

Although they are in different ownership, since 2004, the Warkworth mine and adjacent Mount Thorley mine have been managed as a single integrated mining complex, known as Mount Thorley Warkworth (MTW).

Under these arrangements, the mines share employees and surface infrastructure - and are now connected by a series of haul roads (with bridges over Putty Road) and pipelines. They also have highly inter-dependent mining operations with coal, overburden, tailings, and water being moved between the two mines.

However, the two mines operate under separate development consents, with the Warkworth mine currently operating under a Ministerial consent granted on 19 May 2003 (DA 300-9-2002).

The 2003 consent has since been modified on 5 occasions, including:

- MOD 1 – approved on 19 October 2004, involving minor infrastructure changes to the coal and coal rejects bins, rejects conveyor and equipment storage;
- MOD 2 – approved on 2 February 2007, involving correction of minor administrative errors related to land details;
- MOD 3 – approved on 31 October 2007, involving upgrade of the electrical switchyard;
- MOD 4 – approved on 15 September 2008, involving establishment of up to 6 gas wells and a range of associated infrastructure; and
- MOD 5 – approved on 28 October 2009, involving relocation of ancillary infrastructure, including the explosives reloading station and vehicle wash bay.

The approved operations of the mine are summarised in Table 1, and shown in Figure 1.

Table 1: Approved Operations Warkworth Coal Mine

Aspect	Warkworth
<i>Operations</i>	Commenced 1981
<i>Consent</i>	DA 300-9-2002, which expires in June 2021
<i>Remaining Life</i>	8 years
<i>Mining Reserves</i>	> 400 million tonnes
<i>Mining Areas</i>	5 open cut pits (North, West, CD, Woodlands and South) with mining operations moving to the west towards Wallaby Scrub Road
<i>Extraction Rate</i>	Up to 18 Mt Run-of-mine (ROM) coal a year
<i>Coal Processing</i>	Coal is processed at the: <ul style="list-style-type: none"> • Warkworth Coal Preparation Plant (CPP), which can process up to 13 Mt ROM coal a year • Mt Thorley CPP
<i>Coal Transport</i>	Coal is transported to the: <ul style="list-style-type: none"> • Mt Thorley Coal Loader by haul road and conveyor, and then railed to export markets • Redbank Power Station by conveyor
<i>Overburden</i>	In-pit emplacement behind advancing the mining operations
<i>Rejects Disposal</i>	<ul style="list-style-type: none"> • Coarse reject is placed in the in-pit emplacement areas at both the Warkworth and Mt Thorley mines • Fine reject (tailings) is stored in tailings facilities on site • Dewatered tailings is transferred to the Redbank Power Station by conveyor • Ash from Redbank Power Station is transferred by pipeline to the tailings storage facilities at the Warkworth mine.
<i>Infrastructure</i>	<ul style="list-style-type: none"> • Warkworth CPP • Site access roads, internal haul roads and three bridges over Putty Road (only two constructed). • Conveyors to the Mt Thorley Coal Loader and Redbank Power Station • Heavy vehicle workshops and washing facilities • Bulk oil and fuel storages, general stores and workshop • Coal stockpiles, storage hoppers and crushers • Electricity supply infrastructure • Office building and parking

<i>Water Management</i>	Water management system including process water and sediment dams, pipelines and water sharing infrastructure with the Mt Thorley and Hunter Valley Operations mines.
<i>Biodiversity Offsets</i>	Offset areas to the west and north of the approved mining operations (see Figure 2) covering 1,646 ha with: <ul style="list-style-type: none"> • 757 ha in 2 non-disturbance areas (NDAs); • 889 ha in 3 habitat management areas (HMAs).
<i>Rehabilitation</i>	2299 ha on site rehabilitation comprising a combination of woodland, open woodland and pasture.
<i>Employment</i>	1,300 (with the Mt Thorley mine)

Warkworth Extension Project

On 3 February 2012, the NSW Planning Assessment Commission (PAC), as delegate of the Minister for Planning and Infrastructure, approved a major expansion of the Warkworth mine, known as the Warkworth Extension Project.

The project involved the continuation and expansion of the mine's open cut operations further to the west, mining through Wallaby Scrub Road and into areas of the biodiversity offsets that were established under the 2003 consent (see Figure 2). The project would have recovered an additional 200 million tonnes of coal and extended the life of the mine until 2031, providing continued employment for the 850 existing mine workers on the site and generating 150 additional jobs.

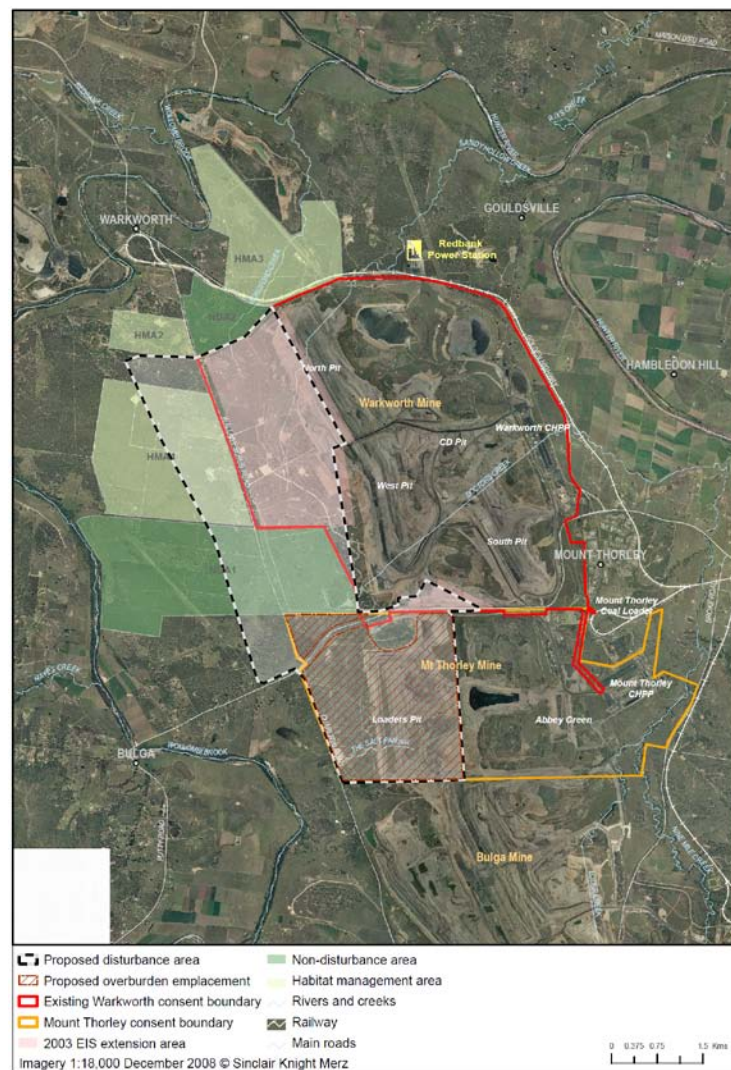


Figure 2: Warkworth Extension Project

The PAC's approval was subsequently appealed in the NSW Land and Environment Court (LEC) by the Environmental Defender's Office (EDO) on behalf of the Bulga Milbrodale Progress Association.

On 15 April 2013, the Court upheld the appeal on the following key grounds:

- that the project would have significant and unacceptable impacts on biological diversity, including on endangered ecological communities (particularly on Warkworth Sands Woodland), noise impacts and social impacts (particularly on Bulga village and its surrounds);
- that the proposed conditions of approval were inadequate; and
- that the proposed conditions of approval, including by combining the Warkworth and Mt Thorley mines, would make monitoring, enforcement and compliance difficult.

Warkworth and the Minister for Planning and Infrastructure have appealed against the LEC's decision. This appeal is on matters of law. The NSW Court of Appeal has heard the appeal, and is expected to hand down its judgment shortly. If the appeal is successful, the matter will be sent back to the LEC for a redetermination on the merits. This could take several months.

Strategic Context

The MTW mine complex is located in an area that is dominated by large-scale and intensive mining operations, which have significantly altered the natural landscape since the late 1970s. The closest mining operations to the complex (see Figure 1) include the:

- Bulga open cut and underground mine complex, which is located to the south of the complex and is allowed to extract up to 26.2 Mt of ROM coal a year;
- Wambo open cut and underground mine complex, which is located to the northeast of the complex and is allowed to extract up to 14.7 Mt of ROM coal a year; and
- Hunter Valley Operations (HVO) mine complex, which is located to the north of the complex, and allowed to extract up to 36 Mt of ROM coal a year.

A consequence of all this mining and industrial activity is that most of the land in the vicinity of the complex is owned by mining companies.

However, large tracts of land surrounding these mining operations continue to be used for a range of agricultural activities, with the land along the Hunter River and Wollombi Brook being used for intensive agriculture and the rest of the agricultural land being used primarily for grazing.

It is also important to recognise that one of the largest stands of remnant vegetation of the Hunter Valley floor is located immediately to the west of the complex. This vegetation forms part of a fledgling vegetation corridor across the valley floor (which has been heavily cleared over the last century) between the Wollemi and Yengo National Parks to the southwest of the complex and the Barrington Tops National Park, which is located on the northern edge of the valley floor. It also contains one of the last stands of Warkworth Sands Woodland, an endangered ecological community (EEC) that is unique to this part of the Hunter Valley.

2 PROPOSED MODIFICATION

One of the main aims of the Warkworth Extension Project was to rationalise the number of mining pits, and increase the strike length of the mine's dragline operations as they extend to the west. This was seen to be essential to maintaining the efficiency and viability of the mine's operations.

With the refusal of the Warkworth Extension Project, Warkworth needs to progressively reduce the strike length of its historical mining operations (to fit within the approved mining area under the 2003 consent, see the area outlined in red in Figures 1 and 2), as the West Pit has essentially reached its western-most limit (see Figure 3).

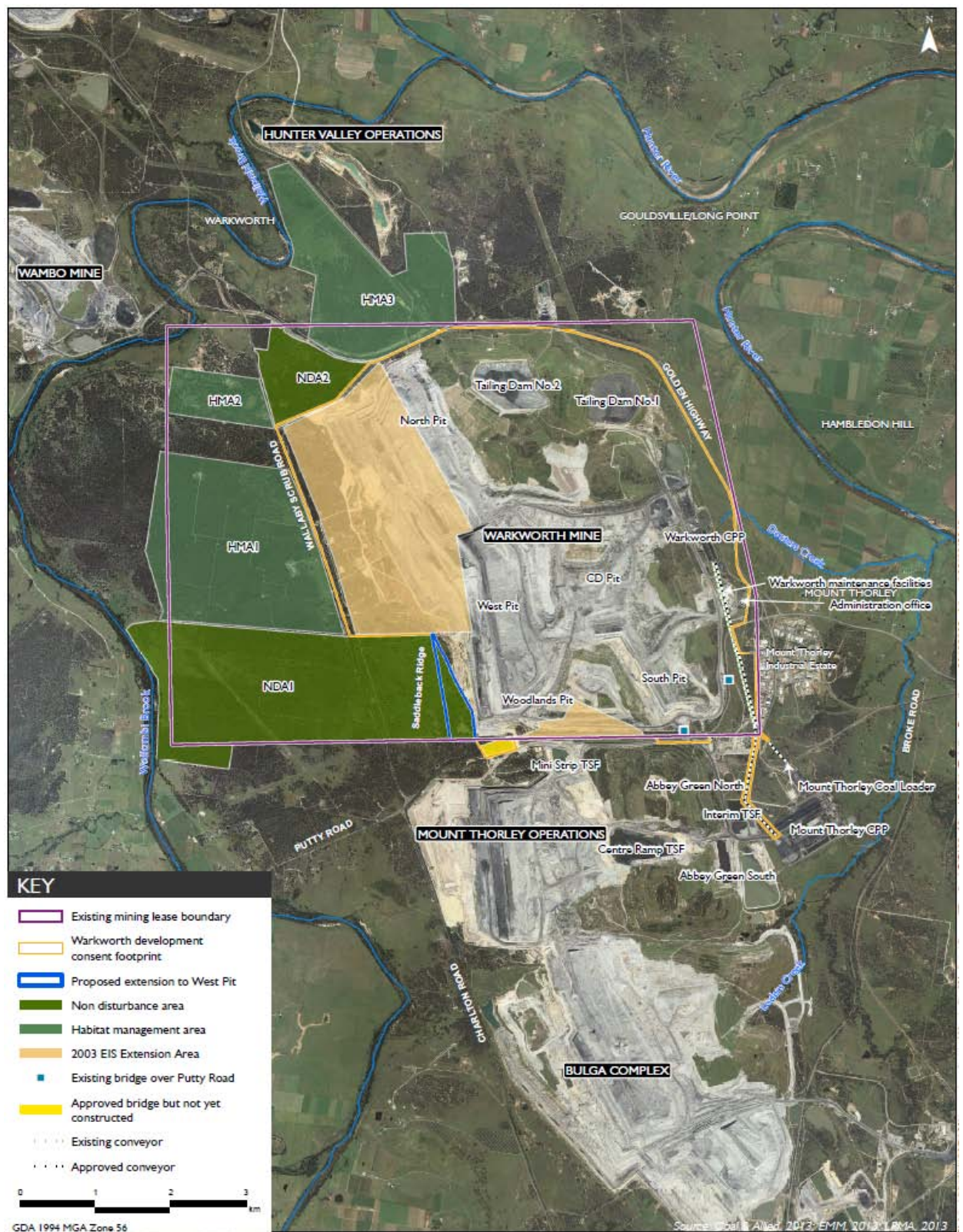


Figure 3: Existing Operations, showing proposed extension area

According to Warkworth, these constraints are expected to reduce the mine's production by about 1 million tonnes during 2014, which in turn may lead to job losses at the mine.

Further, Warkworth notes that any drop in production rates is likely to adversely affect the economic viability of the entire operation, particularly given the current market conditions for export coal, and may even result in the closure of the mine for a period.

To maintain efficient mining operations and economically viable production levels, Warkworth is proposing a minor extension of the West Pit. This would allow the draglines to operate along the full length of both the North and West Pits for another 2 years (see Figure 3).

The proposal (see Figures 3 & 4) is described in detail in the Environmental Assessment of the proposed modification (see Appendix E), and involves extending the boundary of the Warkworth West Pit approximately 350 metres westward - 300 metres of additional open cut mining operations and 50 metres for related ancillary infrastructure, including access roads, water management structures and utilities.

The wedge-shaped extension area has a total area of approximately 30 hectares, and would enable the extraction of about 13 million tonnes of ROM coal over a 2 year period. The extension area is wholly within the existing mining lease boundary, but would be outside the existing development consent boundary.

It is important to recognise that this extension represents a very small portion of the extension area that was proposed under the Warkworth Extension Project, and that extending mining operations into this area would enable Warkworth to sustain the intensity of its existing mining operations while the current legal proceedings are finalised, and it is carrying out a detailed review of the long term future of mining operations at the MTW mine complex.

It is also worth noting that the proposed West Pit extension would not involve mining through Saddleback Ridge or Wallaby Scrub Road, which was a major concern raised by the community during the assessment of the Warkworth Extension Project. Further, it would not involve any mining of the Warkworth Sands Woodland EEC, which is located well to the north-west of the proposed extension area (see Figure 6).

Nevertheless, the proposal would involve mining through part of one of the biodiversity offset areas established under the 2003 consent (i.e. Non Disturbance Area 1, or NDA 1), and would involve the removal of some Ironbark EEC within this area.

To compensate for the reduction in the area of NDA 1, as well as the impacts of removing the vegetation from this land, Warkworth proposes to conserve another 67 hectares of land in perpetuity. This land is located off the Putty Road to the south-west of the extension area (see Figure 4)¹, and is mainly vegetated with the Ironbark EEC.

The proposal does not involve any other significant changes to the mine as currently approved, including:

- no change to the approved production limit (i.e. 18 million tonnes of ROM coal a year);
- no change to the mine life (i.e. June 2021);
- no change to the operating hours or employment levels; and
- no change to coal extraction, processing or transport methods.

¹ The Environmental Assessment originally proposed an additional offset area of some 32 hectares. This was expanded following concerns raised in submissions (see Section 4).

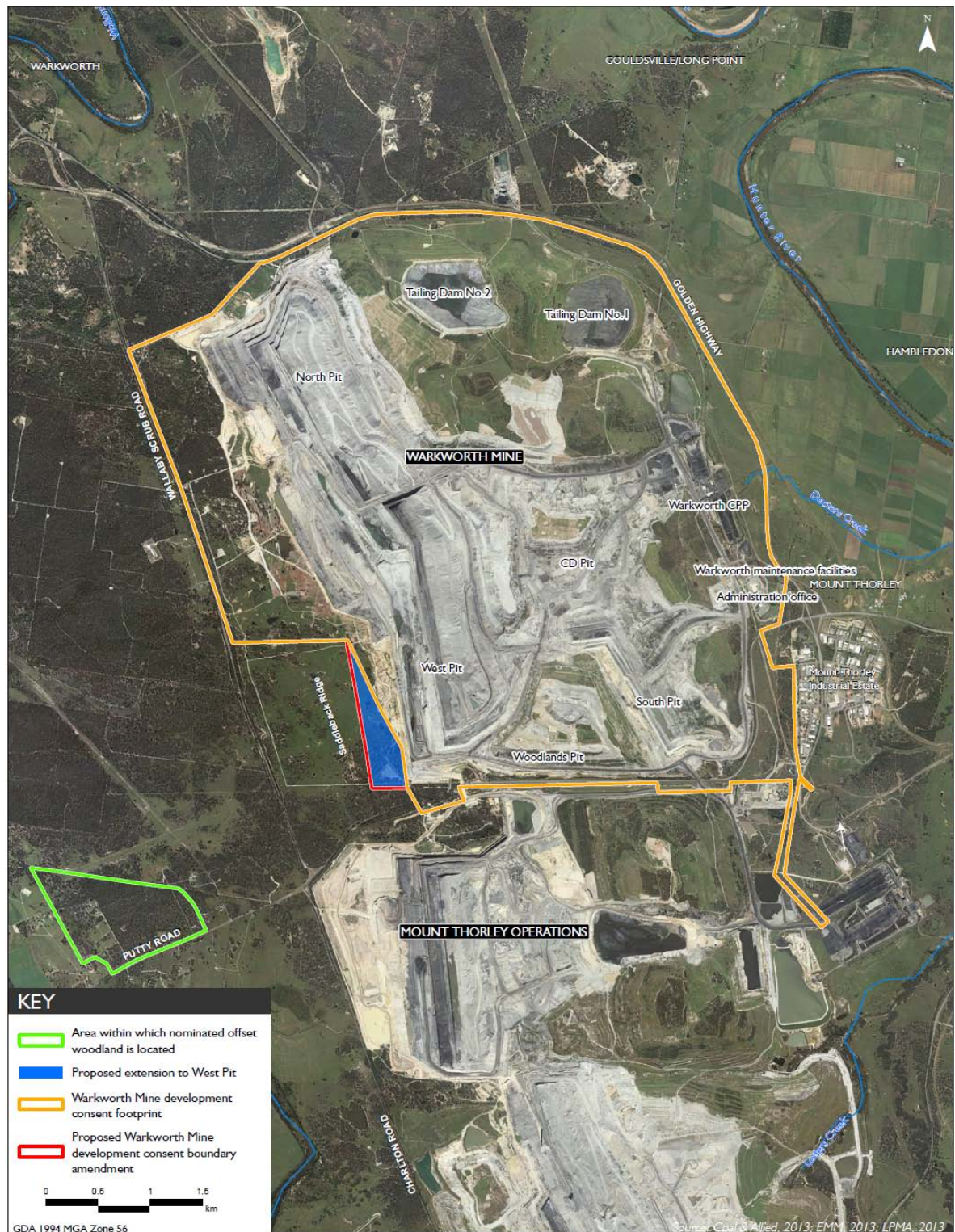


Figure 4: Proposed Extension Area

3 STATUTORY CONTEXT

3.1 Legislative Framework

Under Clause 8J of the *Environmental Planning and Assessment Regulation 2000*, a development consent for State Significant Development which was granted by the Minister under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) before 1 August 2005 can only be modified under Section 75W of the Act.

Although Part 3A (and Section 75W) of the EP&A Act has since been repealed, savings and transitional provisions in Schedule 6A of the Act mean that Section 75W 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.

The Department considers that the modification application falls within the scope of a request to modify under Section 75W. In this regard, the Department notes:

- the proposed modification is located within the existing mining lease boundary;
- the proposed extension to the development consent boundary would be extremely minor;
- there would be no changes to the approved extraction rate, operating hours, coal handling methods or coal transportation; and
- the approved mine life would not be extended.

Although the modification process is taking place under Section 75W of the previous Part 3A, any modified consent would remain a development consent under Part 4 of the EP&A Act.

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 application falls within the terms of the Minister's delegation of 14 September 2011 as Council and more than 25 of the public submissions objected to the proposal. Consequently, the PAC is required to determine the application.

3.3 Environmental Planning Instruments

In the EA, Warkworth has considered the proposed modification against the provisions of various environmental planning instruments, including the resource significance provisions of the Mining SEPP.

The Department has carried out its own assessment of these matters in its assessment of the merits of the proposed modification. Based on this assessment, it is satisfied that these instruments either do not apply to the proposed modification or substantially govern the carrying out of the development.

Nevertheless, the Department has considered the significance of the resource, and concluded that:

- the resource in the proposed extension area (13 million tonnes of coal) is not significant in its own right, as it represents an extremely small fraction of the coal reserves left within the existing Warkworth mining lease boundary; but
- it is of some strategic importance, as the extraction of the resource would:
 - enable the strike length of the existing dragline operations to be maintained, and in so doing sustain the option of being able to extend these operations further to the west (where there are significant coal reserves) at some stage in the future (albeit, this would require further approval);
 - improve the efficiency of the approved mining operations, and enable higher production rates to be maintained at the mine; and
 - create economies of scale in the mining operations that would improve the viability of these operations in the current market, and reduce the risk of job losses at the mine; and
- the extraction of the resource within the proposed extension would generate some economic benefits in terms of creating jobs for miners (or avoiding the loss of jobs) and producing further royalties for State, principally by relying on the use of existing infrastructure.

4 CONSULTATION

Under Section 75W of the EP&A Act, the Department is not required to exhibit the modification application or to undertake consultation. However, after receiving the modification application and accompanying Environmental Assessment (EA, see Appendix E) the Department:

- made it publicly available from 15 November 2013 until 29 November 2013:
 - on the Department's website;
 - at the Department's information centre and Singleton Council; and
 - at the offices of the Nature Conservation Council;
- advertised the exhibition in the Singleton Argus and Newcastle Herald newspapers; and
- notified relevant State government authorities and Singleton Council by letter.

The Department received a total of 1,126 submissions on the modification (see Appendix D), comprising:

- 7 from public authorities; and
- 38 from special interest groups; and
- 1,081 from the general public.

A summary of the issues raised in these submissions is provided below.

4.1 Public Authorities

In summary, none of the State government agencies objected to the proposed modification. These agencies sought clarification on a number of issues and made a number of recommendations. The Department has considered and incorporated these recommendations into the recommended conditions where appropriate.

However, Singleton Shire Council has objected to the proposed modification. This objection is consistent with its long standing objection to any proposal to mine in the Non-Disturbance Areas established under the 2003 development consent.

Division of Resources and Energy (DRE) – recommended that the rehabilitation of the extension area be consistent with the rehabilitation objectives in the EA, and that progressive rehabilitation be carried out as soon as practicable to minimise dust emissions. It also recommended that Warkworth prepare and implement a Rehabilitation Plan for the mine.

Office of Environment and Heritage (OEH) – is satisfied with the assessment of Aboriginal heritage matters and the adequacy of the biodiversity offset, and is satisfied that the removal of EECs in the proposed extension area would not result in a significant impact pursuant to Section 5A of the EP&A Act. OEH also sought clarification about the boundaries and the long term management and protection of the offset area. It also confirmed the requirement for Warkworth to obtain Aboriginal Heritage Impact Permits under the *National Parks and Wildlife Act 1974* for disturbance of Aboriginal artefacts in the extension area, in consultation with the Aboriginal community.

Environment Protection Authority (EPA) – is satisfied with the existing air quality and noise limits in the existing development consent, but recommended additional conditions to minimise dust and blasting impacts of the mine. The EPA also noted that the proposed modification is not expected to change the existing surface water discharge from the mine, and that the existing conditions in the development consent adequately address the water quality impacts of the proposed modification.

NSW Office of Water (NOW) – sought clarification about the licensing requirements associated with the Wollombi Brook Alluvium and the Singleton Water Source, and recommended that Warkworth be required to submit an independent review of its 2010 groundwater model. NOW also recommended that Warkworth be required to provide a compensatory water supply to landowners in some situations.

Department of Primary Industries (DPI) – is satisfied that the proposed modification would result in minimal adverse impacts on agricultural resources and the agricultural industry, but noted that a strategic approach to mining was needed to provide more certainty about long term land use in the area, and to enable agriculture and mining to coexist.

Roads and Maritime Services (RMS) – considered that the proposed modification would not have a significant impact on the classified (State) road network.

Singleton Council (Council) – Council opposes the proposal to undertake mining within the NDA as it was set aside as a conservation area “in perpetuity” under the 2003 development consent. The Council also emphasises the importance of preserving Saddleback Ridge to protect the amenity of the local residents to the west of the mine.

4.2 Community and Special Interest Groups

Of the 1,119 submissions from special interest groups and the community, 144 objected to the proposed modification and 975 supported the proposal.

Submissions in Support

Over 958 individuals and 17 special interest groups supported the proposed modification, which equates to 87% of submissions. These submissions were primarily from local and regional businesses, and the local community, many of whom are employed at the mine. Some of the special interest groups in favour of the proposed modification include NSW Business Chamber, Singleton Chamber of Commerce and Industry, and the Hunter Business Chamber.

The key reasons given to support the proposed modification related to:

- the direct employment of more than 1000 employees and contractors by Warkworth, and the potential significant job losses if the proposed modification is not approved and the Warkworth mine closes; and
- the local and regional economic benefits of continued operations at the Warkworth mine as a result of indirect employment in industries and services which support the mining sector.

Objections

123 individuals and 21 special interest groups objected to the proposed modification. Approximately 50% of the objections were from the Singleton LGA, with the remainder predominantly being from the Hunter Valley Region and Sydney Metropolitan Area.

Special interest groups that made submissions include:

- Bulga Milbrodale Progress Association;
- Hunter Environment Lobby;
- Hunter Communities Network;
- Hunter Valley Protection Alliance;
- Singleton Shire Healthy Environment Group;
- Nature Conservation Council;
- The Wilderness Society;
- Lock the Gate Alliance;
- Rivers SOS;
- The Australia Institute; and
- Economists at Large Pty Ltd.

The issues raised by special interest groups largely mirrored the public submissions, and can be summarised as follows:

- ***Biodiversity and Mining in the Non-Disturbance Area*** – the majority of objections raised concerns about the proposal to mine in the biodiversity offsets (i.e. NDA 1) that were established in 2003, and protected under a Deed of Agreement between Warkworth and the Minister for Planning & Infrastructure. Concerns were also raised about the irreversible loss of an EEC and adequacy of the proposed offset area in terms of ‘like for like’ vegetation.
- ***Noise*** – the majority of objections raised concerns about the impacts of noise, vibration and blasting on the amenity of the local community, particularly the perceived lack of compliance with the existing noise limits and alleged breaches of the conditions associated with failing to apply the low frequency noise modifying factor identified in the NSW *Industrial Noise Policy*.
- ***Air Quality*** – the majority of objections raised concerns about the adequacy of the assessment, and the impact of dust emissions from the Warkworth mine on the health of the community, particularly cumulative concentrations of fine particulates (i.e. PM_{2.5}) generated by the mining industry in the Upper Hunter.
- ***Social & Economic*** – many of the objections claimed that the social and economic benefits of the proposed modification have been exaggerated, and adequate weight has not been given to the adverse social impacts on the local community if the mine continues to operate.

- **Aboriginal Heritage** – concerns were raised about the destruction of the Aboriginal sites in the extension area, and the fact that this area was to be protected from mining under the Deed of Agreement.
- **Water Resources** – some objections highlighted the cumulative impacts of mining on local and regional water resources, including the Wollombi Brook alluvials.
- **Visual** – some objections were concerned about the visibility of the proposed extension area from the Bulga Village, the inability of rehabilitation to adequately mitigate visual impacts, and the need to ensure that Saddleback Ridge is preserved to minimise visual and other amenity impacts on local residents.
- **Consultation** – the lack of consultation undertaken by Warkworth prior to lodging the modification application, and the adequacy of a 2 week public exhibition period for the EA.
- **Assessment Process** – many objections criticised the timing of the application immediately after the publication of the recent amendments to the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP).

It is important to recognise that a number of the issues raised in submissions were related the Warkworth Extension Project and its associated legal proceedings, rather than the specific issues associated with the proposed modification. By law, the Department's assessment of the merits of the proposed modification is required to focus only on the merits of the proposed modification.

4.3 Response to Submissions

Warkworth has prepared a response to the issues raised in submissions (see Appendix C). The Department has considered the issues raised, and Warkworth's response to these issues in its assessment below.

5 ASSESSMENT

Based on the issues raised in submissions and its consideration of the proposal, the Department believes that the key issues associated with the proposed modification relate to its potential biodiversity, noise and dust, water resources, Aboriginal heritage and visual amenity impacts. Consideration of these issues is presented below.

5.1 Biodiversity

The proposed extension area comprises a partly wooded area that, as outlined in Section 1 above, forms part of Non Disturbance Area 1 (NDA 1), which is one of the biodiversity offset areas set aside in the 2003 development consent.

To assess the ecological impacts of the proposed modification, the EA includes a specialist flora and fauna assessment undertaken by Cumberland Ecology. The EA also benefits from the detailed assessment undertaken for the Warkworth Extension Project.

Flora Impacts

The assessments identified 3 vegetation communities in the extension area (see Figure 5):

- Central Hunter Grey Box – Ironbark Woodland – 3 hectares;
- Central Hunter Ironbark – Spotted Gum – Grey Box Forest – 13 hectares; and
- Central Hunter Grey Box – Ironbark derived native grassland – 14 hectares.

The Central Hunter Grey Box – Ironbark Woodland and Central Hunter Ironbark – Spotted Gum – Grey Box Forest communities are very similar (essentially intergrading into each other), and both are listed as EECs under the NSW *Threatened Species Conservation Act 1995* (TSC Act). The Central Hunter Grey Box – Ironbark derived native grassland is not considered to be an EEC under the TSC Act.

The extension area is well removed (at least 2 km) from the area of Warkworth Sands Woodland EEC, which formed a key part of the grounds for the LEC's refusal of the Warkworth Extension Project (see Figure 6).

Although the proposed extension area represents only a very small proportion of the known occurrence of Central Hunter Grey Box – Ironbark Woodland and Central Hunter Ironbark – Spotted Gum – Grey Box Forest (i.e. approximately 14,820 hectares and 18,300 hectares respectively), the EA acknowledges that the proposal would have some impact on these EECs,

and that substantial offset would be required to compensate for the direct loss of these communities. This is discussed under a separate heading below.

With regard to flora species, no threatened plant species have been identified in the proposed extension area, although 3 species (*Bothriochloa biloba*, *Ancistrachne maidenii* and *Eucalyptus glaucina*) listed as vulnerable under the TSC Act and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) have been identified near the site. The proposed extension would not result in any direct disturbance of these species.

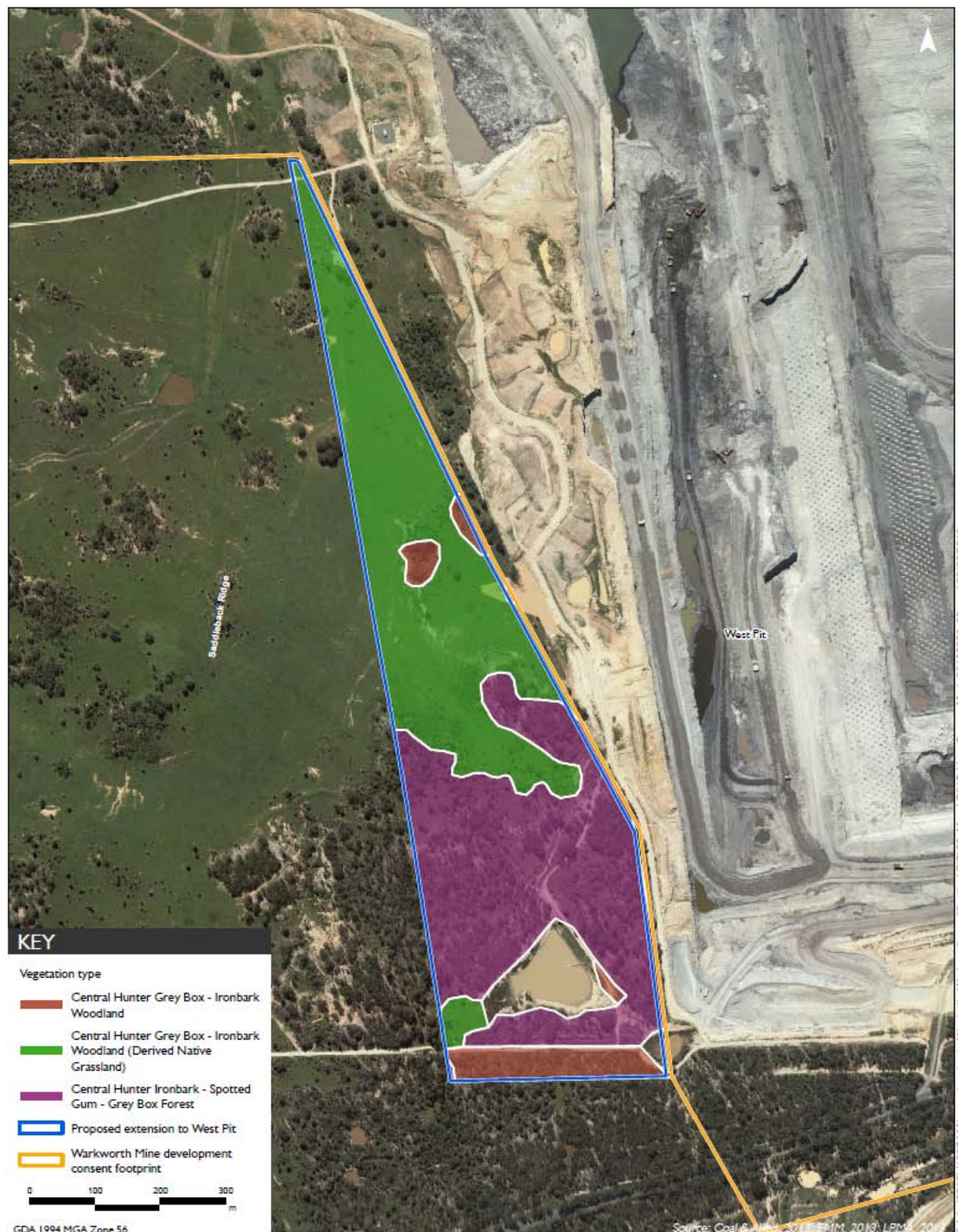


Figure 5: Vegetation Communities of the Extension Area

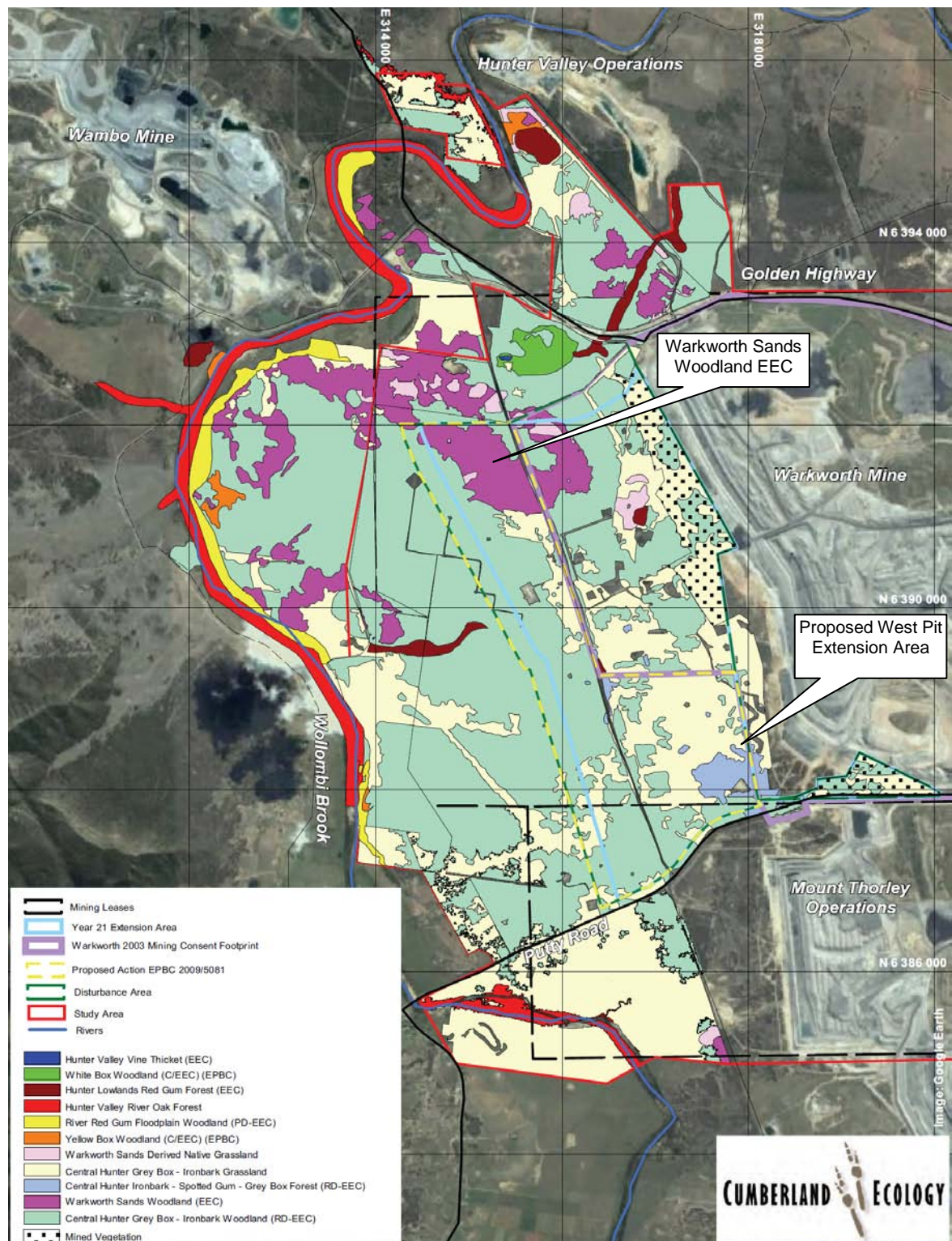


Figure 6: Vegetation Communities of the Wider Project Area

Fauna Impacts

The proposed extension area is of relatively limited habitat value, comprising disturbed grassland and relatively immature woodland. However, 21 threatened fauna species (including 14 bird species and 7 mammal species) have been recorded either within, or in proximity to, the proposed extension area. None of these species are considered to be dependent on the habitat provided in the extension area, and the proposal is not expected to have any significant impact on these species.

Nonetheless, to minimise impacts on fauna, Warkworth proposes to implement a range of management strategies, including pre-clearance surveys, salvage and relocation of habitat resources (e.g. tree hollows), establishment of nest boxes, and ongoing flora and fauna monitoring. These measures would be complemented by the proposed biodiversity offset strategy (see below).

Biodiversity Offset Strategy and Rehabilitation Strategy

The EA includes a biodiversity offset strategy for the proposal, to compensate for the vegetation clearing for the project and the loss of part of NDA 1. The offset strategy was subsequently expanded following concerns raised by the Department regarding its adequacy (see Appendix F). The final biodiversity offset area is shown in Figures 4 and 7.

The biodiversity offset strategy comprises a 67 hectare area of Central Hunter Grey Box – Ironbark Woodland to the south-west of the proposed extension area and to the south of the existing NDA 1. The area also comprises 27 hectares of derived native grassland (ie. 94 hectares in total), however Warkworth has not included this area within the proposed offset, although it has committed to fence and de-stock the entire area for biodiversity management purposes. The offset area constitutes a small part of the much larger offset strategy that was proposed for the Warkworth Extension Project.

Warkworth also proposes to re-establish 32 hectares of Central Hunter Grey Box – Ironbark Woodland EEC on areas to be disturbed by mining, and ultimately include this area within the biodiversity offset strategy once rehabilitated to agreed standards.

However, the Department believes there is significant uncertainty about the ability to successfully rehabilitate mining areas to an EEC community within any reasonable timeframe. Consequently, the Department has not included this aspect of Warkworth's proposed offset in determining the adequacy of the biodiversity offset strategy.

Offset ratios based on the biodiversity offset and rehabilitation strategy (as proposed by Warkworth) are shown in the following table.

Table 2: Offset Ratios

Vegetation Community	Disturbance Area (ha)	Offset Area (ha)	Offset Ratio excluding rehabilitation	Offset Ratio including rehabilitation
Central Hunter Grey Box – Ironbark Woodland	3	67	4:1	6:1
Central Hunter Ironbark – Spotted Gum – Grey Box Forest	13			
Derived Native Grassland	14	-	-	-
Total	30	67	2:1	3:1

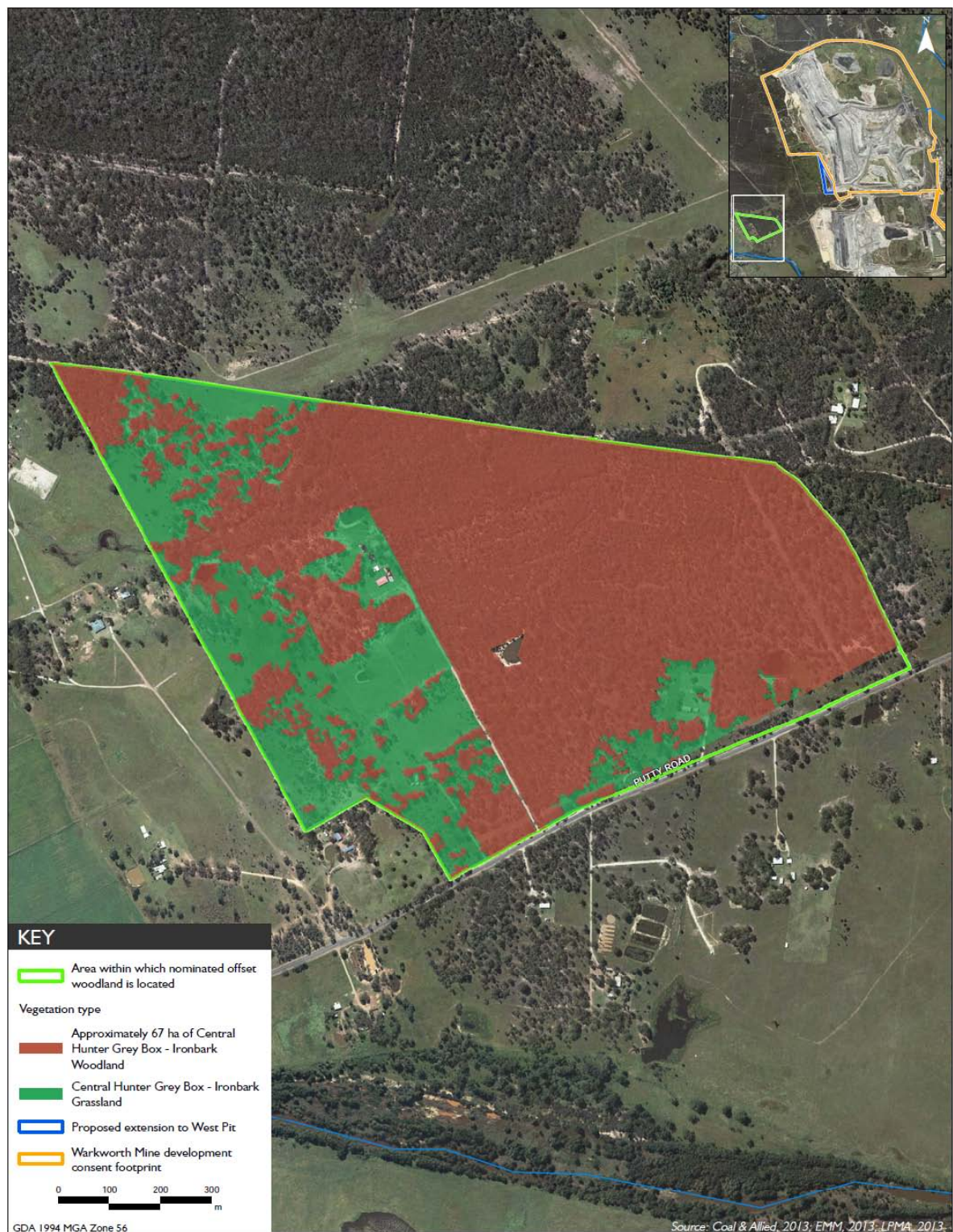


Figure 7: Proposed Biodiversity Offset Area

Without the proposed area of rehabilitation, the strategy provides an offset ratio of some 4:1 for the woodland EECs. However, the Department notes that this does not take into account the fact that the extension area was already part of an offset for clearing under the original 2003 consent. If this is considered, the Department believes that the entire 30 ha of NDA must be subtracted from the 67 ha in the offset area, which leaves 37 ha of woodland to offset the removal of the 16 ha of EEC. This provides an offset ratio of approximately 2:1 which is less than that previously approved under the Warkworth Extension Project.

Given this, and the disparate nature of the areas of Ironbark Derived Native Grassland (DNG) in the offset area (see green patches in Figure 7); the Department believes that the DNG should be included in the offset area, and the areas of grassland proactively managed to regenerate the Ironbark EEC. In the long term, this would provide up to 94 ha of Ironbark EEC, and would be equivalent to an offset ratio of around 4:1, which is commensurate with the EEC ratios approved for the Warkworth Extension Project, and contemporary mining projects in the Hunter Valley.

Finally, the Department acknowledges that the offset strategy does not provide a 'like-for-like' offset for the Central Hunter Ironbark – Spotted Gum – Grey Box Forest EEC, but notes that OEHL is satisfied that this is compensated for by the proposed offset for the Central Hunter Grey Box – Ironbark Woodland EEC, which is a very similar community, and is the more constrained of the two EECs in terms of remaining known distribution.

Deed of Agreement

Almost 90% of the objections to the proposed modification were highly critical of the proposal to mine through part of NDA 1, which was established as a biodiversity offset area under the 2003 development consent for the mine. The conservation of NDA 1, together with other offsets for the Warkworth mine, was established by way of a Deed of Agreement between Warkworth mine and the then Minister for Planning in 2004.

This issue was also raised in submissions on the Warkworth Extension Project. The Department's Assessment Report for that project considered this issue in detail, noting that while the Department does not support the principle of developing or replacing offsets, and believes that it should be avoided to the greatest extent practicable; it accepts that in some circumstances these proposals have considerable merit, and can be considered to be in the public interest.

In the case of Warkworth mine's offsets, the Department believed there was considerable merit in reviewing the previous offsets, principally because the location of the original offset is underlain with substantial coal resources, a conflict which was acknowledged (but not resolved) in both the 2003 development consent and the Deed of Agreement with the Minister.

The Department's assessment for the Warkworth Extension Project concluded that the proposed offset strategy for that project represented a better conservation and ecological outcome than the previous offset, and consequently the Department supported the replacement of the original offset areas, including NDA 1.

On 24 September 2013, the Minister executed an amendment to the Deed which allows mining to be carried out in the NDAs and Habitat Management Area (HMAs), but only in accordance with a valid planning approval. It also allows the Deed to be terminated if a subsequent planning approval includes a suitable offset to replace the 2003 offset. Consequently, the proposed extension can be carried out within the terms of the Deed (as amended).

However, the Department recognises that mining should only be allowed in NDA 1 if it is replaced by an alternative offset that provides a better long term conservation outcome than that provided by the part of NDA 1 that is proposed to be disturbed. As outlined in the proceeding section, both the Department and OEHL are satisfied that this would be achieved with the proposed biodiversity offset area.

The Department notes that the proposed extension would not justify or warrant the termination of the Deed, given that the proposal only affects a very small portion of NDA 1. Consequently, the Deed would continue to apply to other areas of the NDAs and HMAs established under the 2003 consent.

Long Term Protection of Offsets

There are a number of suitable mechanisms that can be implemented to provide long term protection to offsets, including Voluntary Conservation Agreements under the NP&W Act, Biobanking Agreements under the TSC Act, and Voluntary Planning Agreements under the EP&A Act.

The Department acknowledges that the proposed offset area must be protected in perpetuity to provide certainty in terms of biodiversity outcomes, and to the community in regard to future mining. To this end, the Department has recommended a condition that requires Warkworth to make suitable arrangements to permanently protect the offset area by 31 December 2014.

Conclusion

The Department is satisfied that the proposed extension would not result in any significant impact on EECs in the proposed extension area, or the broader ecological values of the site, given the relatively small area of disturbance.

To ensure that impacts on flora and fauna values are minimised as far as practicable, the Department has recommended conditions requiring Warkworth to:

- implement the proposed biodiversity offset strategy;
- provide for the long term (i.e. in perpetuity) conservation of the offset area;
- prepare and implement a revised Flora and Fauna Management Plan, including detailed performance and completion criteria for the biodiversity offset strategy; and
- lodge a conservation bond to safeguard the implementation of the offset strategy.

5.2 Noise and Air Quality

The Warkworth mine is located in an area that is dominated by intensive mining operations, with the Mt Thorley and Bulga mines located to the south, Wambo mine complex to the north-west, and Hunter Valley Operations mine complex to the north (see Figure 1).

However, there are a number of sensitive receivers in proximity to the complex, with the nearest settlement being Bulga Village, located about 4 to 5 kilometres to the west of the complex. A number of rural residential properties are also located around the mine complex – Mt Thorley to the east; Hambledon Hill, Wylies Flat and Gouldsville to the northeast; Warkworth to the northwest; and Putty Road to the west (see Figures 1 and 2).

The proposed modification does not involve any change to the intensity or nature of mining operations at the Warkworth mine; however it would extend the West Pit an additional 300 metres westward toward Bulga Village. This change would result in a negligible and imperceptible² increase in noise levels at Bulga of 0.1 dBA (as a result of the reduced distance between source and receiver). The EA notes that the extension area would only constitute 1% of the existing disturbance area of the mine.

The EA includes detailed information on the noise compliance history of the mine, noting that a total of 24 noise exceedances have been identified since 2004, out of a total of 2,540 noise assessments. Ten of these exceedances are acknowledged by Warkworth as representing non-compliances with the noise limits in the consent.³ Most of these have been to the east of the mine near the processing facilities, rather than in Bulga Village. Three exceedances (and 1 non-compliance) have been identified in Bulga Village in 2013, out of a total of 88 assessments.

With regard to air quality, the EA concludes that the proposed extension would not have any noticeable effect on dust levels at surrounding receivers, given the minor change to the distance to receivers and because there would be no change to the production rate or mining fleet. Current air quality monitoring indicates that the dust levels at surrounding receivers is generally well within applicable criteria. A total of 8 exceedances of the 24 hour PM₁₀ criteria (ie. 50µg/m³) were recorded in 2012, however subsequent analysis of wind direction and location at the time of these incidents identified that the MTW mine complex was not responsible for any of the exceedances.

² Noise increases of up to 2 dBA are generally not perceptible to the human ear.

³ The EA deems a non-compliance to be more than a minor (ie. 2dB) exceedance of the applicable noise limits.

The Department acknowledges that whilst the existing mining operations are, for the most part, compliant with the applicable noise and dust criteria, there are occasional exceedances of the noise criteria that are attributable to the mine.

That said, the Department is also satisfied that the proposed extension would not lead to any perceptible increase in noise or dust levels in the surrounding area including Bulga Village, given the relatively minor nature of the extension in comparison to the existing operations.

Importantly, the modification provides an opportunity to strengthen and update the existing noise and dust management and monitoring conditions in the 2003 consent to be consistent with contemporary requirements for open cut mines in the Hunter Valley, which should assist in minimising the risk of noise and dust exceedances in the future.

In this regard, the existing consent includes requirements on Warkworth to:

- comply with strict noise and dust criteria;
- acquire additional properties (at the landowners request) if noise and/or dust exceeds applicable land acquisition criteria;
- minimise off-site noise and dust as far as practicable; and
- undertake real-time noise and dust monitoring and maintain detailed noise and air quality monitoring programs.

It is important to note that Warkworth's existing noise and dust monitoring and management systems go beyond these requirements, and include proactive noise and dust management systems⁴. These systems use a combination of real-time noise and dust monitoring, together with weather forecasting, to guide day-to-day planning of mining operations and prevent noise/dust impacts during adverse weather conditions when exceedances are more likely to occur.

The Department has recommended conditions which update the existing noise and dust conditions to reflect current best practice monitoring and management, including formalising the proactive noise and dust management systems on the site. With these conditions the Department believes that the Warkworth mine, including the proposed extension, can operate in accordance with the applicable noise and dust limits in the consent.

The Department notes that many submissions raised the issue of low frequency noise.

In this regard, it is the Department's view that the proposed modification would not increase the potential for generation of low frequency noise at the mine, as no new plant or equipment would be required to support the proposed modification. The noise assessment in the EA indicates that the key components of the existing operations that have the potential to generate low frequency noise are associated with the CHPP on the site, and no changes to the CHPP are proposed. This means that even though mining would take place in areas that are closer to receivers in Bulga Village, low frequency noise generated by the mine is not expected to change as a result of the proposed modification.

Further, it is important to note the Department has identified a number of potential limitations in the NSW *Industrial Noise Policy's* (INP) current approach to dealing with low frequency noise, particularly in relation to mining operations where receivers are often located several kilometres away from the noise source. This can lead to perverse outcomes in some cases where the modifying factors (penalties) in the INP are applied to the monitoring results of mines when there is little or no low frequency noise impact. This, along with a range of other reasons, has prompted the EPA to carry out a detailed review of the low frequency noise provisions in the INP. This review should be completed sometime in 2014, and could lead to changes to the provisions in the INP.

Nonetheless, in the interim the Department will continue to apply the current provisions of the INP to all mines in NSW, and require Warkworth to apply the relevant modifying factors in Section 4 of the INP to its monitoring results. To this end, the Department has recommended a condition that requires Warkworth to carry out monthly attended monitoring to evaluate the compliance of the mine, and to apply the low frequency noise modifying factor to any monitoring data, in accordance with the INP.

⁴ These expect to be fully integrated into mining operations in 2014.

5.3 Water Resources

The proposed extension area is within the catchment of Wollombi Brook, which is located about 4 kilometres to the west of the site (see Figure 8). Wollombi Brook has a catchment area of some 185,000 hectares. The proposed extension area represents less than 0.02% of this area.

Key hydrogeological units in the vicinity of the site include:

- the Wollombi Brook alluvium associated with Wollombi Brook;
- a shallow perched aeolian sand aquifer associated with the Warkworth Sands Woodland;
- weathered bedrock and bedrock Permian strata; and
- the Permian coal measures.

As with most groundwater systems in the Hunter Valley, the alluvial aquifer provides the best quality and most productive aquifer system in the area. The perched aeolian sand aquifer is also important in sustaining the Warkworth Sands Woodland EEC. The Permian bedrock (or hard rock) sequence is largely dry and unproductive.

The EA includes a specialist groundwater review undertaken by AGE Consultants, and for surface water relies on the assessment undertaken for the Warkworth Extension Project⁵ by WRM Water & Environment. Based on these assessments, the EA concludes that the proposed extension would cause:

- no impact on the Wollombi Brook alluvial aquifer;
- no significant additional depressurisation and drawdown in the regional aquifers;
- no impact on groundwater or surface water users;
- no significant increase in seepage inflows into the mining areas;
- no significant or detectable reduced flows from the hard rock aquifers to the alluvials, or loss of baseflow in Wollombi Brook;
- no change to water quality;
- no impact on the aeolian perched aquifer;
- no impact to the Warkworth Sands Woodland, or other groundwater dependent ecosystems on Wollombi Brook;
- no significant change to site water use or the site water balance; and
- no impact on flooding.

The key reason for the negligible predicted impact is that the proposed extension would increase the mine footprint by only 1%, and because the extension area is well removed from significant water resources such as Wollombi Brook (and its alluvium) and the perched aeolian aquifer.

The Department and NOW accept that the proposed extension represents a small addition to the existing mine footprint, and is unlikely to result in any significant impact to water resources in the area. However, NOW has made a number of recommendations that have been incorporated into the recommended conditions, including the requirement to undertake an independent expert review of the groundwater model for the mine against the requirements of the *Australian Groundwater Modelling Guidelines*, and to obtain applicable licences for the operations under the *Water Act 1912* and the *Water Management Act 2000*.

The Department has also updated the conditions to include a requirement to prepare and implement a detailed Water Management Plan for the site. The Water Management Plan would require Warkworth to:

- maintain a detailed site water balance;
- establish and comply with surface water and groundwater impact assessment criteria;
- implement measures to prevent and/or minimise impacts on surface water and groundwater resources;
- implement detailed surface water and groundwater monitoring programs; and
- review and validate the groundwater model with monitoring data every 3 years.

The Department has also recommended conditions that require Warkworth to adjust the scale of operations on the site to match its available water supply, and provide compensatory water supplies to any groundwater users whose water supply is adversely affected by the mine.

⁵ The Year 2 mine plan for the Warkworth Extension Project, as assessed in the surface water assessment for that project, is representative of the impacts associated with the proposed West Pit extension.

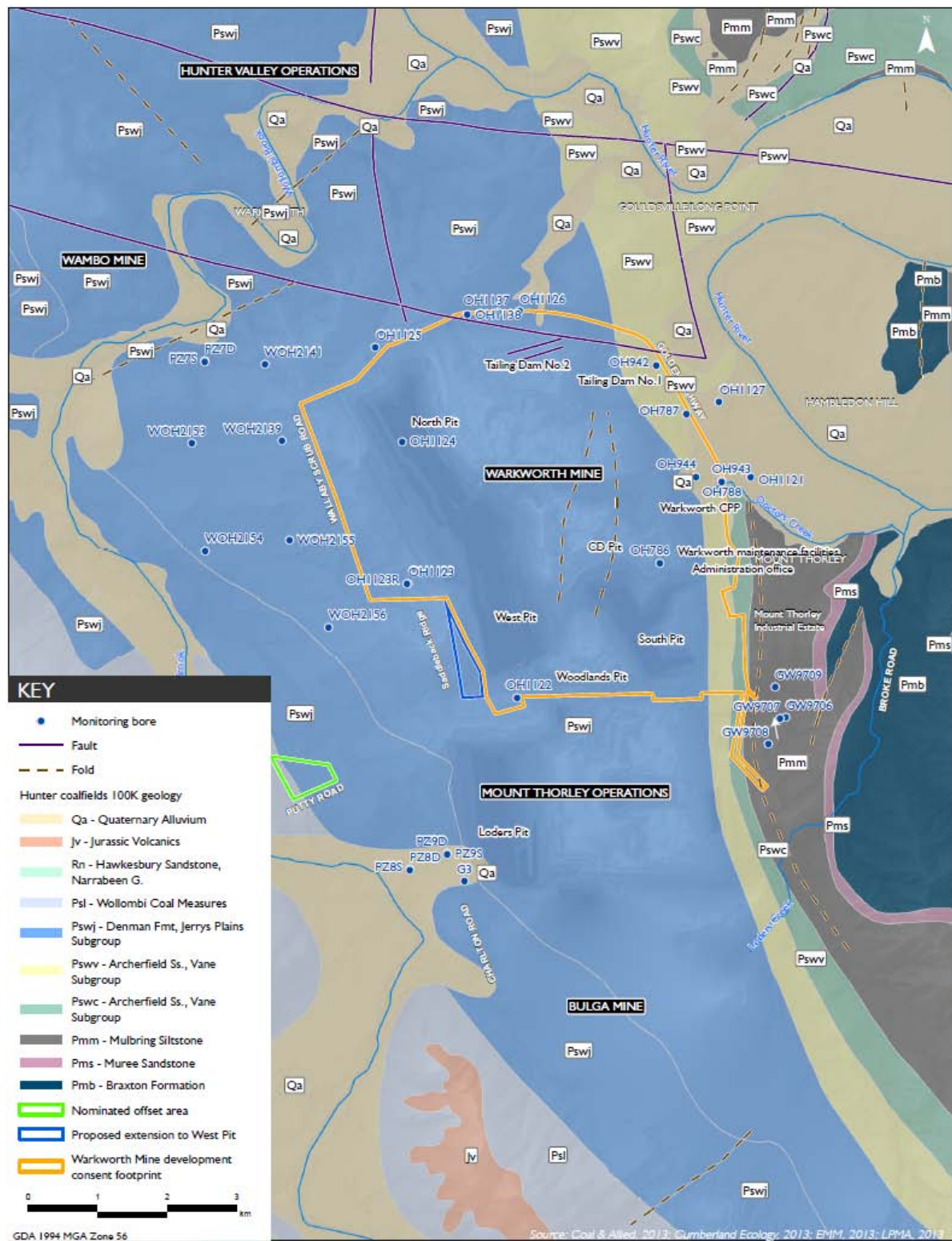


Figure 8: Geology and Monitoring Bores

5.4 Visual Amenity

The EA includes a view shed analysis which indicates that the proposed extension area would not be visible from sensitive receivers to the west of the mine, given that the proposed extension would remain east of Saddleback Ridge, and given intervening vegetation between the mining area and these sensitive receiver locations. Views from other directions would not noticeably change as a result of the modification.

The Department is satisfied that the proposal would not result in any significant increase to the visual impacts of the existing mine, and that any residual impacts can be effectively managed in accordance with the existing conditions of consent. These include requirements on Warkworth to:

- minimise visual impacts, including installing bunds at strategic locations and planting trees to screen the mine from external viewers as far as practicable;
- undertake additional visual mitigation measures at affected receivers residences, where warranted;
- construct overburden emplacements in accordance with approved plans; and
- minimise off-site light spill, and install external lighting to minimise obtrusive effects in accordance with applicable Australian Standards.

5.5 Aboriginal Heritage

The Aboriginal heritage assessment in the EA is based on studies undertaken for the Warkworth Extension Project in 2010 and 2011, and a number of surveys undertaken on the mining lease since 1979.

Although no specific consultation with Aboriginal groups was undertaken for the proposal, Warkworth has established a Cultural Heritage Working Group (CHWG) for the wider Warkworth mine, and the EA relies on consultation undertaken in regular CHWG meetings as well as consultation undertaken for the Warkworth Extension Project. The CHWG comprises 65 Registered Aboriginal Parties, and includes the Local Aboriginal Land Council.

Previous assessments have identified 7 Aboriginal sites within the proposed extension area, including 3 sites (all artefact scatters) near the on-site dam that have already been salvaged in accordance with an Aboriginal Heritage Impact Permit (AHIP) under the NPW Act. The sites are shown on Figure 9.

The 4 extant sites include 1 isolated find and 3 artefact scatters, one of which contains 5 artefacts with the other two containing 2 artefacts each. Three of the sites have been unable to be relocated since their original identification, but are nonetheless managed as Aboriginal sites consistent with Warkworth's Aboriginal Cultural Heritage Management Plan (ACHMP).

To mitigate the proposal's impacts on the extant sites, Warkworth proposes to:

- salvage the sites in consultation with the CHWG, and in accordance with an AHIP under the NPW Act; and
- re-survey the entire modification area in consultation with the CHWG, and salvage any additional sites that may be identified.

The Department and OEH accept that the Aboriginal sites within the proposed extension area are of relatively low archaeological significance (isolated finds and artefact scatters are common throughout the Hunter Valley), and that any additional sites that may be identified in the extension area are unlikely to be of high significance given the nature of the site and its landforms. Consequently, the Department is satisfied that the proposed extension would not result in any significant impact on the Aboriginal heritage values of the locality. The Department has recommended conditions reinforcing Warkworth's commitments above.

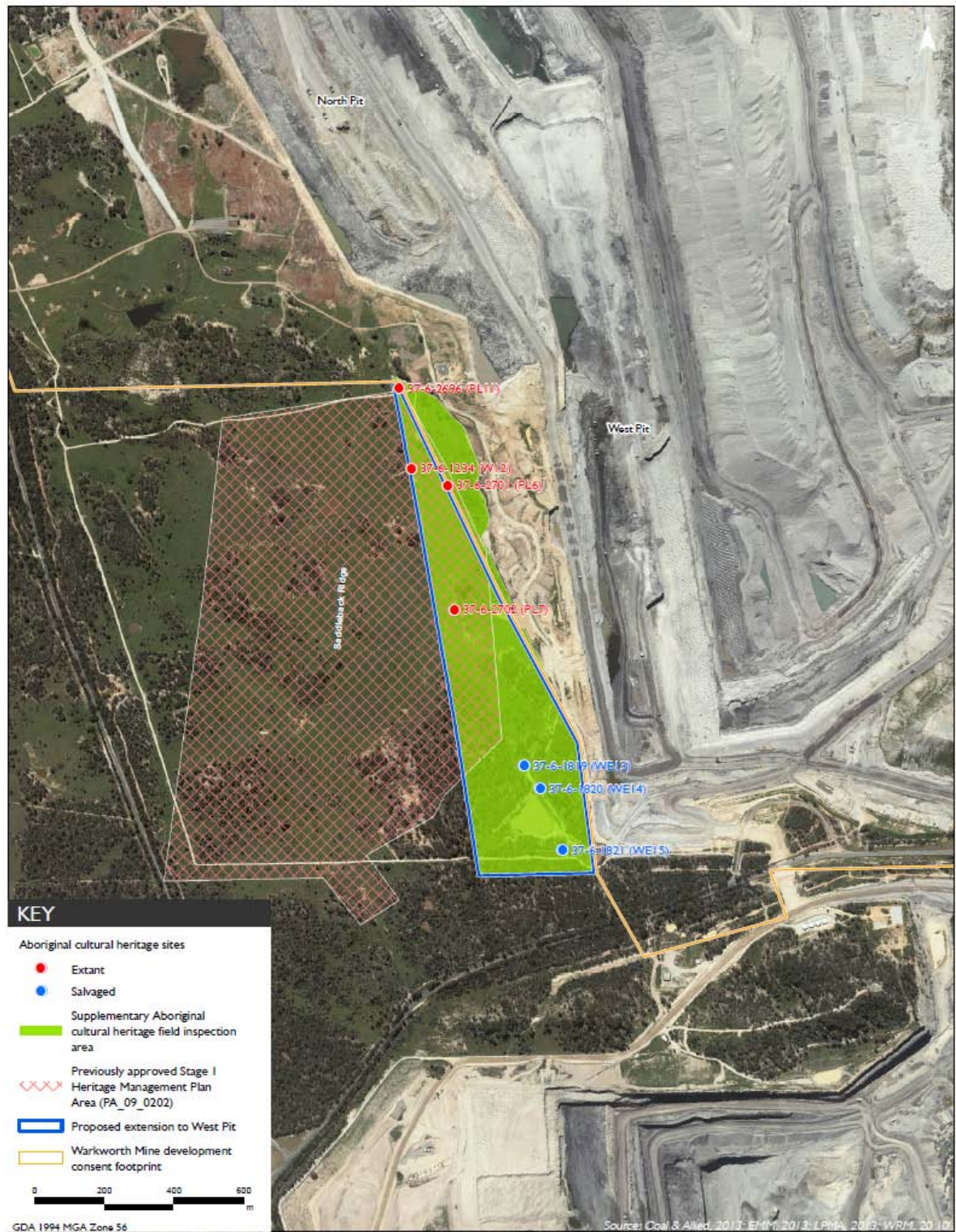


Figure 9: Aboriginal Sites

5.6 Other Issues

Other issues associated with the proposed extension (eg. traffic, blasting, greenhouse gas emissions, non-indigenous heritage, socio-economics and land use) are considered to be minor issues, components of key issues or of minor environmental impact, and/or can be effectively managed via appropriate conditions of consent.

6 RECOMMENDED CONDITONS

The Department has drafted a recommended notice of modification for the proposal (see Appendix A), and a consolidated consent which includes the recommended modifications to the existing consent (see Appendix B).

The notice of modification would make substantial changes to the existing conditions of consent. The Department believes these changes are required to make the conditions consistent the conditions of other mining operations in the Hunter Valley, to drive the implementation of best management practice on site, and to minimise the impacts of the mining operations as a whole.

The revised conditions require Warkworth to:

- comply with strict noise, dust and blasting limits;
- implement contemporary noise, dust and blast monitoring and management measures;
- implement the proposed biodiversity offset strategy;
- prepare and implement a detailed Flora and Fauna Management Plan, including completion criteria for the offset strategy;
- prepare and implement a detailed Water Management Plan for the site;
- undertake additional Aboriginal site surveys and salvage sites in accordance with an AHIP;
- comply with contemporary rehabilitation objectives, and prepare and implement a detailed Rehabilitation Management Plan for the site;
- review and update existing environmental management strategies, plans and programs for the mine;
- report incidents and regularly report environmental performance; and
- provide public access to a range of information relating to the environmental management and performance of the mine.

In summary, the Department believes these changes would significantly improve the regulation of the approved mining operations.

7 CONCLUSION

The Department has assessed the merits of the modification application, EA, submissions and Warkworth'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.

This assessment has found that the proposed modification would:

- result in a small additional impact on Ironbark EEC in the locality, but that the proposed biodiversity offset strategy would effectively compensate for this impact;
- not result in any significant or detectable increase in noise, dust, visual impacts or other amenity-related impacts on nearby residential areas, including Bulga Village;
- not result in any significant impacts on water resources; and
- not result in any significant impact on Aboriginal heritage values.

Importantly, the proposal would enable Warkworth to maintain production levels at or near historic levels for the next 2 years whilst it assesses the future of the mine, which would provide greater certainty for the 850 existing mine workers employed at the mine.

It would also make use of existing mine-related infrastructure and facilities to extract an economic coal resource with minor additional environmental impact, and thus the proposal represents a logical and reasonable extension of the existing mine.

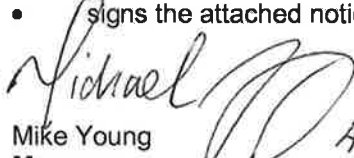
The proposal also presents an opportunity to update and contemporise key conditions of the existing consent for the mine, particularly in relation to noise and dust, which should improve the environmental performance of the mine and reduce the risk of non-compliances in the future. The Department has recommended a number of additional conditions in this regard.

On balance, the Department considers that the benefits of the modification sufficiently outweigh its residual 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 Planning Assessment Commission, as delegate for the Minister:

- considers the findings and recommendations of this report;
- determines that the proposed modification is in the scope of Section 75W of the EP&A Act;
- approves the application to modify the development consent, subject to conditions, under Section 75W of the EP&A Act; and
- signs the attached notice of modification to the development consent (Tag A).


Mike Young
Manager
Mining Projects

4.12.13


David Kitto
Director
Mining Projects

4/12/13


Chris Wilson
Executive Director
Development Assessment, Systems & Approvals

4.12.13

APPENDIX A: NOTICE OF MODIFICATION

APPENDIX B: CONSOLIDATED CONSENT

APPENDIX C: RESPONSE TO SUBMISSIONS

APPENDIX D: SUBMISSIONS

APPENDIX E: ENVIRONMENTAL ASSESSMENT

APPENDIX F: REVISED BIODIVERSITY OFFSET