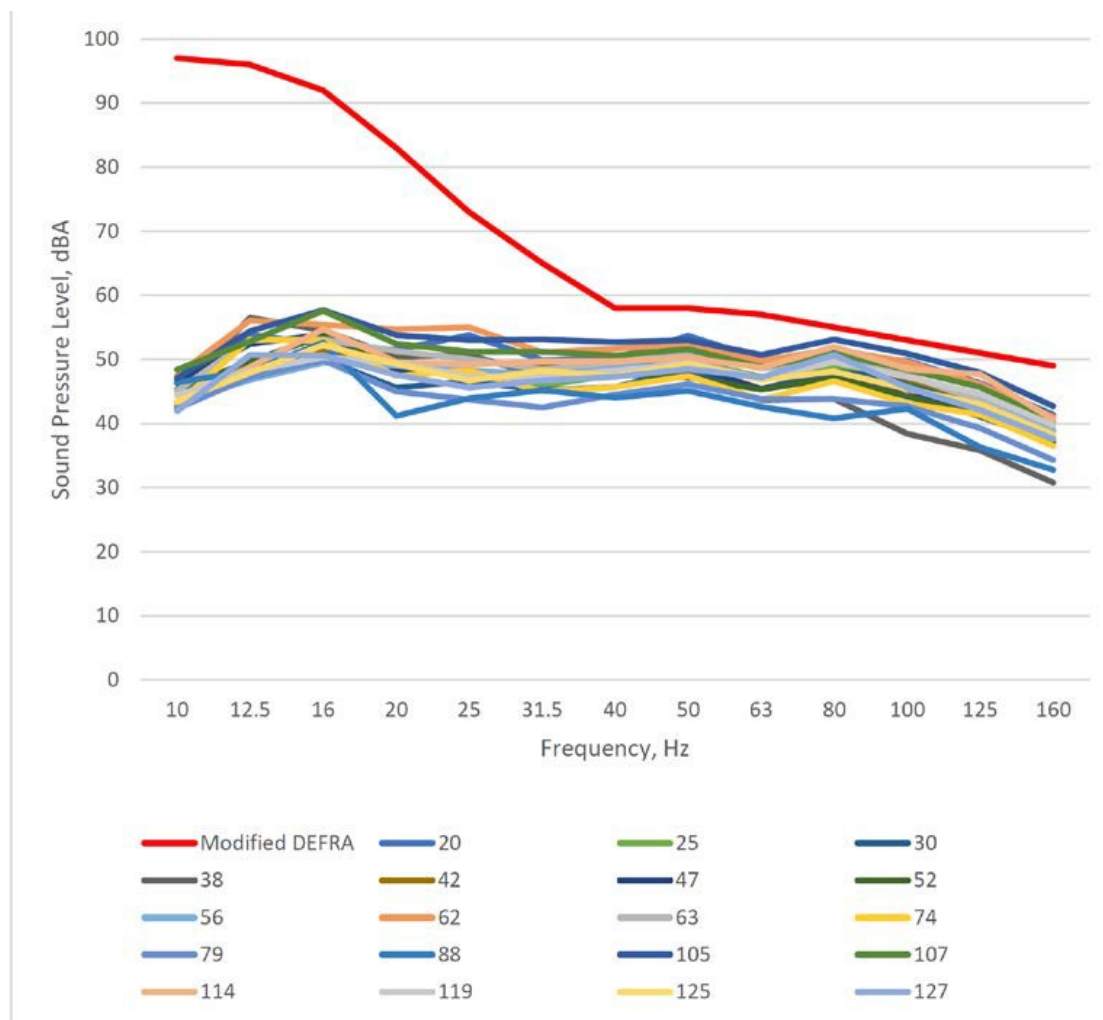


Figure 1: Measured low frequency noise spectra compared to modified DEFRA curve

³ The mine-owned residence is also of light-weight timber-clad construction with standard glazing, and is elevated on brick piers with timber flooring – thereby representative of relatively poor noise insulation.

⁴ As the compliance monitoring was undertaken externally, the analysis has been undertaken against modified DEFRA curve thresholds.

The dBC levels were found to comply with the Broner criteria at all receivers, with the exception of some minor (0.3dB) exceedances of the 60dB 'desirable' criterion in a small number of measurements.

In considering this matter, it is important to note that the dBC levels measured by Wilkinson Murray (and the dB levels used for comparison against the DEFRA curve thresholds) are total noise levels from all of the mines in the area, including Warkworth, Mt Thorley, Bulga, Wambo and Hunter Valley Operations. Unlike higher frequency noise, it is not technically feasible to accurately distinguish contributions of LFN from individual noise sources that are in relatively close proximity to each other.

As a result of this limitation, the Department accepts that the actual contribution from the Warkworth mine would be significantly less than the total LFN levels measured during the monitoring program.

In consideration of the above, the Department is satisfied that measured and predicted LFN levels associated with the existing mine and the Warkworth Continuation Project are below the annoyance thresholds based on contemporary LFN assessment methods, and therefore that LFN is unlikely to result in any unacceptable noise impacts in the surrounding area.

The Department is also satisfied that Warkworth's LFN assessment and the Department's noise audit demonstrate that strict application of the C – A method in the INP would result in perverse outcomes. This is because such application would require the modifying factor to be applied for receivers in Bulga (which exceed the C – A 15dB threshold), but not for receivers closer to the mine that experience greater noise impacts (but do not exceed the C – A 15dB threshold due to the differential attenuation of noise frequencies over distance).

Notwithstanding all of the above, the Department acknowledges that many residents in Bulga are very concerned about this issue, and that LFN should continue to be thoroughly assessed and managed during operation of the project.

In this regard, the recommended conditions require that noise generated by the development be measured in accordance with the requirements of the INP (as may be updated from time-to-time) or an equivalent NSW Government noise policy. This includes using the C – A method to calculate LFN during compliance monitoring.

However, given the limitations of the current approach outlined under the INP, the Department has amended the recommended conditions (Appendix 7 of the conditions) to clarify that the modifying factor for LFN is to be applied, except where it can be demonstrated that this is only as a result of differential attenuation over distance.

In practice, this would mean the C – A method would act as a screening tool for further investigations using more accurate and scientifically robust methodologies. This is consistent with the EPA's and Department's approach to LFN management, and would accommodate any revisions to the INP which are likely to adopt an alternative approach to this issue.

2.3.10 Recommendation 13

Up-to-date information should be provided on both the Rio Tinto website and hotline with respect to blasting schedule.

The Department has amended condition 14 of schedule 3 to reflect the PAC's recommendation.

2.4 Air Quality

2.4.1 Recommendation 14

Clarification should be provided in relation to Location 264 as to whether this property should be granted acquisition rights as part of any future approval of the subject application having regard to air quality impacts.

The website for St Philips Anglican Church in Warkworth NSW indicates that local congregation services are held at the church on the 1st and 3rd Sundays of each month. The church is also used occasionally for other community activities, but nobody resides on the premises.

The *Voluntary Land Acquisition and Mitigation Policy* provides that a consent authority should only apply voluntary acquisition or mitigation rights for air quality impacts at workplaces where the consequences of those exceedances are unreasonably deleterious to worker health or the carrying out of business at that workplace, including consideration of a number of factors including the:

- nature of the workplace;
- potential for exposure;
- likely period of exposure; and
- health and safety measures employed at the workplace.

Given the only occasional use of St Philips Church, and the relatively moderate predicted exceedances at the Church as a result of the project, the Department does not believe that voluntary acquisition or mitigation rights are warranted for the Church property.

2.4.2 Recommendation 15

Prior to any approval conditions 17-19 should be amended to require compliance with established criteria.

Conditions 17 to 19 relate to air quality criteria, and the current recommended conditions require Warkworth to:

“ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria...”

The Department understands that the PAC is recommending that these conditions be amended to require strict compliance with the air quality criteria, rather than a requirement to employ ‘all reasonable and feasible avoidance and mitigation measures’ to avoid exceedances of the criteria.

However, the Department sees a number of significant problems with amending the condition in the manner suggested.

First, the Department notes that the air quality criteria are cumulative ambient air quality goals and are not project-specific criteria.

Second, any condition that applies a strict liability for a cumulative standard would be unenforceable as it would be very difficult to establish causation where an exceedance occurs.

Third, it could result in a situation where a mine is only contributing a small proportion of the overall concentrations of dust, but is held liable for any exceedances.

To overcome these issues, both the Department and the EPA focus on source control to minimise dust emissions to the greatest extent practicable.

To this end, the EPA has been implementing the ‘Dust Stop’ program across the mining industry in NSW for some years to drive improvements in dust management practices. It can also

impose 'Pollution Reduction Programs' on the Environment Protection Licences where there is a particular issue with dust emissions leaving the site.

While the Department does not have the flexibility to retrospectively alter conditions of consent for mining projects, it does require mining companies to prepare and implement detailed Air Quality Management Plans. These plans must be prepared in consultation with the EPA, incorporate best practice dust avoidance and mitigation measures, and be regularly reviewed and updated to drive improvements in environmental performance over time.

Given the above, the Department considers that the conditions should retain the requirements previously recommended.

2.5 Biodiversity

2.5.1 Recommendation 16

Further detail should be provided which includes a clear and transparent strategy to achieve ecosystem and species credit requirements as required by the NSW Biodiversity Offset Policy for Major Projects.

The *NSW Biodiversity Offset Policy for Major Projects* allows a flexible approach to retiring credits. This can be achieved through a combination of land-based offsets, payment into a BioBanking fund to be established by the NSW Government, and/or supplementary measures.

As part of its Biodiversity Offset Strategy, Warkworth has offered a range of specific land-based offsets which it proposes to use (or partially use) to retire the impact credits. The Department's recommended conditions incorporate these commitments, but also provide flexibility to allow any shortfall to be retired by paying into a BioBanking fund and/or supplementary measures as agreed with OEH.

As noted by the PAC in its review report, detailed surveys of the land-based offsets were not available at the time of the PAC review and therefore ecosystem and species credits within these areas were not known.

Since the Department's Assessment Report, Warkworth has:

- added an additional land-based offset area, known as the North Rothbury Biodiversity Area (comprising the 40 hectare former 'Hanwood Estate'); and
- calculated the ecosystem and species credits generated by the land-based offsets.

Details of the North Rothbury Biodiversity Area are provided in Warkworth's letter to the Department dated 16 December 2014 (see Attachment F). The offset area includes a number of significant ecological values, including:

- Hunter Lowland Redgum Forest in the Sydney Basin Bioregion endangered ecological community (EEC);
- Central Hunter Ironbark, Spotted Gum, Grey Box Forest in the NSW North Coast and Sydney Basin Bioregions EEC; and
- the largest subpopulation of the critically endangered plant *Persoonia pauciflora*.

OEH has confirmed that it accepts the North Rothbury Biodiversity Area as meeting its recommendation to the consent authority of 'an additional land based offset of equal or greater biodiversity value to the 72 hectares of Warkworth Sands Woodland EEC' (see Attachment F). This satisfaction is based on the site supporting the two woodland EECs and particularly the critically endangered *P. pauciflora*. OEH believes that securing the site for conservation would make a significant contribution to the protection and recovery of this critically endangered species. The Department has amended the recommended conditions to reflect the additional offset area and OEH's acceptance.

Warkworth has now calculated the ecosystem and species credits generated by all of the proposed land-based offsets in accordance with the BioBanking Assessment Methodology (BBAM). A summary of these credits is provided in the following table.

Table 1: Summary of Ecosystem and Species Credits

Credits	Warkworth Continuation Project Credits
Ecosystem Credits Required (by disturbance)	31,700
Ecosystem Credits Generated (by land based offsets)	32,869
Ecosystem Credits Net Difference	+1,169
Species Credits Required (by disturbance)	37,390
Species Credits Generated (by land based offsets)	178,483
Species Credits Net Difference	+141,093

The calculations indicate that the land-based offsets would meet the ecosystem and species credit requirements in accordance with the *NSW Biodiversity Offsets Policy for Major Projects*. However, the Department notes that the BBAM calculations would need to be verified by OEH as part of the securing of the offset areas under the policy, and the Department acknowledges that there may be credit shortfalls in respect of particular vegetation communities and/or species.

The Department's recommended conditions recognise that OEH would need to verify the adequacy of the land-based offsets in accordance with the *NSW Biodiversity Offset Policy for Major Projects*. It would only be after this verification process occurs that the need for additional offset measures would be finalised.

Overall, the Department is satisfied that there is a clear process for ensuring that Warkworth would be able to retire the credits generated by the development that is consistent with applicable NSW Government policy.

2.5.2 Recommendation 17

Further justification should be provided to indicate why the Project should not be required to secure offsets before development commencement as required by the NSW Biodiversity Offset Policy for Major Projects. Alternatively conditions of consent should be amended to comply with the Policy and require that offsets be secured prior to commencement of development.

Warkworth is proposing to secure the land-based offset areas in accordance with the offset mechanism in the *Upper Hunter Strategic Assessment (UHSA) – Interim Policy*. The Department and the OEH believe that this is reasonable and consistent with the strategic intent for biodiversity offsetting for major mining projects in the Upper Hunter. As the UHSA is yet to be finalised, the Department believes that allowing a maximum of 3 years to retire the credits and secure the offset areas is reasonable and justified in this case.

The Department notes that Warkworth has now acquired all of the land-based offsets, and therefore has some security over the sites. To ensure that the offset sites are managed for biodiversity conservation purposes (including in the interim period prior to them being formally secured under the UHSA), the Department has amended the Biodiversity Management Plan condition (ie. condition 36 of schedule 3) to include management of the offsets as part of the management plan. It has also recommended a condition requiring Warkworth to lodge a conservation bond to ensure that the offset strategy is appropriately implemented (ie. condition 37 of schedule 3).

The Department notes that these management and bond arrangements for the offset areas would be facilitated as part of the security arrangements under the UHSA. Notwithstanding, the Department has recommended conditions regarding offsets management and lodgement of a bond in lieu of equivalent arrangements under the UHSA and/or *NSW Biodiversity Offsets Policy for Major Projects*.

2.5.3 Recommendation 18

Prior to any development approval further additional information be provided to:

- (a) substantiate the viability of the proposed Warkworth Sands Woodlands EEC regeneration*
- (b) quantify the indicative cost of undertaking this work 15 years post commencement should the Applicant's regeneration program be unsuccessful as assessed against OEHS agreed performance criteria. The bond proposed in Condition 33(b) (Schedule 3) should be amended to reflect the estimated cost of the proposed regeneration works to ensure that these works are able to be undertaken.*

In addition to the information provided in the EIS and Response to Submissions, Warkworth has provided additional information in its response to the PAC review on the viability of the proposed Warkworth Sands Woodland (WSW) EEC restoration (see Attachment A). In summary, Warkworth cites a range of research that it has commissioned over the past decade regarding WSW and its restoration, and outlined the range of restoration works that it has undertaken in recent years.

The research programs undertaken, including those undertaken by the University of New England on behalf of Warkworth, indicate that WSW is able to be successfully regenerated, with the regeneration success and technique dependent on the condition of the WSW regeneration site.

In this regard, intact and marginally degraded areas of WSW have been found to successfully regenerate naturally with the removal of grazing pressure and with weed control. Cleared or highly modified areas such as grassland had a limited capacity to naturally regenerate, but responded well to active restoration with tube stock planting.

In 2014, Warkworth commenced physical planting for its WSW re-establishment program as required under the existing mine consent. Whilst tube stock planting only commenced in September 2014, Warkworth reports that initial results of the program are positive, with a 70 per cent survival rate recorded (from the 8,235 tube stock planted).

The Department is satisfied that Warkworth has done everything that it can reasonably do to substantiate the viability of the proposed WSW regeneration, and that the evidence suggests that the community (which comprises typically coastal species with some inland species that are not themselves endangered) can be successfully regenerated subject to appropriate management.

Both the Department and OEHS acknowledge that the project would not result in the extinction of WSW per se, but that it is likely to increase the risk of extinction of the ecological community. To mitigate this risk, the Department's recommended conditions require Warkworth to:

- implement the biodiversity offset strategy, which includes restoration and/or long term protection of 235.5 hectares of WSW in the Northern and Southern Biodiversity Areas;
- develop performance criteria for the successful WSW regeneration within 15 years, to the satisfaction of OEHS; and
- lodge a \$1 million bond for the WSW regeneration, which would be forfeited in the event that the WSW restoration does not meet the performance criteria.

The Department is satisfied that these measures would effectively mitigate the risk of WSW extinction to an acceptable standard.

With regard to the \$1 million bond, as noted by Warkworth in its response to the PAC review the bond would not absolve Warkworth from its responsibility to restore the WSW in the event that this restoration does not meet the performance criteria after 15 years. In this regard, the bond is intended as an additional incentive to ensure that Warkworth commits adequate resources to the WSW restoration in a timely manner. In the event that the restoration does not meet the performance criteria after 15 years, the \$1 million bond would be forfeited and Warkworth would still be required to still be required to complete the restoration works.

Warkworth has estimated the total cost to regenerate WSW over the 15 years at approximately \$4.8 million, and has offered to lodge a separate conservation bond to cover these works. As outlined above, the Department has recommended a condition (ie. condition 37 of schedule 3) requiring

Warkworth to lodge a conservation bond to ensure that the entire offset strategy is appropriately implemented, including the WSW regeneration component.

2.5.4 Recommendation 19

Condition 34 (Schedule 3) should be amended to require the bond required by condition 33(b) to be used by OEH for the regeneration of Warkworth Sands Woodlands EEC in the local area should it be forfeited.

As outlined above, the \$1 million bond would not absolve Warkworth from its responsibility to restore the WSW in the event that this restoration does not meet the performance criteria after 15 years.

Nonetheless, the Department has amended the condition to reflect the PAC's recommendation (while retaining some flexibility at OEH's discretion), as follows:

"If, however, the regeneration does not meet the performance criteria to the satisfaction of OEH, then the Applicant will forfeit the bond for use by OEH for the regeneration of Warkworth Sands Woodland EEC in the local area, or equivalent strategic conservation initiatives in the region."

2.6 Final Void

2.6.1 Recommendation 20

The Applicant should be required to undertake further investigations to minimise the size and depth of the final void prior to determination of the application. These additional investigations should also consider opportunities to partially fill the gap between the two main overburden emplacements, reduce the slopes of the final highwall and / or incorporate additional micro-relief as recommended by the Department.

Warkworth has provided additional information on options to fill or partially fill the final void, as well as consideration of opportunities to partially fill the gap between the two main overburden emplacements, reduce slopes of the final highwall and incorporate additional micro relief (see Attachment A).

With regard to the final void size, Warkworth's analysis includes 6 options for filling or partially filling the void, including consideration of costs and benefits. The cost estimates are based on DRE's rehabilitation cost calculator for carting material, and actual filling costs are likely to be greater with the inclusion of shaping and rehabilitation.

To completely fill the void would cost an additional \$2 billion over the life of the mine. Even the minimum cost associated with reshaping aspects of the final landform would be substantial, for relatively minor benefit. In this regard, the minimum cost scenario (ie. Scenario 5) would cost an additional \$143 million and reduce the total area of the void by 54 hectares (ie. from 445 to 391 hectares), which is equivalent to \$2.6 million per hectare. By comparison, the rural land values of the region range from \$2,000 to \$10,000 per hectare.

There would be some risks and additional impacts associated with filling the void. These include risks to water resources as the final void may not act as groundwater sink and therefore saline water may migrate off the site. The dust and noise impacts of the mine would also be extended for several years during the filling of the void, and final rehabilitation activities in these areas would be delayed considerably.

The Department accepts that the relatively modest agricultural value of the land does not warrant the costs and impacts associated with filling the void, and that options to fill the final void are not reasonable. Whilst the land does have some conservation value, the Department is satisfied that these values would be appropriately compensated for via the recommended conditions.

The project provides for a reduction in total final void size across the Mt Thorley Warkworth mine complex as compared to the existing consent for the mines (ie. 445 hectares compared to 491 hectares for the approved mines).

On balance, the Department considers that Warkworth should be required to minimise the size and depth of the final void as far as practicable, and ensure that it plans for the future land use of the site in consultation with relevant stakeholders.

To this end, the recommended conditions require Warkworth to minimise the size and depth of the void, and to prepare and implement a comprehensive Rehabilitation Management Plan. To strengthen these requirements, the Department has amended the Rehabilitation Management Plan condition (ie. condition 58 of schedule 3) to require Warkworth to prepare a mine closure strategy (as part of the Rehabilitation Plan) to minimise the long-term impacts associated with mine closure.

With regard to filling the gap between the two main overburden emplacements, Warkworth has considered two options for undertaking this work (with Option 1 using truck and shovel to undertake the work and Option 2 using a dozer – see Figure 2 below).

The options would result in relatively similar benefits, with Option 2 found to be considerably cheaper to implement and requiring less disturbance of rehabilitated areas. The Department has amended the recommended conditions to reflect this commitment (see condition 56 of schedule 3).

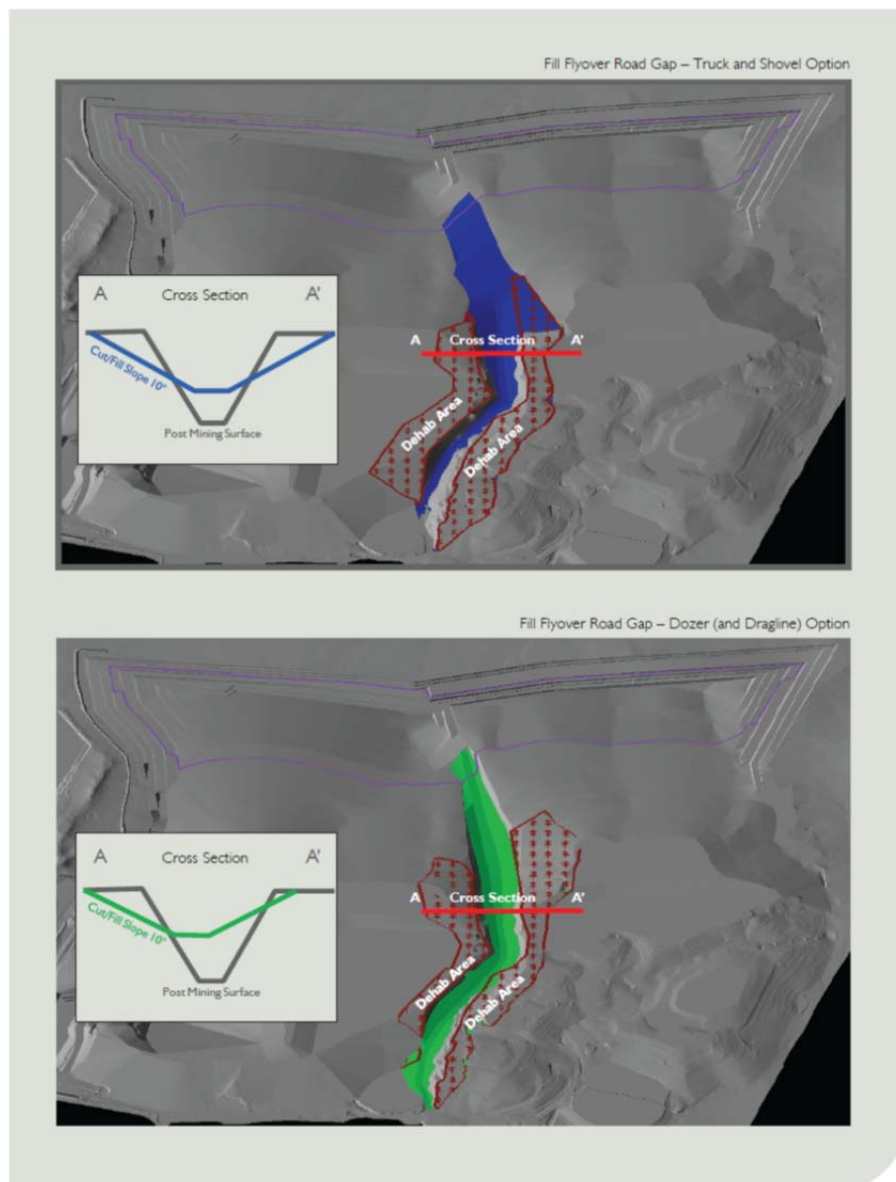


Figure 2: Options for Partial Filling of Overburden Emplacements Gap

Reducing the slopes of the final highwall was considered by Warkworth as part of its analysis of reducing the final void size (ie. Option 4). This assessment found that reducing the slopes would increase the size of the final void (ie. from 445 hectares to 487 hectares). Given this increase, and because reducing the slopes would require additional disturbance of rehabilitated and/or non-disturbance land, the Department accepts that this option is not reasonable.

With regard to micro-relief, the Department acknowledges that Warkworth's rehabilitation strategy provides for an undulating final landform and notes that the recommended conditions require Warkworth to ensure that the final landform is in keeping with the natural terrain features of the areas and incorporates micro-relief (condition 56 of schedule 3). The Department is satisfied that these aspects can be managed through the detailed Rehabilitation Management Plan, as required under recommended condition 58 of schedule 3.

2.6.2 Recommendation 21

A study should be undertaken by government as a matter of priority to review the cumulative impact of voids in the Hunter Valley including the impact of these voids in the short, medium and long term on the water table and on the future of agriculture and associated industries in the Hunter Valley. The findings of the study should be used to establish a policy position on voids for future mining projects / mine expansion projects.

The Department acknowledges the PAC recommendation, and notes that it is not directly relevant to the assessment and determination of this development. The Department is satisfied that Warkworth has assessed the cumulative impacts of the proposed final void with regard to long term impacts on groundwater and land use in the surrounding locality. The Department also acknowledges that the proposal provides for a net decrease in final voids in the region through the backfilling of an approved void at Mt Thorley.

The NSW Government is considering a range of matters to strengthen the regulation of mining operations in NSW, including the nature and scale of final voids associated with open cut coal mines in the Hunter Valley.

2.7 Rehabilitation

2.7.1 Recommendation 22

Recommended Condition 58 (Schedule 3) should be amended to include timeframes for achieving specified rehabilitation benchmarks with penalties to be enforced if these benchmarks are not met.

The Department recognises that specific timeframes for achieving rehabilitation benchmarks are complex and subject to a range of factors associated with the progression of mining operations. Accordingly, the Department believes that it is appropriate that such timeframes are developed as part of the mine's detailed Mining Operations Plans (MOP) required under the *Mining Act 1992*, which must be prepared by Warkworth prior to mining commencing in the extension area.

As outlined in the PAC review report, until recently progressive rehabilitation at the MTW mine complex has been hampered by a number of legacy issues, however these constraints have now been removed with a simplified mine plan, which has been evidenced by the improvement in rehabilitation at the complex in recent years.

The Department has amended condition 58 to reflect the PAC's recommendation, by requiring Warkworth to include timeframes for achieving the specified rehabilitation objectives as part of the Rehabilitation Management Plan.

The Department notes that the recommended conditions also require Warkworth to:

- progressively rehabilitate the site;
- meet a range of rehabilitation objectives;

- define detailed performance and completion criteria in the Rehabilitation Management Plan; and
- include interim rehabilitation where necessary to minimise dust emissions.

With regard to penalties, it is noted that any failure to meet the performance and completion criteria would constitute a breach of the development consent, which could result in enforcement actions and penalties under the *Environmental Planning and Assessment Act 1979*. Penalties for failing to meet rehabilitation requirements could also be brought under the provisions of the *Mining Act 1992*.

3. RECOMMENDED CONDITIONS

The Department has made a number of amendments to the recommended conditions of approval for the project in response to the PAC review as discussed above (see Attachments H and I).

A number of additional amendments have been made following review of the recommended conditions by key government agencies (DRE, EPA, OEH), as well as comments received from Warkworth. The amendments are shown in the tracked version of the recommended conditions (see Attachment H).

The RMS has also written to the Department (see Attachment G) concerning the condition requiring Warkworth to pay RMS \$1 million towards the upgrade of the intersection of the Golden Highway and Mitchell Line of Road (ie. condition 48 of schedule 3). The Department has amended this condition to reflect RMS' correspondence, which provides for a lower contribution (ie. \$375,000) based on additional assessment of the upgrade requirements.

4. SECTION 79C

Section 79C(1) of the EP&A Act outlines the matters that a consent authority must take into consideration when determining development applications. These matters can be summarised as:

- the provisions of environmental planning instruments (including draft instruments), development control plans, planning agreements, the EP&A Regulations and any coastal zone management plan;
- the impacts of the development;
- the suitability of the site;
- any submissions; and
- the public interest.

Section 5 of the Act also outlines a range of objects that must be considered when making decisions under the Act, and Sections 5A to 5D further outline provisions to be considered with regard to threatened species (including species, populations and ecological communities) and their habitats.

The Department has considered all of these matters in its assessment of the development. In summary, the Department believes that:

- the development can be undertaken in a manner that is consistent with the aims, objectives and provisions of the applicable environmental planning instruments, other applicable planning documents and the EP&A Regulations (see Section 3.3 and Appendix D of the Assessment Report);
- the development can be undertaken in a manner that is generally consistent with the objects of the Act as described in Section 3.8 of the Assessment Report;
- the impacts of the development can be adequately minimised, managed, or at least compensated for, to an acceptable standard;
- the site is suitable for the development, as it contains a State significant coal resource in a long established coalfield, is immediately adjacent to existing mining operations, and is a permissible development on the land. The Department has carefully considered the potential impacts of the project on the site and surrounds in its assessment of the development, and is satisfied that the impacts of the development on the environment and the local community can be adequately minimised, managed, or at least compensated for, to an acceptable standard; and

- whilst there is strong opposition to the development from local landowners and special interest groups, the development is in the wider public interest, particularly as it would:
 - assist in shoring up society's continued demand for coal for basic energy and steel making purposes;
 - generate significant economic benefits; and
 - facilitate continued employment for approximately 1,300 people across the Mt Thorley Warkworth mine complex.

5. CONCLUSION

The Department has considered the PAC review report, Warkworth's response to the review, and other relevant information in accordance with the requirements of the EP&A Act.

Based on this consideration, the Department reaffirms the conclusions of the Department's Assessment Report for the project. That is, the Department is satisfied that Warkworth has designed the project in a manner that achieves a reasonable balance between maximising the recovery of a coal resource of State significance and minimising the potential impacts on surrounding land users and the environment.

The Department's assessment concludes that no privately-owned residences within Bulga village would experience noise and/or dust impacts above the applicable acquisition criteria (although 2 properties in the surrounding rural area would be affected, including one on the northern outskirts of Bulga). An additional 15 residences would be subject to moderate noise impacts, 5 of which are located in or around Bulga.

The Department has recommended conditions that would require Warkworth to address these impacts in accordance with the NSW Government's *Voluntary Land Acquisition and Mitigation Policy*.

With regard to impacts on natural values, the Department acknowledges that the project would disturb approximately 611 ha of native woodland including 72 ha of Warkworth Sands Woodland EEC and threatened fauna habitat. Warkworth has proposed a comprehensive biodiversity offset strategy that comprises almost 2,900 ha of land-based offsets, rehabilitation of 1,600 ha of woodland on the mine site, and various supplementary measures to manage, enhance and restore areas of Warkworth Sands Woodland. Both OEH and the Department are satisfied that these offsetting measures would adequately compensate the biodiversity impacts of the project.

The Department is satisfied that other impacts associated with the project, including impacts on heritage values, water resources, transport and socio-economics, are acceptable and can be appropriately managed subject to conditions.

Importantly, the extraction of a coal resource of this size and quality would result in a range of very significant economic benefits to the Singleton LGA, the Hunter region and to the State of NSW, which must be given sufficient weight in assessing the development's overall merits. These benefits include direct capital investment of \$715 million, \$567 million in royalties for the NSW Government, and continued employment for the 1,300 people that currently work at the Mt Thorley Warkworth complex.

The Department has carefully assessed the project in accordance with the requirements of the EP&A Act. On balance, the Department believes that the project's benefits outweigh its residual costs, and that it is in the public interest and should be approved, subject to stringent conditions.

6. RECOMMENDATION

It is recommended that the Planning Assessment Commission:

- **considers** the findings and recommendations of this addendum report together with the Department's Environmental Assessment Report and the PAC Review Report;
- **approves** the development application for the Warkworth Continuation Project, subject to conditions; and
- **signs** the attached amended recommended conditions of approval (see Attachment I).

 15.5.15.
Mike Young
Director
Resource Assessments

 15/05/2015
Marcus Ray
Deputy Secretary
Planning Services

ATTACHMENTS:

- A Warkworth's Response to PAC Review – March 2015
- B Deloitte Access Economics' Independent Economic Review – 16 April 2015
- C Warkworth's VPA Offer Letter – 4 May 2015
- D Dr Broner's Independent Noise Review – 6 May 2015
- E Wilkinson Murray Independent Bulga Village Mine Noise 10 Day Audit Report – 9 April 2015
- F Additional Biodiversity Offset Information (including OEH acceptance - December 2014)
- G RMS Letter – 8 May 2015
- H Recommended Conditions of Consent (tracked changes)
- I Recommended Conditions of Consent

ATTACHMENT A:

ATTACHMENT B:

ATTACHMENT C:

ATTACHMENT D:

ATTACHMENT E:

ATTACHMENT F:

ATTACHMENT G:

ATTACHMENT H:

ATTACHMENT I:
