



Integra Mine Complex Modification 4

Environmental Assessment

Prepared for Integra Coal Operations Pty Ltd | May 2014



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Final

Report J14028RP1 | Prepared for Integra Coal Operations Pty Limited | 16 May 2014

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1 Introduction

1.1 Overview of proposed modification

The Integra Mine Complex (the Complex) is owned and operated by Integra Coal Operations Pty Limited (Integra). The Complex comprises underground and open cut operations which have been active since 1991 under the former Glennies Creek and Camberwell joint ventures.

The Complex operates under a single project approval instrument which combines the project approvals for the Integra Underground (PA 08_0101) and Integra Open Cut (PA 08_0102), respectively (Appendix A). The project approvals were granted on 26 November 2010 under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act), and have subsequently been modified under section 75W of the EP&A Act on three occasions. Operations at the Complex approved under PA 08_0101 and PA 08_0102 (as modified) are referred to herein as the 'approved project'.

Integra is seeking approval from the Minister for Planning and Infrastructure for Modification 4 to its project approvals under Section 75W of the EP&A Act. The proposed modification relates solely to alterations to the approved biodiversity offset strategy (BOS) for the Complex. The requirements for the BOS are prescribed in Condition 41 and 42 of the project approvals. A total of six biodiversity offset areas (BOAs) within the Complex, referred to as onsite BOAs, have been established under the BOS for the approved project.

To prevent the sterilisation of previously identified significant coal resources valued at approximately \$6.2 billion underlying a portion of the BOAs, Integra is seeking to modify the composition of its BOS. The revised BOS complies with the relevant conditions of the project approvals, and provides an improved offset outcome overall. When compared with the approved BOAs, the revised BOS:

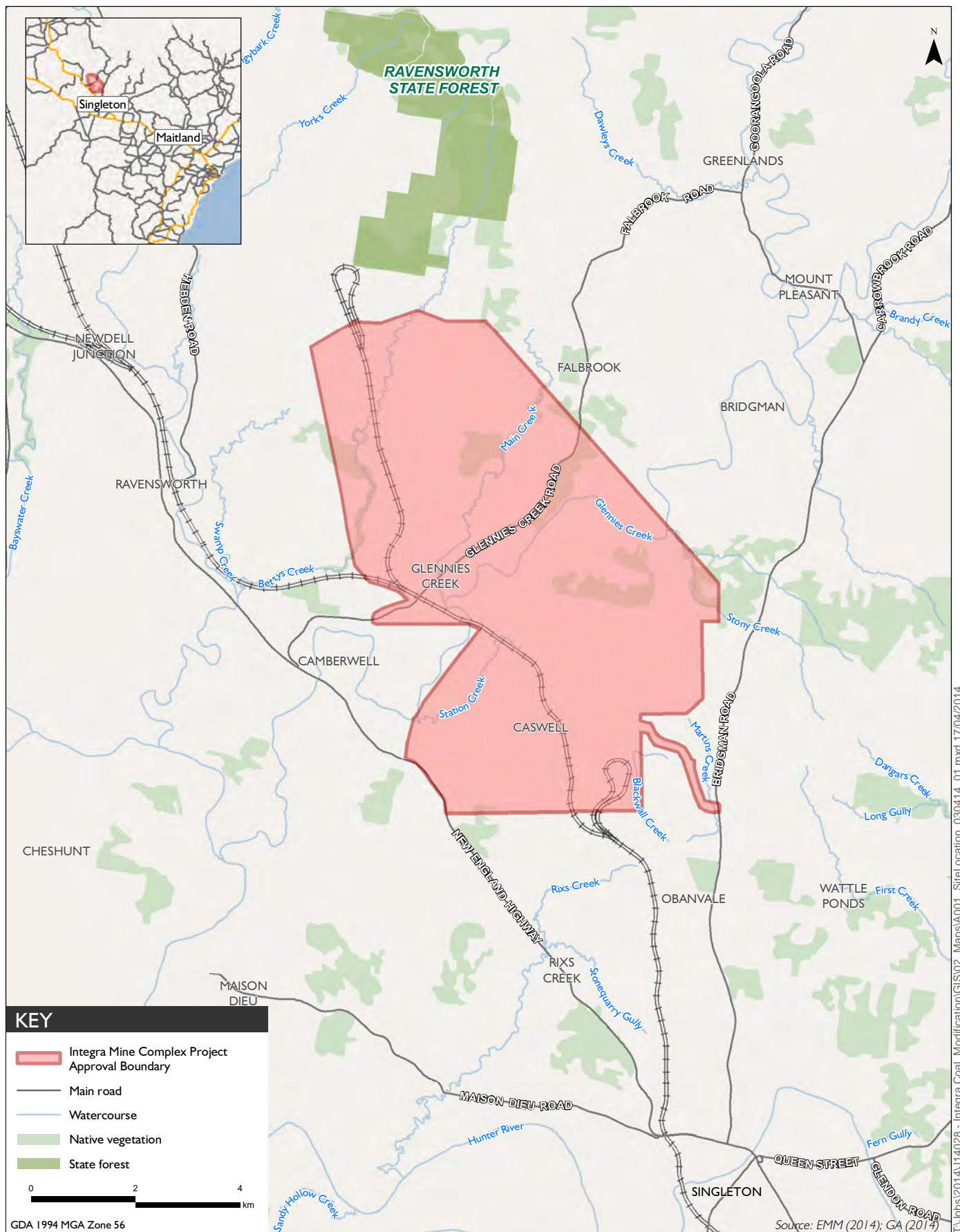
- provides similar offset to impact ratios for the vegetation communities impacted by the approved project;
- increases the percentage of native vegetation in the offsets (31% more); and
- provides an additional approximately 40 ha of offset area.

No other changes to approved operations are proposed. The proposed modification does not involve any physical works, including any additional mining, disturbance, physical alterations, vegetation clearing, or the like.

Integra is committed to securing the revised BOS proposed by this modification by September 2014 in accordance with Condition 43 of the project approvals.

1.2 Site and surrounds

The Complex is located in the Hunter Coalfields of the Sydney Basin and is entirely within the Singleton Local Government Area (LGA). It is approximately 10 km north-west of the Singleton town centre, in the locality of Camberwell (Figure 1.1). The Complex is bound by the New England Highway to the south-west, Bridgman Road to the east and the Middle Falbrook locality to the north. The Main Northern Railway line traverses the site. The project approval boundary of the Complex is shown in Figure 1.1.



Both open cut and underground mining operations are undertaken within the Complex with open cut mining operations commencing in 1991, and underground operations commencing in the late 1990s.

The Complex is surrounded by a number of mines, predominantly along the western boundary, including Mount Owen Mine and Ravensworth East Mine to the north-west, Glendell Mine and Ashton Mine to the west and Rix's Creek Mine to the south-west.

Nearby residential areas are in Camberwell Village and Wattle Ponds, to the west and east of the mine respectively. There are a number of residences situated in the immediate vicinity of the Complex. Land uses within the locality are predominately mining and mining related, as well as grazing and cropping.

1.3 The proponent

The proponent is Integra on behalf of the Integra Coal Joint Venture. The joint venture participants are:

- Vale Australia Pty Limited through subsidiary companies Vale Australia (GC) Pty Limited (Vale);
- NS Glennies Creek Pty Limited, a subsidiary of Nippon Steel;
- POS - GC Pty Limited, a subsidiary of POSCO;
- JS Glennies Creek Pty Limited and JFE Steel Pty Limited, both subsidiaries of Japan Steel;
- Navidale Pty Limited;
- Chubu Electric Power Integra Pty Limited;
- Toyota Tsusho Mining (Australia) Pty Limited; and
- Toyota Tsusho Corporation (Australia) Pty Limited.

Integra is the management company responsible for the operation of the Complex. Glennies Creek Coal Management Pty Limited and Camberwell Coal Pty Limited, the employers at the individual sites, are wholly owned by Integra.

1.4 Purpose of this report

A Preliminary Environmental Assessment (PEA) was submitted to the Director-General of Planning and Infrastructure (P&I) on 19 March 2014 to notify P&I of Integra's intent to modify its project approvals. The PEA provided preliminary information on the potential environmental impacts related to the proposed modification that would be assessed in this environmental assessment (EA). Director-General's requirements were not issued for the proposed modification.

The purpose of this EA is to accompany an application by Integra to modify the project approvals in accordance with Section 75W of the EP&A Act. This document provides an assessment of the potential impacts related to the proposed modification, and describes measures that would be implemented to avoid, minimise and/or offset potential impacts. The EA provides information to allow P&I, in consultation with NSW government authorities, to assess the merits of the proposed modification and make a recommendation to the Minister for Planning and Infrastructure as to whether or not to approve the modification.

The EA also intends to inform the community about the proposed modification so that they can make submissions on its merits or impacts. Such submissions are an important part of the assessment process.

This EA was prepared by EMGA Mitchell McLennan Pty Limited (EMM) on behalf of Integra.

1.5 Report structure

This EA is structured as follows.

- *Chapter 1* – Introduction to the proposed modification, including description of the site, locality, proponent, and the purpose of this report.
- *Chapter 2* – Description of the existing operations and project approvals.
- *Chapter 3* – Description of the modification including the need for the modification and alternatives considered.
- *Chapter 4* – Overview of the planning and statutory approvals framework.
- *Chapter 5* – Details of stakeholder engagement undertaken for the existing operations, as well as details specific to the modification.
- *Chapter 6* – Environmental risk assessment for the modification.
- *Chapter 7* – Assessment of biodiversity impacts of the modification.
- *Chapter 8* – Justification and conclusion.

2 Approved project and existing operations

2.1 Approval history

Both open cut and underground mining operations are undertaken within the Complex (identified as Integra Open Cut and Integra Underground).

Integra Open Cut comprises the North Open Cut (NOC) and South Open Cut (SOC). The SOC includes the approved western extension under PA 08_0102 (known as the Western mining area). Operations at the Integra Open Cut produce both semi-soft coking coal (~70%) and thermal coal (~30%) for export.

Integra Underground, to the north of the Integra Open Cut (and formerly known as the Glennies Creek Colliery), involves longwall mining of the Hebden, Barrett and Middle Liddell seams producing high quality, semi-hard coking coal for export.

Open cut mining operations are approved until 31 December 2022 with maximum extraction rates of 1.5 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal from the NOC and 4.5 Mtpa of ROM coal from the SOC. Underground mining operations are approved until 31 December 2035 with a maximum extraction rate of 4.5 Mtpa of ROM coal. A summary of approvals is provided in Table 2.1.

Table 2.1 Summary of approvals for the Complex

Project	Description	Approval reference
Integra Open Cut		
Camberwell Coal Mine	Application for open cut mining of the North and South pits, development and operation of a coal handling and preparation plant (CHPP), train loader and associated facilities submitted in 1990.	DA 86/2889 approved in 1990 (and subsequently modified). Approved open cut activities were incorporated into the Integra Open Cut Project (PA 08_0102).
Surface Facilities Project	Construction of surface facilities at the Complex. This application was submitted in 2006.	Approved under PA 06_0057 in 2007. Approved open cut activities were incorporated into the Integra Open Cut Project (PA 08_0102).
Glennies Creek Open Cut Coal Mine (NOC Project)	The NOC Project was assessed in the Glennies Creek Open Cut Coal Mine EA prepared by R.W. Corkery & Co. Pty Limited in 2007 (referred to as the NOC EA).	Approved under PA 06_0073 in 2008 (and subsequently modified). Approved open cut activities were incorporated into the Integra Open Cut Project (PA 08_0102).
Integra Open Cut Project (incorporating SOC and western mining area)	Western extension of the existing SOC (the western mining area) and incorporation of the approved NOC operations. An application and accompanying EA (URS 2009) (Open Cut Project EA) was lodged in 2009.	Project Approval 08_0102 was granted in 2010, and replaces approvals for the NOC Project (PA 06_0073) and Surface Facilities Project (PA 06_0057). Modifications relating to the Open Cut include: <ul style="list-style-type: none">• Modification 1 – extension of the NOC out-of-pit emplacement area. Approved 2012.• Modification 3 – interim modification to timeframes in project approval. Approved 2012.• Modification 2 – amendment to overland conveyor and extension of timeframes to secure biodiversity offsets. Approved 2013.

Table 2.1 Summary of approvals for the Complex

Project	Description	Approval reference
Integra Underground		
Glennies Creek Colliery	Application for use of the CHPP, train loader and associated facilities submitted in 1990.	Approved under DA 105/90 in 1990 (and subsequently modified). Approved underground activities were incorporated into the Integra Underground Project (PA 08_0101).
Glennies Creek Surface Facilities Project	Application for use of surface facilities at the Integra Underground submitted in 2006.	Approved under PA 06_0057 in 2007 (and subsequently modified). Approved underground activities were incorporated into the Integra Underground Project (PA 08_0101).
Underground mining in the Middle Liddell Seam	Application for longwall mining in the Middle Liddell Seam submitted in 2008.	Approved under MP 06_0213 in 2008. Approved underground activities were incorporated into the Integra Underground Project (PA 08_0101).
Integra Underground Project	Integra Underground Project, incorporating all consents and approvals relating to underground operations, plus approval for underground mining in the Hebden, Barrett and Middle Liddell Seams. Application submitted in 2010.	Project Approval PA 08_0101 was granted in 2010, and replaced all existing approvals for the underground operations.

2.2 Approved biodiversity offset strategy

The original BOS was approved as part of the NOC Project (approved under PA 06_0073 in 2008). The BOS was required to compensate for impacts on native vegetation and fauna habitat and included four BOAs, known as the Northern, Southern, Western and Supplementary BOAs, located within the Complex to the north and east of the NOC (Figure 2.1). The BOS was later amended to include the Bridgman BOA.

The BOS was subsequently incorporated into the project approvals PA 08_0101 and PA 08_0102 for the open cut and underground operations to compensate for all biodiversity impacts associated with the Complex. Condition 41 of Schedule 3 of the project approvals states:

41. The proponent shall implement the offset strategy summarised in Table 18, described in the open cut and underground project EAs, and shown conceptually in the figure in Appendix 8 to the satisfaction of the Director-General.

Table 18 - Biodiversity offsets strategy for the Integra Mining Complex

Offset areas	Minimum size (ha)
Northern offset area	121
Southern offset area	39
Western offset area	94
Supplementary offset area	33
Bridgman offset area	86

The BOS as prescribed under Condition 41 includes a minimum of 373 ha within five BOAs.

To further compensate for vegetation clearance associated with the Open Cut and Underground projects, minimum areas of certain vegetation communities were required to be offset under Condition 42 of Schedule 3 of the project approvals, as follows:

42. By the end of September 2012, unless the Director-General agrees otherwise, the Proponent (Integra) shall revise the (biodiversity) offset strategy referred to above, in consultation with OEH, and to the satisfaction of the Director-General. The revised offset strategy must:
 - (a) ensure provision of at least 140 hectares of Narrow-leaved Ironbark-Spotted Gum-Forest Red Gum Forest (or a suitable equivalent) to further offset the impact of the open cut project; and
 - (b) include an additional 6 hectares of Central Hunter Swamp Oak Forest (or a suitable equivalent) to offset the impact of the underground project on the Glendell Biodiversity Offset Area.

The Martins Creek BOA was subsequently incorporated to further compensate for vegetation clearance associated with the Open Cut and Underground projects to meet the requirements of Condition 42. As required by Condition 42(a), the approved BOAs provide in excess of 140 ha of Narrow-leaved Ironbark-Spotted Gum-Forest Red Gum Forest. The Martins Creek BOA also includes 13.2 ha of Central Hunter Swamp Oak Forest as required by Condition 42(b).

In total, the BOS for the Complex currently comprises 575.3 ha within six BOAs, all wholly or partially within the project approval boundaries (see Figure 2.1).

2.3 Long term security of offsets

Condition 43 of Schedule 3 of the project approvals was modified under Modification 2, which approved an extension to the timeframe for long term security of areas in the BOS. Condition 43 states:

43. By the end of September 2014, the proponent shall make suitable arrangements to provide appropriate long term security for all the areas in the revised offset strategy to the satisfaction of the Director-General.

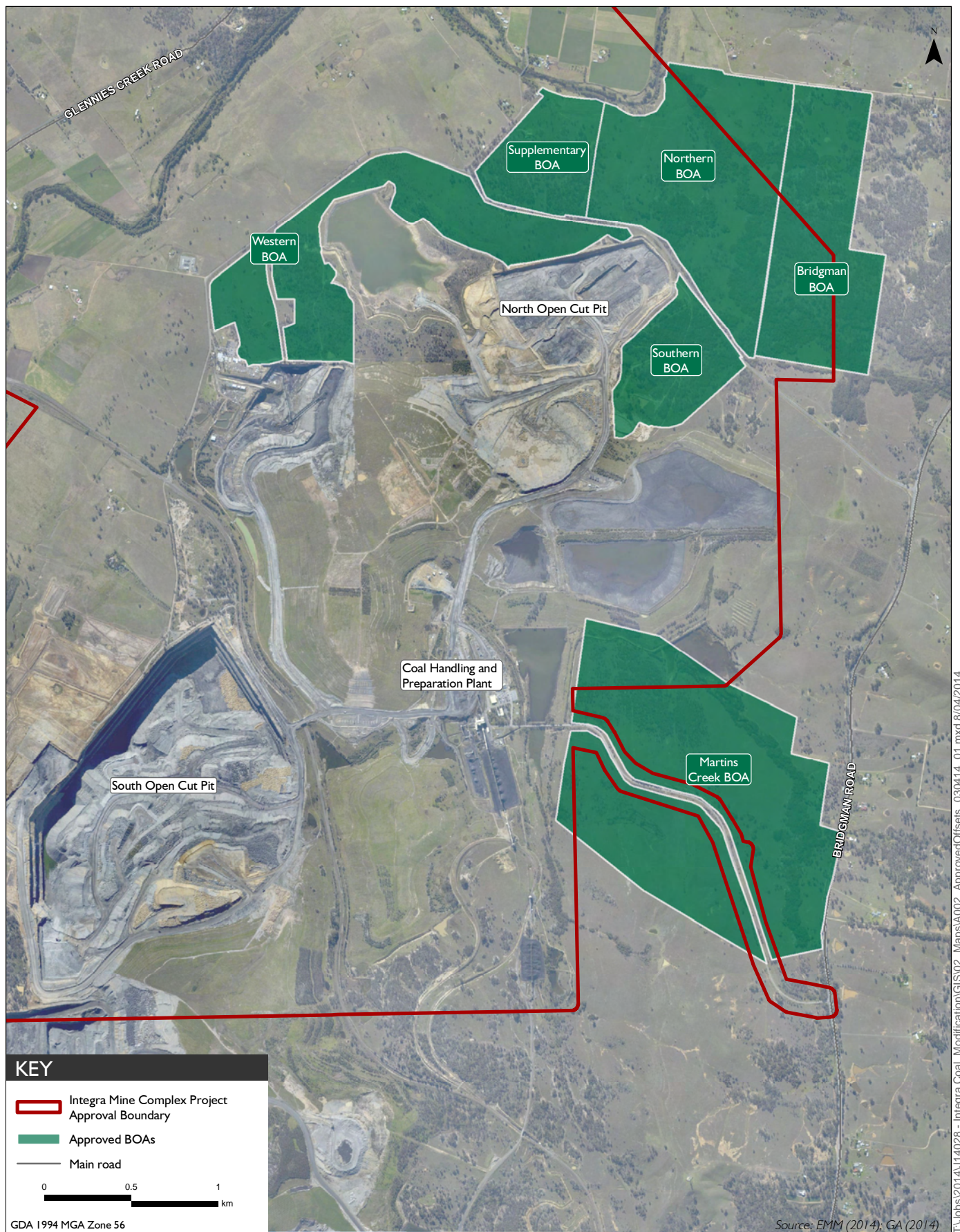
Integra is investigating options for long term security of offsets in accordance with Condition 43.

2.4 Management of biodiversity offsets

2.4.1 Biodiversity management plan

Integra manages the BOS through the implementation of a number of environmental management documents. Condition 44 of Schedule 3 of the project approvals requires the preparation and implementation of a Biodiversity Management Plan (BMP) (Vale 2013) for the Complex. The BMP, prepared in consultation with P&I and the Office of Environment and Heritage (OEH), forms part of environmental management documents for the Complex.

The objective of the BMP is to “rehabilitate, revegetate and manage land for biodiversity within the six designated biodiversity offset areas (BOAs) and the mine site during and post mining” (Vale 2013). Performance against this objective is measured through regular monitoring of flora, fauna and the rehabilitation process. The BMP addresses the management of the BOAs as well as management of biodiversity more broadly across the Complex, and outlines actions for the effective management of biodiversity at the Complex.



The BMP will be reviewed every three years, following the results of monitoring and reporting. As required by Condition 4 of Schedule 5 of the project approvals, review of the BMP is also to be undertaken following the submission of an annual review, incident report, or audit report, or the modification of any of the conditions of the project approvals.

2.4.2 Audit of biodiversity offset areas

As part of Modification 1 of the project approvals, a new condition, Condition 44A, was added to Schedule 3 of the project approvals. Condition 44A states:

- 44A. The Proponent shall commission a suitably qualified, experienced and independent person approved by the Director-General to conduct an audit of all biodiversity offset areas referred to in conditions 41 and 42 above. The audit report is to be submitted to the Director-General by the end of July 2012 for approval and must:
- (a) report on current baseline data on flora and fauna within each biodiversity offset area, including the condition of all key vegetation communities;
 - (b) compare the current condition of each vegetation community within each biodiversity offset area to that surveyed in 2007, including a report on any works and/or other disturbance that has taken place since those surveys;
 - (c) evaluate the effectiveness of management measures undertaken to date in improving the biodiversity value of each biodiversity offset area; and
 - (d) recommend any additional improvement works for each biodiversity offset area and provide a schedule for their implementation.

An audit of the BOAs was completed in 2012. The audit found that the environmental management actions undertaken between 2007 and 2012 at the Complex have generally resulted in improvements in the vegetation condition and biodiversity values throughout the BOAs. These improvements are likely to be directly attributed to a combination of key management actions including:

- the implementation of a significant supplementary habitat program and subsequent monitoring for threatened species;
- the exclusion of grazing throughout the majority of the BOAs; and
- the implementation of regular targeted pest, weed and wild dog eradication.

The audit also indicated that the extent of native vegetation communities within the BOAs increased in the order of 30 ha. This was attributed to discrepancies between the cadastral and BOA boundaries originally identified in 2007 compared to the fenced BOA as surveyed in 2012, and improvements in the condition of vegetation communities resulting from the management actions outlined above.

2.5 Rehabilitation

Rehabilitation at the Complex is undertaken progressively as outlined in the project approval (and statement of commitments) and BMP. Rehabilitation is integrated across the underground, open cut and surrounding natural landforms.

Integra completed approximately 16.5 ha of rehabilitation and 19.5 ha of dump decommissioning during the 2013 reporting period. Approximately 6 ha of rehabilitation was completed in the NOC and 7 ha was completed on the SOC. Improvement of approved BOAs was also undertaken in 2013, with the completion of additional seeding and firebreaks. Approximately 3 ha of the approved BOAs were seeded with a native tree mix.

Under its project approvals, Integra has committed to a Glennies Creek Riparian Management Plan. As part of this commitment, approximately 1,400 tube stock seedlings were planted along Glennies Creek during the 2013 reporting period. This rehabilitation program has continued in 2014, with further tube stock planting, fencing, weed control and erosion works either already undertaken or scheduled for later in 2014.

3 Proposed modification

3.1 Overview of the modification

The proposed modification seeks to alter the BOS for the Complex to:

- remove the Western and Supplementary BOAs;
- reduce the size of the Northern and Southern BOAs and modify the boundaries of the Martins Creek BOA; and
- incorporate a new BOA, known as the Appletree Flat BOA, approximately 30 km to the west of the Complex surrounded by the Wollemi National Park.

No changes are proposed to the Bridgeman BOA. The BOAs proposed as part of the revised BOS are presented in Figure 3.1.

The revised BOS incorporates onsite and offsite BOAs (Figure 3.1). The onsite BOAs (Figure 3.2) are a modified version of the approved BOAs within the Complex, representing almost 400 ha (Table 3.1). The offsite BOA, Appletree Flat BOA (Figure 3.3), is over 215 ha. Table 3.1 provides a summary of the revised BOS.

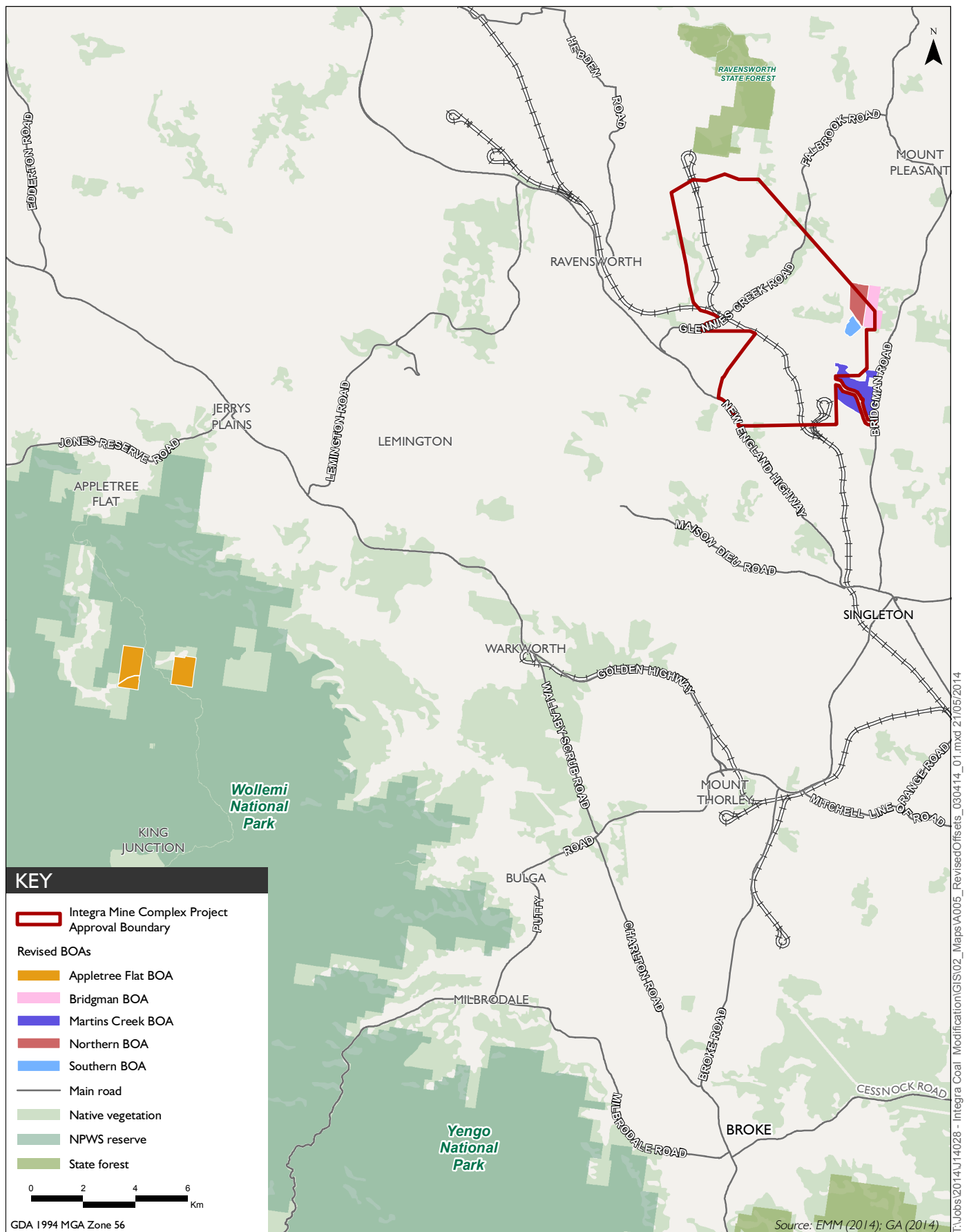
Table 3.1 Comparison of areas within the approved and revised BOS

Offset area	Approved BOS area (ha) ¹	Revised BOS area (ha)
Onsite		
Western BOA	93	-
Supplementary BOA	35.8	-
Northern BOA	117.5	88.5
Southern BOA	40	30.4
Bridgeman BOA	86	86.5
Martins Creek BOA	203	193.6
Offsite		
Appletree Flat BOA	-	215.9
Total area of revised BOAs	575.3	614.9

Note: 1. Based on PB (2012) offset area estimates.

The total area of the revised BOS will be 614.9 ha, which is an increase of approximately 7% compared to the current approved BOS.

It is noted that the EA for Modification 2 (EMM 2012) contemplated the use of the Upper Hunter Strategic Assessment (UHSA) for the provision of alternative offsets. While Integra continues to participate in the UHSA, the outcomes of the process are not yet available. Accordingly, due to the need to have long term security in place for the BOAs by September 2014 in accordance with condition 43 of the project approvals, Integra has sought this modification to its approved BOS under Section 75W of the EP&A Act.



3.2 Onsite offsets

3.2.1 Western and Supplementary offset areas

The Western and Supplementary BOAs, located north of the Complex (Figure 2.1), overlie part of a significant coal resource which has been identified since development of the original BOS for the Integra Open Cut. The modification proposes to excise these BOAs from the BOS.

3.2.2 Northern and Southern offset areas

The Northern BOA is bordered to the south by Stony Creek Road, to the north by Glennies Creek and Thomas Lane, and to the east by the Bridgman BOA (Figure 3.2). A portion of the Northern BOA is outside the project approval boundary. The Northern BOA partly overlies a significant coal resource identified within the Complex. The modification would result in a reduction in the area within the Northern BOA.

The Southern BOA, located wholly within the project approval boundary, is bordered to the north by Stony Creek Road, and surrounded to the east, west and south by the open cut mining areas. A reduction of 9.6 ha (or 24%) in the size of the Southern BOA is proposed. The western boundary of the Southern BOA abuts the NOC pit.

3.2.3 Martins Creek offset area

The Martins Creek BOA is located on either side of Integra's Open Cut access road (Figure 3.2). A portion of the BOA is located within the Complex. The modification includes realignment of the boundaries of the Martins Creek BOA, which will result in the removal of the northern portion of the BOA to realign the boundaries around the adjacent dam. Overall, the modification will result in a reduction of 9.4 ha (or 5%) in the size of the Martins Creek BOA.

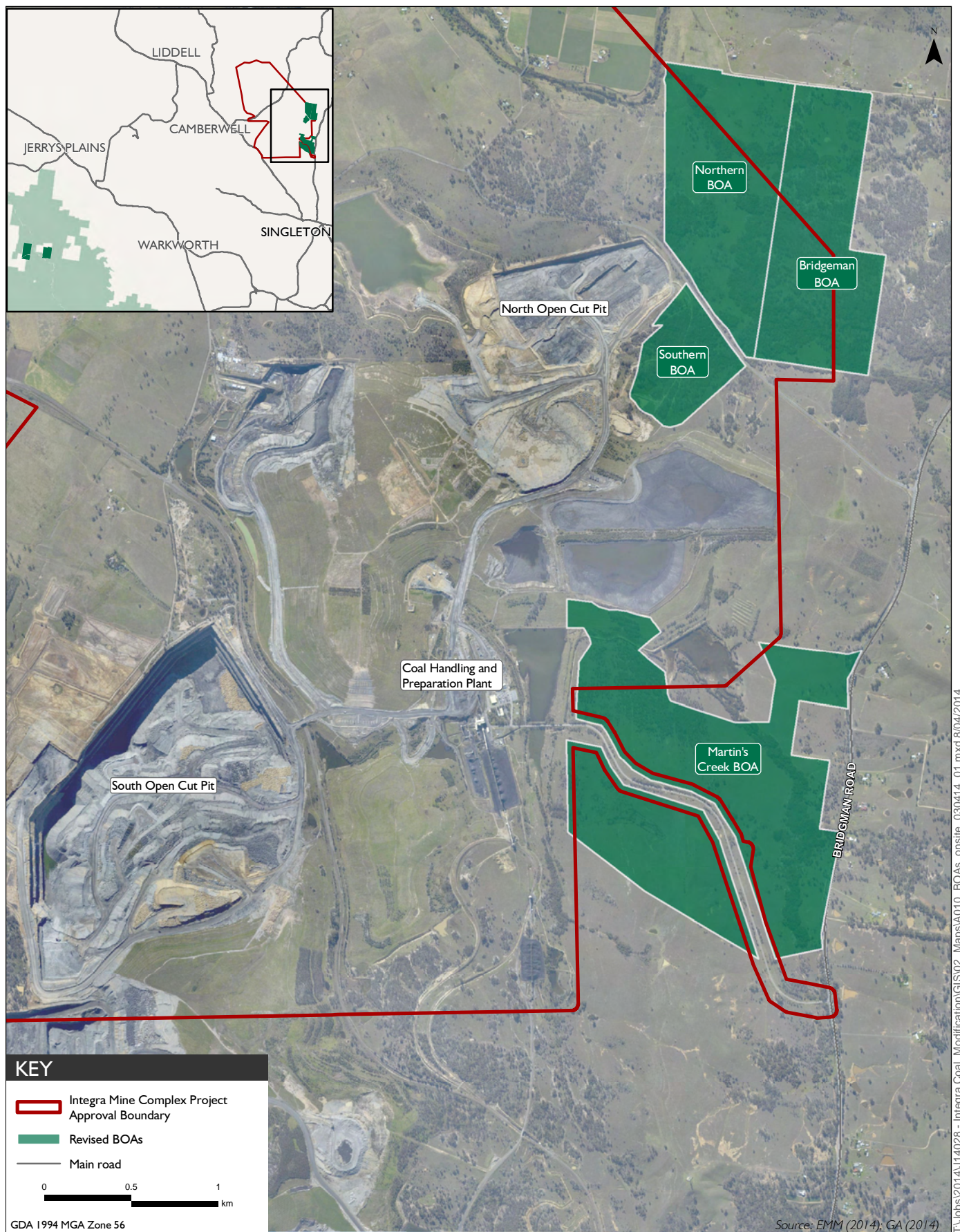
3.3 Offsite offsets

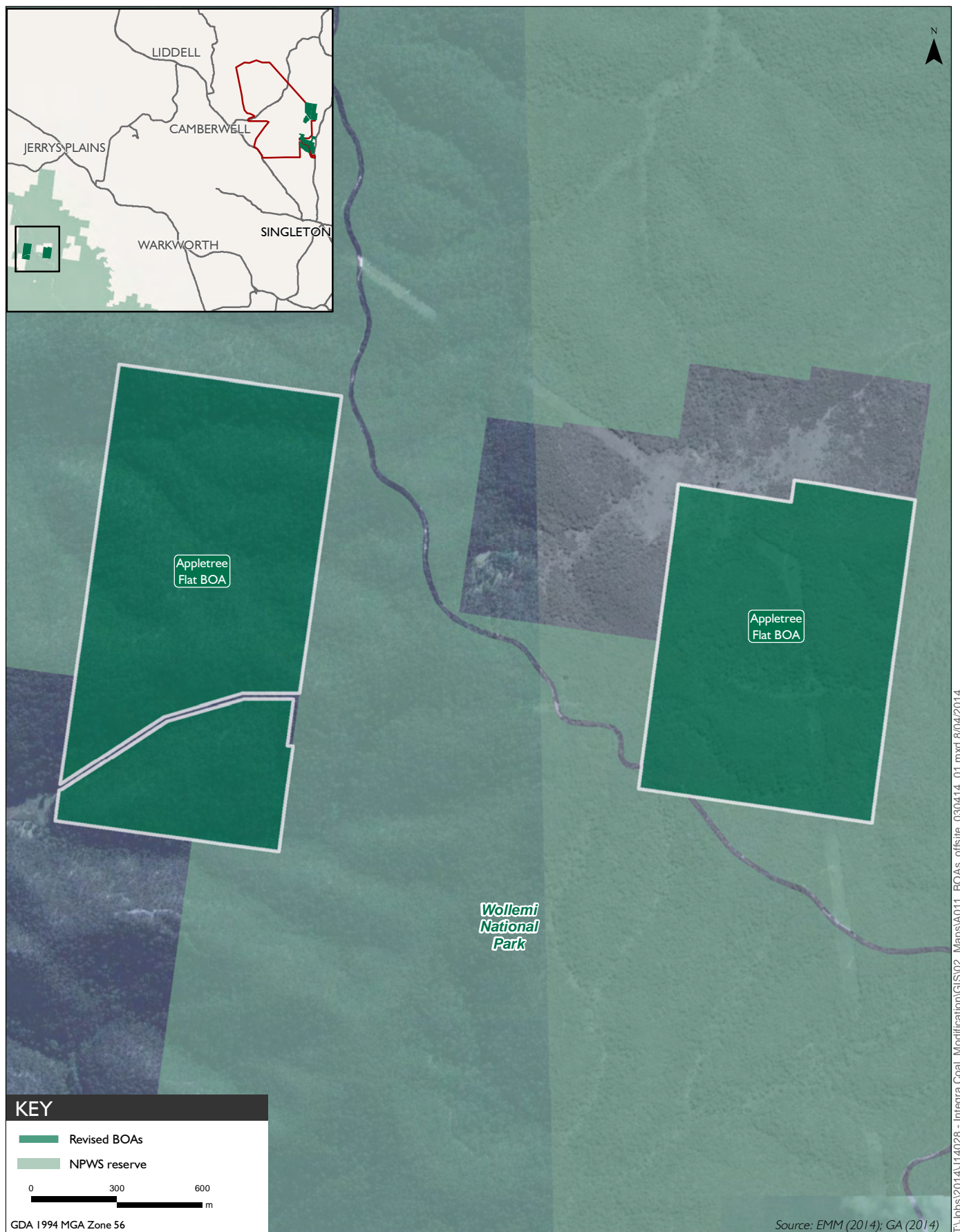
The proposed new Appletree Flat BOA comprises two separate lots totalling 215.9 ha, an eastern lot and a western lot (Figure 3.3), which are private inholdings within the Wollemi National Park. Some areas of the BOA have been influenced by previous wood collection and grazing activities, with previously cleared areas evident in the northern portion of the eastern lot. The eastern lot is also traversed by a transmission line easement.

The Appletree Flat BOA provides a total of 215.8 ha of native vegetation to the revised BOS, and will compensate for the removal and/or reduction of the other onsite BOAs. It forms a vital part of regional remnant vegetation that links the habitats located between the Upper Hunter Valley and the coast. The conservation of the site would also assist with regional conservation aims, and will improve the quality and management of remnant vegetation at the site.

3.4 Need for the modification

Exploration activities, undertaken since the NOC project and associated BOS was approved, have identified a significant coal resource under the Northern, Western and Supplementary offset areas. This resource is valued at approximately \$6.2 Billion. This resource was identified in the EA for Modification 2 to the Complex (PA 08_0101 and PA 08_0102) in 2011.





Modification 2 sought an extension to the timeframe for long term security of the BOS. The EA prepared for Modification 2 (EMM 2012) highlighted the significance of coal resources identified under the Northern, Western and Supplementary offset areas. The possibility of future alterations to Integra's BOS was identified in the Modification 2 EA, which noted that if alternative offsets were to be sought in the future, changes would be fully assessed and approval would be sought at the relevant time.

Since approval of Modification 2 in February 2013, substantial time and effort has been invested in sourcing and assessing alternative offsets that would provide an improved biodiversity outcome, should the existing strategy be affected.

As stated in Section 2.1.2, Schedule 3 Condition 43 of the project approvals requires the provision of long term security for the BOAs by September 2014. Long term security of the current BOAs, as required under Condition 43, would result in sterilisation of the resource identified under the Northern, Western and Supplementary BOAs, meaning future mining of this resource would be prevented. Sterilisation of this resource would have significant economic impacts for the Complex, such as potential reductions in investment, revenue, export earnings, jobs and substantial regional economic flow-on benefits.

Accordingly, and as foreshadowed in the Modification 2 EA, Integra is seeking to modify its BOS, as described above. The modifications proposed will allow for maximum flexibility in terms of the future land uses of the excised BOA areas, subject to obtaining necessary approvals for any such uses.

3.5 Alternatives considered

3.5.1 Do nothing

The need to alter Integra's BOS was identified in the EA prepared for Modification 2 to the project approvals. If a 'do nothing' approach was implemented, the approved BOAs would restrict access to valuable coal resources in the long term. This would have a significant impact on Integra's future mining operations and, therefore, both direct and indirect economic benefits.

3.5.2 Alternative BOAs

As a consequence of the proposed modification to the onsite BOAs, Integra engaged a review of alternative biodiversity offset options.

The review was conducted to identify a strategy that met the requirements of the conditions of the project approvals. Ecological criteria formed the basis of identifying suitable sites. This included a review against:

- presence of threatened biodiversity;
- distance from the Complex;
- current condition and potential for improvement;
- connectivity;
- security of tenure; and
- management issues.

Long term practical and cost implications were also considered.

Ten priority options, including the Appletree Flat BOA, were identified and assessed in the review. An overview of these options is provided in Table 3.2.

Table 3.2 **Alternative offset investigations**

Option	Property	Ecological values	Size and tenure	Region
1	ERM priority lands	Bull Oak Forest dominated. Likely Brush-tailed Phascogale and other threatened fauna habitat including Grey-crowned Babbler.	Unknown size Private	Central Hunter
2	ARTC	Spotted Gum - Ironbark Forest. Likely Brush-tailed Phascogale and other threatened fauna habitat including Grey-crowned Babbler.	Unknown size ARTC	Central Hunter
3	Shirbin	Spotted Gum - Ironbark Forest. Likely Brush-tailed Phascogale and other threatened fauna habitat.	Unknown size Private	Lower Hunter
4	Appletree Flat	Various forest, woodland and rainforest communities. Likely habitat for a range of threatened fauna species. Excellent connectivity.	215 ha Private	Central Hunter
5	Merriwa	Box Gum Grassy Woodland, open forests and woodlands. Likely Brush-tailed Phascogale and other threatened fauna habitat including Grey-crowned Babbler. In Upper Hunter region (not Central Hunter).	880ha Private	Upper Hunter
6	Mt Mallumla	Box Gum Grassy Woodland, open and riparian forests. Likely habitat for a range of threatened fauna species.	865 ha Private	Central Hunter
7	Black Mountain	Box Gum Grassy Woodland, open woodlands and riparian forests. Likely habitat for a range of threatened fauna species. In Upper Hunter region (not Central Hunter).	1,190 ha Private	Upper Hunter
8	Duns Creek	Spotted Gum - Ironbark Forest. Likely Brush-tailed Phascogale and other threatened fauna habitat In Lower Hunter region (not Central Hunter).	Unknown size Private	Lower Hunter
9	Webbers Creek	Spotted Gum - Ironbark Forest. Likely Brush-tailed Phascogale and other threatened fauna habitat In Lower Hunter region (not Central Hunter).	135 ha Private	Lower Hunter
10	F3 property	Spotted Gum - Ironbark Forest. Threatened fauna habitat (mostly coastal species). In Lower Hunter region (not Central Hunter).	77 ha Private	Lower Hunter

Of the options considered, the Appletree Flat BOA was determined to be the most suitable site based on consideration of a range of factors including its ecological values, location in the same region as the Complex, and availability of the land for purchase by Integra.

The Appletree Flat BOA was considered to be of high strategic offset value for the following reasons:

- consultation with OEH by the landholder of the Appletree Flat BOA had identified that an important priority was to resolve inholdings within Wollemi National Park to increase conservation outcomes, reduce land use conflicts and management requirements. The Appletree Flat BOA would assist OEH in achieving these objectives;

- OEH had previously indicated that the Appletree Flat BOA would not be required to undergo the reserve referral process, as it is already an inholding. This removes a factor that otherwise may result in lengthy delays in offsetting processes;
- OEH had already provided written in-principle agreement to the addition of this property to the reserve system;
- it contains intact habitats that have already been demonstrated to support threatened species such as Speckled Warbler, Varied Sittella and Turquoise Parrot;
- it contains habitats suitable to provide like-for like outcomes for some threatened species;
- it is within an existing important contiguous area of habitat conservation;
- it forms a vital part of the regional remnant of native vegetation and habitats located between the Upper Hunter Valley and the coast;
- it will result in a net improvement in biodiversity conservation when compared with the approved BOS; and
- it will conserve the site in the long term.

4 Planning and statutory framework

4.1 Environmental Planning and Assessment Act 1979

Integra is requesting that the Minister for Planning and Infrastructure modifies project approvals PA 08_0101 and PA 08_0102 which form a single approval instrument and were originally granted in 2010 for the purpose of carrying out mining activities at the Complex under Part 3A of the EP&A Act.

Part 3A was repealed by the NSW *Environmental Planning and Assessment Amendment (Part 3A Repeal) Act 2011* (Part 3A Repeal Act) which was passed by the NSW Parliament on 22 June 2011, and commenced on 1 October 2011. Under the Part 3A Repeal Act, projects deemed to be 'transitional Part 3A projects' will continue to be subject to Part 3A of the EP&A Act (as in force immediately before the repeal and as modified by the Part 3A Repeal Act). Transitional Part 3A projects include certain projects that were the subject of an existing approval under Part 3A.

As the Complex has project approvals that were granted under Part 3A of the EP&A Act, it is a transitional Part 3A project.

Section 75W of the EP&A Act enables the Minister to modify a project approval granted under Part 3A of the EP&A Act. In determining whether changes to a Part 3A project can be modified under Section 75W of the EP&A Act, consideration is given to the proposed modification and any possible change in potential associated environmental impacts.

Section 75W states:

- (1) In this section:

Minister's approval means an approval to carry out a project under this Part, and includes an approval of a concept plan.

modification of approval means changing the terms of a Minister's approval, including:

- (a) revoking or varying a condition of the approval or imposing an additional condition of the approval, and
 - (b) changing the terms of any determination made by the Minister under Division 3 in connection with the approval.
- (2) The proponent may request the Minister to modify the Minister's approval for a project. The Minister's approval for a modification is not required if the project as modified will be consistent with the existing approval under this Part.
- (3) The request for the Minister's approval is to be lodged with the Director-General. The Director-General may notify the proponent of environmental assessment requirements with respect to the proposed modification that the proponent must comply with before the matter will be considered by the Minister.
- (4) The Minister may modify the approval (with or without conditions) or disapprove of the modification.

Based on its scope and scale, the proposed modification of Integra's BOS is not predicted to result in significant environmental consequences beyond those of the current project approvals. A detailed assessment of biodiversity impacts is provided in Chapter 7 and Appendix B.

Consideration of the proposed modification against the relevant objects of the EP&A Act is provided in Chapter 8.

4.2 Other NSW legislation and policies

4.2.1 Legislation

The NSW *Threatened Species Conservation Act 1995* (TSC Act) is relevant to the proposed modification. The TSC Act provides for the conservation of threatened species, populations and ecological communities of animals and plants by setting out a number of specific objects relating to the conservation of biological diversity and the promotion of ecologically sustainable development (ESD).

There is no impact on threatened species, populations and ecological communities listed under the TSC Act as a result of the proposed modification.

4.2.2 State environmental planning policies

State environmental planning policies (SEPPs) are environmental planning instruments prepared by the Minister for Planning and Infrastructure to address issues significant to NSW. The following SEPPs are relevant to the proposed modification:

- SEPP (Mining, Petroleum Production and Extractive Industries) 2007;
- SEPP (Major Development) 2005; and
- SEPP (State and Regional Development) 2011.

Clause 2 of SEPP (Mining, Petroleum Production and Extractive Industries) 2007 states:

The aims of this Policy are, in recognition of the importance to New South Wales of mining, petroleum production and extractive industries:

- (a) to provide for the proper management and development of mineral, petroleum and extractive material resources for the purpose of promoting the social and economic welfare of the State, and
- (b) to facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources, and
- (b1) to promote the development of significant mineral resources, and
- (c) to establish appropriate planning controls to encourage ecologically sustainable development through the environmental assessment, and sustainable management, of development of mineral, petroleum and extractive material resources, and
- (d) to establish a gateway assessment process for certain mining and petroleum (oil and gas) development.

By excising certain land from the current BOAs, the proposed modification would avoid the sterilisation of a significant coal resource with a value of approximately \$6.2 Billion underlying the Northern, Western and Supplementary BOAs, and would enable Integra to secure equivalent BOAs in the long term, in accordance with the project approvals. The proposed modification is therefore consistent with the aims of this policy.

4.2.3 Singleton Local Environmental Plan 2013

The project is located within the Singleton LGA. Under the provisions of the Singleton Local Environmental Plan 2013 (Singleton LEP) the project site is zoned RU1 – Primary Production. Open cut mining is permissible with consent within this zone. This proposed modification is considered to be consistent with the provisions of the Singleton LEP.

4.2.4 Other policies

i Strategic Regional Land Use Policy

The NSW government has prepared the Strategic Regional Land Use Policy (SLRUP) (DP&I 2012b) which aims to protect strategic agricultural land and valuable water resources in areas of regional NSW where mining and coal seam gas resources are prevalent. Seven regions in NSW have been identified as applying under this policy with each region having a SRLUP. In September 2012, the Upper Hunter SRLUP was released.

Under the Upper Hunter SRLUP, all state significant development and coal seam gas projects that may impact agricultural resources, whether or not they are on land mapped as strategic agricultural land (SAL), require an Agricultural Impact Statement (AIS) to accompany a project application.

While a portion of the project approval boundary of the Complex is mapped as biophysical SAL under the Upper Hunter SRLUP, the proposed modification is not state significant development or a coal seam gas project. Accordingly, an AIS is not required. Furthermore, the only change proposed as result of the modification that would affect mapped biophysical SAL is the excision of the Supplementary BOA from the BOS, which would reduce the overlap of mapped biophysical SAL and the BOS. The revised onsite and offsite BOAs would not affect any additional areas of mapped biophysical SAL.

ii Draft NSW Biodiversity Offsets Policy for Major Projects

The NSW government has recently released the Draft NSW Biodiversity Offsets Policy for Major Projects and the *Draft Framework for Biodiversity Assessment for assessing and offsetting state significant development and state significant infrastructure* (OEH 2014) (the draft framework). The draft offsets policy and the draft framework are underpinned by seven key principles for determining biodiversity offset requirements for major projects. The draft framework provides for the implementation of these principles in practice. It contains the assessment methodology that is adopted by the policy to quantify and describe the impact assessment requirements and offset guidance that applies to major projects.

The draft framework has been released for consultation and is not yet in force. However, the seven key principles that underpin the draft framework have been considered in relation to the proposed modification in Appendix B

4.3 Commonwealth legislation

The Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) aims to protect matters deemed to be of national environmental significance (NES) including:

- world heritage properties;
- places listed on the National Heritage Register;
- Ramsar wetlands of international significance;
- threatened flora and fauna species and ecological communities;
- migratory species;
- Commonwealth marine areas;
- nuclear actions (including uranium mining); and
- a water resource, in relation to coal seam gas development and large coal mining development.

If an action (or project) will, or is likely to, have a significant impact on any matters of NES it is deemed to be a 'controlled action' and requires approval from the Commonwealth Environment Minister or the Minister's delegate. To determine whether a proposed action will or is likely to be a controlled action an action may be referred to the Department of Environment (DoE).

The existing BOS only compensates for state listed threatened species and ecological communities. The proposed modification will not have a significant impact on any matters of NES and, accordingly, approval under Commonwealth legislation is not required.

5 Stakeholder engagement

5.1 Stakeholder engagement strategy

A comprehensive stakeholder engagement strategy is in place for the Complex. As outlined in this section, this strategy has been, and will continue to be, supplemented by activities that apply specifically to the proposed modification. The planned stakeholder activities are based on the nature and scale of the proposed modification.

Integra's stakeholder engagement strategy allows for consideration of stakeholders' views and timely feedback of any matters raised. The existing consultation program includes the following key components.

- A 24-hour community information line – this service aims to promptly and effectively address community concerns.
- Integra Mine Complex Community Consultative Committee (CCC) – meets quarterly to discuss environmental management and any matters raised by members of the community.
- Integra website – includes updates on current and future operations, including past and present environmental monitoring results.
- Newsletters – these are prepared and circulated to disseminate information on Integra's operations.
- Management of a complaints register – to record complaints received and steps to follow up complaints.

Feedback received during stakeholder engagement regarding the proposed modification was considered in this EA. Details of stakeholder engagement that relates specifically to the proposed modification are provided below.

5.2 Project specific stakeholder engagement

5.2.1 Government

Consultation with the following key government stakeholders has been undertaken, including meetings with P&I and OEH, Singleton Council and written and telephone correspondence with the Division of Resources and Energy (DRE). The details of consultation are provided in Table 5.1.

Table 5.1 Government consultation activities and outcomes

Agency	Date of activity	Outcomes of activity
P&I	6 March 2014	A meeting was held with P&I where an introduction to the proposed modification was provided and to confirm the approval pathway. P&I confirmed that a modification under section 75W was the appropriate approval pathway.

Table 5.1 Government consultation activities and outcomes

Agency	Date of activity	Outcomes of activity
OEH	3 April 2013	A meeting was held with OEH to provide an update and overview of potential offset package options being considered by Integra. This included discussion of the alternative BOAs identified in Section 3.5.2 of this EA.
	27 March 2014	<p>A meeting was held with OEH to present the revised BOS, and seek in-principle agreement on the method used to assess the adequacy of the revised BOS to compensate for biodiversity impacts of the approved project.</p> <p>OEH agreed to review the information provided by Integra and EMM on the revised BOS and confirm the suitability of the approach used to quantify the adequacy of the revised BOS.</p>
	3 April 2014	A teleconference was held with OEH to follow up actions from the meeting on 27 March.
	14 April 2014	<p>A letter was received from OEH (dated 14 April 2014) which acknowledged that the new offset package had merit and that it contained some like-for-like vegetation. OEH considered the revised BOS against the <i>NSW Offset principles for major projects</i> and the <i>NSW OEH interim policy on assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSO) and State significant infrastructure (SSI) projects</i>.</p> <p>Although acknowledged by OEH during previous consultation that the BioBanking method was not used to assess the approved project or develop the approved BOS, OEH ran available details of the impacts of the approved project, and the details of the approved BOS and revised BOS through the BioBanking credit calculator tool, to provide a comparison between the approved ecological impacts and the approved and revised BOS. Details of the inputs used in the calculator were not provided.</p> <p>OEH identified a shortfall in threatened species credits and credits for the Narrow-leaved Ironbark - Spotted Gum - Forest Red Gum Forest for both the current and revised BOS, but also identified that the revised BOS would provide an overall 22% increase in ecosystem credits compared to the approved BOS, which contains some like-for-like vegetation. OEH suggested that supplementary measures may be required to meet current offsetting requirements.</p> <p>While it is acknowledged that the BioBanking calculator provides a quantitative means of verifying the adequacy of offsets, the approved BOS was not developed based on the BioBanking method. Integra's revised BOS aims to provide an equivalent or improved outcome compared to the approved BOS, rather than satisfying the credits generated by the original development. This EA demonstrates that the revised BOS provides an overall improved outcome compared to the approved BOS. As such, supplementary measures are not considered to be warranted.</p>
DRE	7 April 2014	A letter was sent to DRE (Julie Moloney) providing an overview of the proposed modification, inviting feedback and offering to meet with DRE to discuss the modification in detail. DRE subsequently advised that the information provided regarding the modification was sufficient.
Singleton Council	31 March 2014	A meeting was held with Singleton Council to discuss the revised BOS.
	8 April 2014	A meeting was held with Singleton Council to present the revised BOS and to discuss the methods currently in place for stakeholder engagement. The options of holding community information sessions regarding the proposed modification, and presenting the details of the proposed modification at a council meeting during the assessment process were raised by Singleton Council.

5.2.2 Community

Consultation with the local community regarding the modification included:

- presentation of an overview of the proposed modification to the CCC at its meeting on 26 March 2014;
- distribution of a community newsletter on 16 April and 28 April 2014 to local residents including a description of the proposed modification, and details for obtaining further information and providing feedback to Integra; and
- two community information sessions were held at the Singleton Library on Wednesday 7 May and Thursday 8 May 2014. These sessions were advertised on Integra's website, and by leaflets delivered with the community newsletters on 28 April. Seven community members attended the sessions. The information sessions provided community members with information regarding the proposed modification, an opportunity to ask any questions and provide face to face feedback on the proposal, and other general matters related to the Complex.

Feedback was also encouraged to be provided by telephone for community members unable to attend the community information sessions.

Matters raised at the CCC meeting, community information sessions and through direct enquires to Integra relevant to the proposed modification are presented in Table 5.2.

Table 5.2 Matters raised and responses

Matters/questions raised	Response
Potential future mining of the areas to be excised from the BOS.	Any proposed future disturbance of the excised areas would be subject to a separate application (either modification or new development application) including the preparation of an environmental impact assessment, including assessment of biodiversity impacts and establishment of biodiversity offsets to compensate for potential impacts as part of the application at the appropriate time.
Ongoing management of excised areas once they cease to form part of the BOS.	Excised areas are not proposed to be impacted under this modification, and will remain under the management of Integra as the landowner, managed in the same manner as Integra's other land holdings at the Complex in accordance with Integra's suite of environmental management plans.
Why is the Appletree Flat BOA so far away from the Complex?	<p>The Appletree Flat BOA is located approximately 30 km to the west of the Complex, within the same region (Central Hunter) as the Complex, and is considered to be of high strategic offset value (refer to Section 3.5.2). Offset areas for the Complex need to meet the requirements of the project approval, the principles of the approved BOS, and OEH guidelines and policy including the <i>Principles for the Use of Biodiversity Offsets in NSW</i> (OEH 2011) and the seven principles in the <i>Draft NSW Biodiversity Offsets Policy for Major Projects</i> (OEH 2014).</p> <p>Incorporation of the Appletree Flat BOA as part of the revised BOS will provide an improved biodiversity outcome for the Complex.</p>
General concern for additional impacts (visual, dust, noise) on residents.	The modification does not include any operational changes that may result in additional physical works such as mining, disturbance, vegetation clearing or operational changes to mining. It only includes altering the areas that make up the BOS. Therefore, the modification will not result in impacts on residents.

Table 5.2 **Matters raised and responses**

Matters/questions raised	Response
Purchase of properties near the Complex by Integra.	As noted above, the proposed modification relates exclusively to the alteration of the existing BOS. Integra is not purchasing any additional neighbouring landowners as part of the modification. There are no changes required to the land subject to acquisition upon request as per Schedule 3, Condition 1 of the project approvals.
Will NSW National Parks and Wildlife (NP&W) be managing onsite offsets?	Long term security arrangements for onsite offsets surrounding the Complex are not likely to involve management by NP&W. These are likely to remain under Integra's management and ownership at this stage. The Appletree Flat BOA is located within Wollemi National Park. If approved as part of the revised BOS, Integra intends to propose to NP&W that the Appletree Flat BOA be managed by NP&W as part of long term security arrangements.
What is 'long term security'?	Long term security involves some form of agreement over a parcel of land, often linked to the certificate of title, that requires the land to be managed in a certain manner. In this case, long term security means the land will be required to be managed for the purpose of biodiversity offsets. There are a range of mechanisms available to implement long term security. These are discussed in Section 7.6 of the EA.
Changes to operational boundaries at the Complex.	The modification only includes altering the boundary of areas that make up the BOAs. The modification does not involve any physical works, including additional mining, disturbance, physical alterations, vegetation clearing or the like. There is no change to the current project approval boundary.

6 Environmental risk assessment

The only proposed change to the approved project is the alteration of the BOS and BOAs.

A screening risk assessment in Table 6.1 identifies potential environmental impacts of the proposed modification.

Table 6.1 Screening risk assessment

Environmental aspect	Potential impact of proposed modification	Outcome
Biodiversity	The modification would alter the BOS. While no physical impacts would occur, the amendments to the BOS will need to ensure that the original impacts that the offset areas were established to compensate for, continue to meet the offset requirements in the project approvals.	An ecological assessment considering the biodiversity values of the revised BOS has been prepared. Biodiversity changes are assessed in Chapter 7.
Air quality	The modification would not result in any change to site operations or disturbance footprint.	No further assessment required.
Soil and water	The modification would not result in any change to site operations or disturbance footprint.	No further assessment required.
Heritage	The modification would not result in any change to site operations or disturbance footprint.	No further assessment required.
Noise and blasting	The modification would not result in any change to site operations or disturbance footprint.	No further assessment required.
Agriculture	The modification would not result in any change to site operations or disturbance footprint.	No further assessment required.
Visual amenity	The modification would not result in any change to site operations or disturbance footprint.	No further assessment required.
Transport	The modification would not result in any change to site operations or disturbance footprint.	No further assessment required.
Waste	The modification would not result in any change to site operations or disturbance footprint.	No further assessment required.
Social and economic	The modification would not result in any change to site operations or disturbance footprint.	No further assessment required.
Rehabilitation and final landform	The modification would not result in any change to site operations or disturbance footprint.	No further assessment required.

7 Biodiversity

7.1 Introduction

This chapter provides a summary of the *Revised Biodiversity Offset Strategy* (EMM 2014) in Appendix B.

7.2 Approved impacts on biodiversity

The consolidation of the approvals for the Integra Underground and Integra Open Cut projects under project approvals PA 08_0101 and PA 08_0102 included consolidation of the approved impacts on biodiversity from each of the respective projects.

Integra's approved BOS was developed to offset the ecological impacts on native vegetation and fauna habitat. Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest, which is part of the Central Hunter Ironbark–Spotted Gum–Grey Box Forest in the NSW North Coast and Sydney Basin Bioregions Endangered Ecological Community (EEC) (the Central Hunter Ironbark–Spotted Gum–Grey Box Forest EEC) and Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC (Swamp Oak Floodplain Forest EEC), are the only intact EECs listed under the TSC Act that have been impacted by approved mining operations at the Complex.

No threatened species or communities listed as matters of NES under the EPBC Act were identified for the approved project, or required offsets.

7.2.1 Native vegetation

Under the project approvals, Integra has approval to disturb a total of 408.7 ha at the Complex, including 102.1 ha of native vegetation (refer to Table 7.1).

Table 7.1 **Approved impacts on native vegetation communities**

Native vegetation community	Area of native vegetation impacted (ha)		
	Integra Open Cut ¹ (PA 08_0102)	Integra Underground (PA 08_0101)	Total
Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest ¹	87.3	0	87.3
Swamp Oak Forest ²	0	5	5
Shrubland	0.7	0	0.7
Tussock Grassland	6.1	3	9.1
Total native vegetation impacted	94.1	8	102.1
Total area impacted (includes native vegetation, exotic grassland and cleared areas)	405.7	8	413.7

Notes: 1. Includes impacts approved for the NOC project approved under PA 06_0073 in 2008 and the Western extension of the existing SOC pit approved under PA 08_0102 in 2010.

Of the vegetation approved to be removed, 87.3 ha meets the description of Central Hunter Ironbark–Spotted Gum–Grey Box Forest EEC and 5 ha meets the description of Swamp Oak Floodplain Forest EEC. The Tussock Grassland and Shrubland are not listed under the TSC Act.

To compensate for vegetation clearance associated with the Open Cut and Underground projects, the project approvals prescribed requirements for biodiversity offsets. The approved BOS includes six offset areas, the Northern, Southern, Western, Supplementary, Bridgman and Martins Creek BOAs (Figure 2.1). In total, the approved BOS currently comprises 575.3 ha of BOAs.

7.2.2 Threatened species

The approved BOS was developed to, amongst other matters, compensate for potential impacts on threatened fauna species. Areas of known and potential habitat for nine TCS Act listed species were approved to be disturbed. Threatened species potentially impacted are listed in Table 7.2. No threatened flora species were impacted by the approved project. The approved impacts on threatened species habitat vary for different species recorded in the Complex.

Table 7.2 **Approved impacts on threatened species**

Threatened fauna	Area of threatened species habitat impacted (ha) ¹		
	Integra Open Cut (PA 08_0102)	Integra Underground (PA 08_0101)	Total
Squirrel Glider (woodland habitat)	87.3	0.0	87.3
Grey-crowned Babbler (woodland habitat)	88.0	0.0	88.0
Eastern Bent-wing Bat (woodland habitat)	88.0	0.0	88.0
Eastern Freetail Bat (woodland habitat)	88.0	0.0	88.0
Yellow-bellied Sheath-tail Bat (woodland and grassland habitat)	354.1	3.0	357.1
Grey-headed Flying Fox (woodland habitat)	87.3	0.0	87.3
Speckled Warbler (woodland habitat)	88.0	0.0	88.0
Brown Treecreeper (woodland habitat)	88.0	0.0	88.0
Brush-tail Phascogale (woodland habitat)	87.3	0.0	87.3

7.3 Revised biodiversity offset strategy

As described in Chapter 3, the revised BOS incorporates onsite and offsite BOAs. The onsite BOAs (Figure 3.2) are a modified version of the approved BOAs within the Complex, representing almost 400 ha. The offsite BOA, Appletree Flat BOA (Figure 3.3), is over 215 ha. The vegetation communities and threatened species represented in the revised BOS are described below.

7.3.1 Vegetation communities

The vegetation communities recorded in the revised onsite BOAs are listed in Table 7.3 and shown in Figure 7.1. Of the 399 ha within the onsite BOAs, three woodland or forest communities were identified, totalling approximately 202 ha. Derived Grassland/Native Pasture, Planted Rehabilitation and Cleared Land/Exotic Grassland occur in the remaining 197 ha (Figure 7.1).

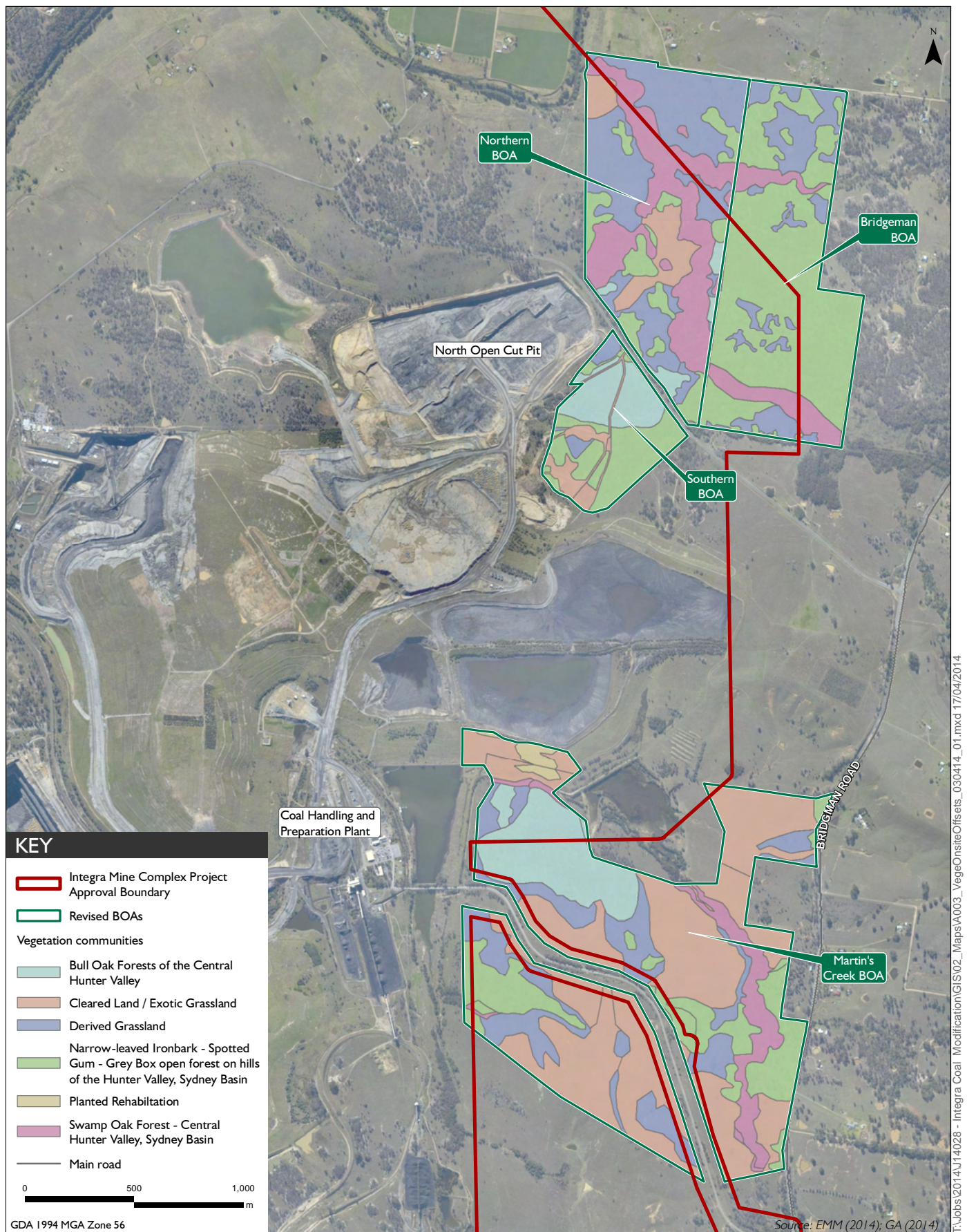
Table 7.3 **Vegetation communities in the onsite revised BOAs**

Vegetation community	Bridgeman BOA	Martins Creek BOA	Northern BOA	Southern BOA	Total
Remnant woodland and forest					
Bull Oak Forests	0.1	23.5	2.8	10.0	36.4
Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest	61.8	27.9	12.0	13.9	115.6
Swamp Oak Forest	8.9	12.4	28.4	0.0	49.7
Subtotal remnant woodland and forest	70.8	63.8	43.2	23.9	201.7
Remaining areas					
Planted Rehabilitation	0.0	2.4	0.0	0.0	2.4
Derived Grassland/Native Pasture	15.8	33.3	36.2	1.9	87.2
Cleared Land/Exotic Grassland	0.0	94.1	9.0	4.6	107.7
Subtotal remaining areas	15.8	129.8	45.2	6.5	197.3
Total	86.6	193.6	88.4	30.4	399.0

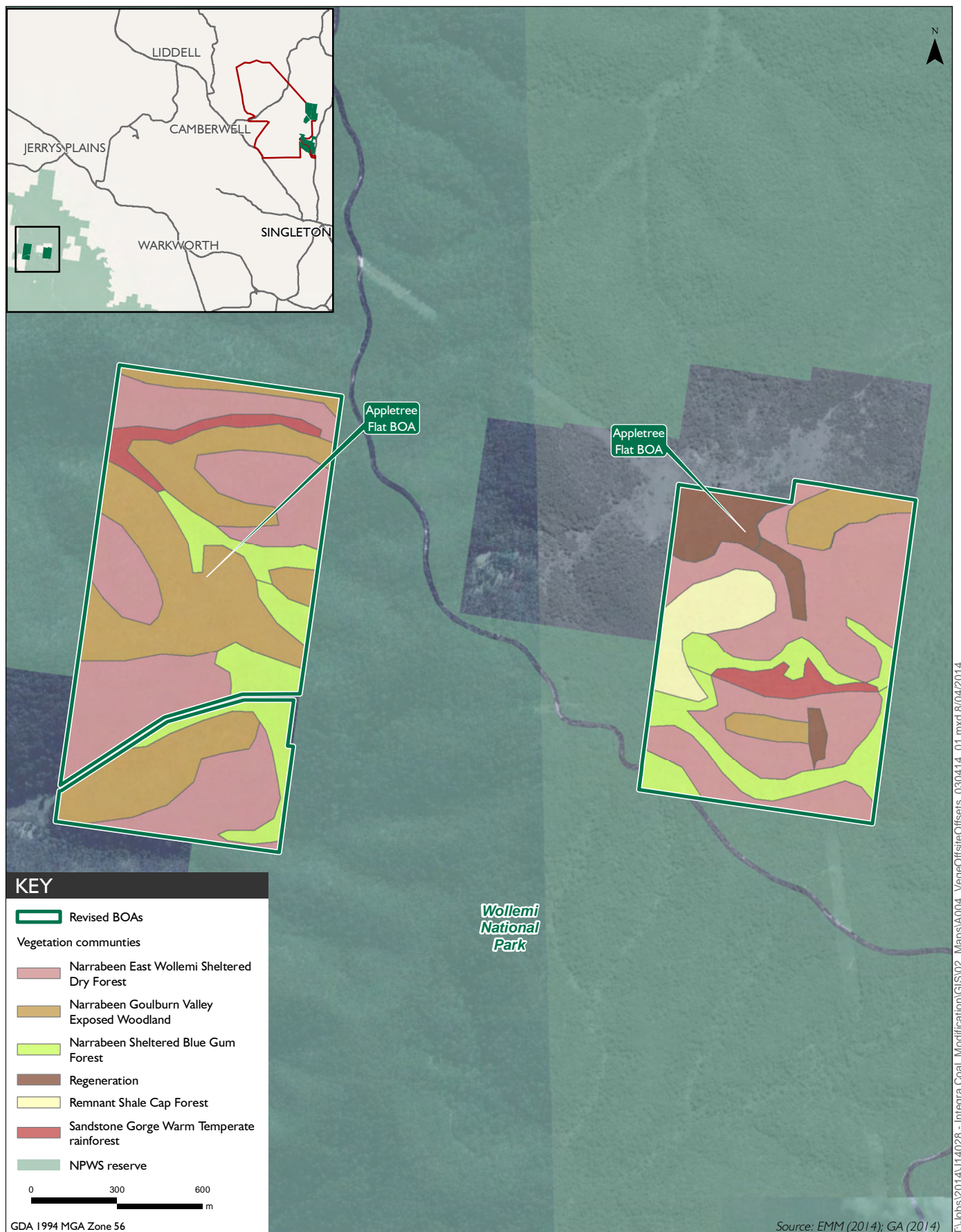
The Appletree Flat BOA contains 215.9 ha of native vegetation comprising five native vegetation communities and a regenerating community (Figure 7.2). The vegetation communities recorded are summarised in Table 7.4. While the Appletree Flat BOA does not contain any areas of Central Hunter Ironbark-Spotted Gum–Grey Box Forest EEC, it forms a vital part of regional remnant vegetation that links the habitats located between the Upper Hunter Valley and the coast. The conservation of the site would also assist with regional conservation aims, and will improve the quality and management of remnant vegetation at the site.

Table 7.4 **Vegetation communities on the offsite Appletree Flat BOA**

Vegetation community	Area (ha)
Narrabeen Goulburn Valley Exposed Woodland	60.0
Narrabeen Sheltered Blue Gum Forest	32.9
Narrabeen East Wollemi Sheltered Dry Forest	96.4
Sandstone Gorge Warm Temperate Rainforest	7.8
Remnant Shale Cap Forest	9.2
Regeneration	9.6
Total	215.9



Vegetation communities in the revised onsite biodiversity offset areas
Integra Mine Complex Modification 4 Environmental Assessment



Vegetation communities in the Appletree Flat biodiversity offset area
Integra Mine Complex Modification 4 Environmental Assessment

7.3.2 Regeneration of native grassland

The BMP details the methods to rehabilitate and manage land for biodiversity in the BOAs and the mine site during and post mining. The BMP will be updated in accordance with the draft guideline issued by P&I in 2014, *Hunter Valley Coal Mines – Best Practice Guidelines for Biodiversity Offset Management Plans* (Department of Planning and Infrastructure 2013), incorporating the revised BOAs and best practice regeneration methods.

Integra is committed to regenerating the Derived Grassland/Native Pasture throughout the onsite BOAs to form representative patches of Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest. A total of 87.2 ha of Derived Grassland/Native Pasture will be regenerated. The BMP will be updated to reflect this commitment.

The aim of regeneration will be to re-establish functioning ecosystems with diverse vegetation structure, and to maximise fauna habitat and ecosystem processes in the BOAs. A range of methods will be investigated to fulfil this aim, ranging from enhancing existing vegetation structure or function through source planting, to reconstructing Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest using plant species from a range of vegetation strata.

The University of Newcastle’s Centre for Sustainable Ecosystem Restoration has been researching methods for the restoration of native vegetation in the Hunter Valley, particularly areas that have been subjected to clearing, grazing and topsoil loss in the past. This research has resulted in the establishment of interim guidelines for the re-establishment of diverse and functional native vegetation communities, including EECs. These methods have proven successful at various mine sites throughout the Hunter Valley.

Recruitment of canopy species is evident in the BOAs where stock has been removed and weed competition is relatively low given the historical uses of the BOAs for grazing. It is likely that native species are still present in the soil seed bank, particularly adjacent to existing patches of remnant vegetation.

Regeneration outcomes will be closely monitored against performance indicators and completion criteria set out in the BMP.

An additional 108 ha of Cleared Land/Exotic Grassland would also be managed in the BOAs under the BMP. These areas will be managed as a buffer to reduce the introduction and spread of weeds and pests into native vegetation areas. In time, management may result in regeneration of native vegetation, as threats to regeneration are reduced and native vegetation becomes established in adjacent areas.

7.3.3 Threatened species

The revised onsite BOAs are likely to provide suitable habitat for the following threatened fauna species:

- microbats: Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*), Eastern Freetail Bat (*Mormopterus norfolkensis*) and Yellow-bellied Sheath-tail Bat (*Saccolaimus flaviventris*);
- Grey-headed Flying Fox (*Pteropus poliocephalus*);
- Brush-tail Phascogale (*Phascogale tapoatafa*);
- Squirrel Glider (*Petaurus norfolkensis*);
- Spotted-tailed Quoll (*Dasyurus maculatus*); and

- woodland birds: Grey-crowned Babbler (*Pomatostomus temporalis temporalis*), Speckled Warbler (*Pyrrholaemus saggitatus*) and Brown Treecreeper (*Climacteris picumnus victoriae*).

The revised onsite BOAs will continue to provide important habitat resources for fauna including hollow-bearing trees, flowering eucalypts, riparian corridors and ecotonal areas.

The Appletree Flat BOA contains a range of fauna habitat. This includes areas with hollow-bearing trees, rocky outcrops and cave structure, fruiting trees and flowering eucalypts, and dense shrubby understorey. However, some areas on richer soils have been influenced by previous wood collection and grazing activities, with previously cleared areas evident in the northern section of the eastern lot. Three threatened fauna species were identified at the Appletree Flat BOA (PB 2013):

- Speckled Warbler (*Pyrrholaemus saggitatus*);
- Varied Sittella (*Daphoenositta chrysoptera*); and
- Turquoise Parrot (*Neophema pulchella*).

Other fauna species considered likely to occur, given the habitat present and recent nearby records, include:

- Glossy Black-cockatoo (*Calyptorhynchus lathami*);
- microbats: Large-eared Pied Bat (*Chalinolobus dwyeri*), Eastern False Pipistrelle (*Falsistrellus tasmaniensis*), Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis*) (recorded by EMM (2014) using an Anabat detector), Eastern Cave Bat (*Vespadelus troughtoni*);
- mammals: Koala (*Phascolarctos cinereus*), Yellow-bellied Glider (*Petaurus australis*), Spotted-tailed Quoll and Squirrel Glider (*Petaurus norfolcensis*); and
- Sooty Owl (*Tyto tenebricosa*).

No flora species listed as threatened under the TSC AC or EPBC Act were identified during the survey of the Appletree Flat BOA. However, potential habitat is present for the following:

- White-flowered Wax Plant (*Cynanchum elegans*);
- *Olearia cordata*;
- *Dillwynia tenuifolia*;
- Capertee Stringybark (*Eucalyptus cannonii*);
- *Cymbidium canaliculatum* (endangered population); and
- Hairy Geebung (*Persoonia hirsuta*).

The Rare and Threatened Australian Plant (ROTAP) *Acacia fulva* (2RC-) was identified in the regeneration area in large numbers and also throughout the Remnant Shale Cap Forest and areas of the Narrabeen East Wollemi Sheltered Dry Forest.

Habitat features will be managed under the BMP to improve the quality of habitat values of the BOAs.

7.4 Quantification of the revised biodiversity offset strategy

The proposed modification aims to provide a revised BOS that is equivalent to, or better than, the approved BOS. The revised BOS will result in an overall increase of 31% of native vegetation within the BOAs, with a total of 82% of the revised BOAs containing native vegetation, compared to 51% under the approved BOS. The revised BOAs also provide a total overall increase of approximately 40 ha in area compared to the approved BOAs.

The method used to quantify the biodiversity values of the BOAs under the approved and revised BOS is by way of comparing the 'area of biodiversity offsets to the area of approved impacts' for the approved and revised BOAs, respectively. This is referred to as the 'offset-to-impact ratio'.

7.4.1 Vegetation communities

The offset-to-impact ratios for native vegetation for the approved and revised BOAs are presented in Table 7.5.

Table 7.5 Offset-to-impact ratios for native vegetation

Vegetation community	Approved impacts (ha) ¹	Approved BOAs		Revised BOAs ²		Biodiversity outcome of revised BOAs
		Offset (ha)	Offset-to-impact ratio	Offset (ha)	Offset-to-impact ratio	
Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest (Central Hunter Ironbark-Spotted Gum–Grey Box Forest EEC)	87.3	213.8	2.4:1	202.8	2.3:1	Equivalent
Swamp Oak Forest	5.0	53.4	10.7:1	49.7	9.9:1	Equivalent
Shrubland	0.7	0	n/a	0	n/a	n/a
Tussock Grassland	9.1	0	n/a	0	n/a	n/a
Other woodland and forest (includes regeneration/shrubland)	0	45.0	n/a	252.3	n/a	n/a
Total native vegetation (% of total area)	102.1 (25%)	292.2 (51%)	2.9:1	504.8 (82%)	4.9:1	Improved
Total area (including cleared/disturbed areas)	413.7	575.3	1.4:1	614.9	1.5:1	Improved

Note: 1. Impacts on native vegetation approved under PA 08_0101 and PA 08_0102 (as modified).

2. This is regeneration in the derived native grassland and native pasture within the BOAs (not mine rehabilitation).

Table 7.5 demonstrates that the offset-to-impact ratio for native vegetation is equivalent for Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest and Swamp Oak Forest, and significantly improved for other woodland and forest (includes regeneration/shrubland). Overall, the offset-to-impact ratio for native vegetation has increased compared to the approved BOS. It is noted that the regeneration within the derived native grassland and native pasture within the BOAs included in the offset-to-impact ratios in Table 7.5 is regeneration of existing areas, and not rehabilitation of mined areas.

The Western and Supplementary BOAs excised from the BOS will not be disturbed as a consequence of the modification, and will continue to provide important habitat for threatened species in the locality. Excised areas are not proposed to be impacted under this modification, and will remain under the management of Integra as the landowner, managed in the same manner as Integra's other land holdings at the Complex in accordance with Integra's suite of environmental management plans.

Any proposed future disturbance of the excised areas would be subject to a detailed environmental impact assessment, including assessment of biodiversity impacts and establishment of biodiversity offsets to compensate for potential residual ecological impacts as part of a modification or new development application at the appropriate time.

7.4.2 Threatened fauna habitat

The revised BOAs provide offset-to-impact ratios for threatened fauna species impacted under the approved project between 1.7:1 and 5.7:1, which is an equivalent or improved outcome for all species when compared with the approved BOAs (Table 7.6). Improved outcomes are achieved for seven of the nine fauna species identified.

Table 7.6 Approved project threatened species offset-to-impact ratios

Threatened fauna	Approved impacts (ha) ¹	Revised BOAs (ha) ¹	Offset to impact ratio (includes regeneration)	Biodiversity outcome of revised BOAs
Squirrel Glider (woodland habitat)	87.3	202.8	2.3:1	Equivalent
Grey-crowned Babbler (woodland habitat)	88.0	202.8	2.3:1	Equivalent
Eastern Bent-wing Bat (woodland habitat)	88.0	504.8	5.7:1	Improved
Eastern Freetail Bat (woodland habitat)	88.0	504.8	5.7:1	Improved
Yellow-bellied Sheath-tail Bat (woodland and native grassland habitat)	357.1	614.9	1.7:1	Improved
Grey-headed Flying Fox (woodland habitat)	87.3	504.8	5.8:1	Improved
Speckled Warbler (woodland habitat)	88.0	202.8	2.3:1	Improved
Brown Treecreeper (woodland habitat)	88.0	202.8	2.3:1	Improved
Brush-tail Phascogale (woodland habitat)	87.3	202.8	2.3:1	Improved

Note: 1. Rounded to the nearest hectare. This is regeneration in the derived native grassland and native pasture within the BOAs (not mine rehabilitation).
2. Only includes potential habitat in the onsite offset areas.

7.4.3 Requirements of the project approvals

As discussed in Chapter 2, the biodiversity offset requirements are prescribed in the project approvals. The revised BOS meets all the conditions of the project approvals related to biodiversity offsets. A discussion of the revised BOS and the project approval conditions is provided in Table 7.7.

Table 7.7 Comparison against project approvals

Condition	Discussion
Condition 41 requires a minimum of 373 ha of offset areas	<p>This condition has been met.</p> <p>The revised BOS provides a total of 614.9 ha of offset areas, which is 241.9 ha more than the project approvals require.</p> <p>The revised BOAs also add an additional approximate 40 ha of offset area when compared with the approved BOAs, and an additional 212.6 ha of native vegetation.</p> <p>Therefore the revised BOAs provide an improved outcome for native vegetation than what is required under the project approval.</p>
Condition 42(a) requires a minimum of 140 ha of Narrow-leaved Ironbark-Spotted Gum-Forest Red Gum Forest (or a suitable equivalent)	<p>This condition has been met.</p> <p>The revised BOS provides 202.8 ha of Narrow-leaved Ironbark-Spotted Gum-Forest Red Gum Forest, comprising 115.5 ha of woodland and 87.3 ha of Derived Grassland/Native Pasture that Integra is committed to regenerated to a woodland form of this community. This is 62.8 ha more than the project approval requires, and will result in an increase in the amount of this community in the local area.</p>
Condition 42(b) requires an additional 6 ha of Central Hunter Swamp Oak Forest (outside the Northern, Southern, Western, Bridgeman and Supplementary BOAs which contained 31 ha of this community)	<p>This condition has been met.</p> <p>The revised BOS provides 49.7 ha of this community in total, which is 12.7 ha more than the 37 ha required (31 ha in the approved BOAs plus the additional 6 ha) by the project approvals.</p>

Integra is committed to securing the revised BOAs proposed under the modification by September 2014 in accordance with Condition 43 of the project approvals.

7.5 Management and monitoring

The BOAs are currently managed under the BMP (Vale 2013). The BMP includes a range of management measures to be implemented to improve the biodiversity values of the BOAs over time. This includes fencing, grazing management, weed control, fire management, access management, feral and overabundant native herbivore and pest management, habitat creation and supplementary planting.

Management will include regeneration of 87.2 ha of Derived Grassland/Native Pasture to Central Hunter Ironbark-Spotted Gum-Grey Box Forest EEC. The BMP will detail the passive and assisted revegetation techniques required to rehabilitate the Derived Grassland/Native Pasture back to a functioning and representative example of the EEC. It will also include methods to monitor the success of the proposed management actions, comparing success against measurable triggers, with corrective actions outlined should these not be met.

Areas of Cleared Land/Exotic Grassland will be managed as a buffer to reduce the introduction and spread of weeds and pests into native vegetation areas. In time, management of these areas may result in natural regeneration as native vegetation becomes established in adjacent habitat.

In summary, the BMP will be updated to include:

- details of the revised BOS, including the revised BOAs;
- the requirements of the draft guideline issued by P&I in 2014, *Hunter Valley Coal Mines – Best Practice Guidelines for Biodiversity Offset Management Plans* (Department of Planning and Infrastructure 2013), incorporating best practice regeneration methods;

- the proposed methods to rehabilitate and manage land for biodiversity in the BOAs and the mine site during and post mining; and
- Integra's commitment to regenerate a total of 87.2 ha of Derived Grassland/Native Pasture.

Implementation of the BMP will ensure that the condition and amount of native vegetation and fauna habitat is improved into the future.

7.6 Long-term conservation and management

Integra is investigating appropriate mechanisms for the long term security of the revised biodiversity BOS as required under Condition 43 of the project approvals. It is likely that a combination of mechanisms will be adopted for the onsite and offsite BOAs. As noted in Section 3.1, the EA for Modification 2 (EMM 2012) contemplated the use of the UHSA for the provision of alternative offsets. While Integra is continuing to participate in the UHSA, the outcomes of the process are not yet available. Accordingly, due to the need to have long term security in place for the BOAs by September 2014 in accordance with condition 43 of the project approvals, Integra has sought this modification to its approved BOS under Section 75W of the EP&A Act.

The Appletree Flat BOA is proposed to be dedicated as a public reserve under the NPW Act. OEH has already provided in-principle agreement to the current landowners for the addition of this property to the reserve system and advised that the formal reserve referral process is not required as it is an in-holding within the Wollemi National Park. Integra will consult with OEH and P&I regarding the long term security of the Appletree Flat BOA and determine the most appropriate mechanism for long-term security.

Integra is committed to providing long-term security in accordance with Condition 43 of the project approvals. The appropriate mechanisms will be determined in consultation with OEH and P&I.

8 Statement of commitments

The measures proposed to manage impacts resulting from the proposed modification are summarised in Table 8.1.

Table 8.1 Statement of commitments

Matter	Commitment
Biodiversity	<p>The BMP will be updated to include:</p> <ul style="list-style-type: none">• details of the revised BOS, including the revised BOAs;• the requirements of the draft P&I guideline <i>Hunter Valley Coal Mines – Best Practice Guidelines for Biodiversity Offset Management Plans</i> (Department of Planning and Infrastructure 2013), incorporating best practice regeneration methods;• the proposed methods to rehabilitate and manage land for biodiversity in the BOAs and the mine site during and post mining; and• Integra’s commitment to regenerate a total of 87.2 ha of Derived Grassland/Native Pasture to Narrow-leaved Ironbark-Spotted Gum-Forest Red Gum Forest.

9 Justification and conclusion

9.1 Suitability of the site

The Complex is an existing underground and open cut mine that has operated for over 20 years. As described in this EA, the Complex operates under two integrated project approvals with well established environmental management systems.

The modification would prevent the sterilisation of a significant coal resource valued at approximately \$6.2 Billion.

The revised BOS has been developed to ensure an improved biodiversity outcome. The adequacy of the revised BOS has been assessed against the Project Approval, the impacts of the approved project, the approved BOS, the *Principles for the Use of Biodiversity Offsets in NSW* (OEH 2011) and the seven principles in the *Draft NSW Biodiversity Offsets Policy for Major Projects* (OEH 2014).

The revised BOS contains vegetation and habitat values similar to those in the approved offset areas and in the approved project areas. This includes an equivalent amount of Central Hunter Ironbark–Spotted Gum–Grey Box Forest EEC with the inclusion of specific regeneration activities in the offset areas, and an equivalent amount of Swamp Oak Floodplain Forest EEC. It also provides a similar, or in some cases improved, outcome for threatened species habitat.

Overall, the revised BOS provides an improved offset outcome compared with the approved BOS.

9.2 Objects of the Environmental Planning and Assessment Act 1979

The consistency of the proposed modification with key relevant objects of the EP&A Act is considered below.

To encourage the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment.

The Complex is an approved operation. There is a significant coal resource under a portion of the current BOAs which has an estimated value of \$6.2 Billion. The proposed modification would, subject to approval, prevent the sterilisation of the future potential resource extraction in this area, by providing alternative offsets equivalent to, or better than, the approved offsets. The revised BOAs would be conserved in the long term, located on land with no potential future mining and would provide regional conservation benefits.

The promotion and co-ordination of the orderly and economic use and development of land.

The proposed modification would, subject to approval, allow for the future orderly and economic development of land by removing existing restrictions on an identified significant coal resource.

The protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats.

The impacts of the Underground and Open Cut projects, as originally approved, have been fully assessed and were determined to be acceptable by the consent authority, the then Minister for Planning. The approved BOS was accepted to compensate for biodiversity impacts due to the approved project. No additional impacts are proposed under the modification.

Ecologically sustainable development

The principles of ESD are outlined in Section 6 of the NSW *Protection of the Environment Administration Act 1991* and Schedule 2 of the NSW Environmental Planning and Assessment Regulation 2000 (EP&A Regulation). The consistency of the proposed modification with each of these principles is discussed below.

Precautionary Principle: in practice this means that development should not cause serious or irreversible environmental impact. Such impact can be avoided by, firstly, understanding the potential for environmental impact to occur by undertaking a full environmental assessment and, secondly, ensuring effective mitigation or compensation measures are incorporated into development proposals.

The approved Underground and Open Cut operations have fulfilled both of these requirements and incorporate the full range of necessary safeguards. This proposal to modify the project approvals will be assessed by P&I and additional conditions to address the proposed modification will be imposed as part of any determination to approve the modification application. Thus, the proposed modification is consistent with the precautionary principle.

Social equity including intergenerational equity: the proposed modification will ensure that an opportunity for potential future employment at the Complex is retained which, in turn, contributes towards social and intergenerational equity. Royalties received by government from mining activities also result in State wide social benefits.

Conservation of biological diversity and maintenance of ecological integrity: the approved Underground and Open Cut operations include measures to conserve biological diversity and maintain ecological integrity through the provision of BOAs. These areas are currently being managed for conservation outcomes in accordance with Integra's BMP and the requirements of the project approvals. The proposed modification seeks to modify the BOS by providing a generally improved outcome than the approved BOS.

Improved valuation and pricing of environmental resources: the Complex was granted project approval in 2010 and, to this extent, the government has valued and priced the environmental resources relevant to the Complex. The proposed modification would have a neutral effect in the application of this principle.

While the proposed modification alone would be of little consequence in terms of ESD, it would provide future opportunities for economic benefits, providing benefits such as enhanced security of employment, and prevent the serialisation of a significant natural resource.

9.3 Conclusion

Integra seeks approval from the Minister for Planning and Infrastructure to modify project approvals PA 08_0101 and PA 08_0102 under Section 75W of the EP&A Act to amend its current BOS.

Since the project approvals were granted investigations have identified a significant coal resource under a portion of the existing BOAs valued at approximately \$6.2 Billion. If the BOAs in their current form are secured, the coal resource would be sterilised. Sterilisation of this resource would have significant economic impacts for the Complex, such as potential reductions in investment, revenue, export earnings, jobs and substantial regional economic flow-on benefits.

Modification 2 enabled an extension to the timeframe for long term security of the BOS required under the project approvals until September 2014. This extension has enabled substantial time and effort to be invested in sourcing and assessing alternative offsets.

The revised BOS has been developed to ensure an equivalent and in some respects an improved biodiversity outcome. The adequacy of the revised BOS has been assessed against the impacts of the approved project, the approved BOS and the seven principles in the *Draft NSW Biodiversity Offsets Policy for Major Projects* (OEH 2014).

The revised BOS contains vegetation and habitat values similar to those in the approved BOAs. This includes an equivalent amount of Central Hunter Ironbark–Spotted Gum–Grey Box Forest EEC with the inclusion of specific regeneration activities in the offset areas, and an equivalent amount of Swamp Oak Floodplain Forest EEC. It also provides a similar, or in some cases improved, outcome for threatened species habitat.

As part of the revised BOS, a new BOA is proposed; the Appletree Flat BOA. It is proposed to dedicate the BOA as a public reserve under the NPW Act and incorporate it into surrounding Wollemi National Park. This will expand the area of the national park by 215.8 ha.

The revised BOS complies with the relevant conditions of the project approvals, and provides an improved offset outcome overall. When compared with the approved BOAs, the revised BOS:

- provides similar offset to impact ratios for the vegetation communities impacted by the approved project;
- increases the percentage of native vegetation in the offsets (31% more); and
- provides an additional approximate 40 ha of offset area.

Integra is committed to securing the revised BOAs proposed under the modification by September 2014 in accordance with Condition 43 of the project approvals.

No other changes to approved operations are proposed. The proposed modification, if approved, will not enable disturbance in any of the excised BOAs. Should disturbance of these areas be proposed at some point in the future, it would be fully assessed and approval sought in consultation with government and the community at the relevant time. Any residual impacts on biodiversity would be offset based on policies in force at the time.

The proposed modification can be managed under the Complex's existing management systems which will be revised as necessary subject to approval of the proposed modification.

It is considered that, on balance, the overall potential impacts of the proposed modification are consistent with the approved development and the objects of the EP&A Act.

References

Department of Planning and Infrastructure 2013, *Hunter Valley Coal Mines – Best Practice Guidelines for Biodiversity Offset Management Plans*. NSW Government.

EMGA Mitchell McLennan (EMM) 2012, *Integra Mine Complex Modification 2 Environmental Assessment*. Report prepared for Integra Coal Operations Pty Ltd.

Integra Coal Operations (VALE) 2013, *Environmental Management System, Biodiversity Management Plan*. Report prepared by the Environment and Community Advisor for Integra Coal Operations Pty Ltd.

Office of Environment and Heritage (OEH) 2014, *Draft Framework for Biodiversity Assessment for assessing and offsetting state significant development and state significant infrastructure*. NSW Government.

Parsons Brinckerhoff 2013, *Appletree Flat Biodiversity Offset Initial Inspection*. Report prepared for Integra Coal Operations Pty Ltd.

Parsons Brinckerhoff 2012, *Audit of the Biodiversity Offset Areas for the Integra Mine Complex*. Report prepared for Integra Coal Operations Pty Ltd.

URS 2009, *Integra Open Cut Project: Biodiversity Assessment*. Report prepared for Integra Coal Operations Pty Ltd.

Appendix A

Project Approvals

Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

I approve the project applications referred to in Schedule 1, subject to the preamble in Schedule 1 and the conditions in Schedules 2 to 5.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the projects.

The Hon Tony Kelly MLC
Minister for Planning MP

Sydney

2010

SCHEDULE 1

Application Numbers:	08_0101 and 08_0102
Proponent:	Integra Coal Operations Pty Ltd
Approval Authority:	Minister for Planning
Land:	See Appendix 1
Project 08_0101:	Integra Underground Project
Project 08_0102:	Integra Open Cut Project

Preamble:

While a single document, this instrument contains two project approvals: one for the Integra underground project and the other for the Integra open cut project. For the purposes of project 08_0101, this instrument applies only to the underground project area. For the purposes of project 08_0102, this instrument applies only to the Integra open cut project area. Together these project areas are considered to comprise the Integra mine complex.

Red type represents Modification 1, dated 18 March 2012
Blue type represents Modification 3, dated 5 October 2012
Green type represents Modification 2, dated 1 February 2013

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DEFINITIONS

Annual review	The review required by Condition 3 of Schedule 5
Approved mine plans	The plans for underground mining depicted in the figures in Appendix 4
Adaptive management	Adaptive management includes monitoring subsidence effects and impacts and, based on the results, modifying the mine plan as mining proceeds to ensure that the effects, impacts and/or associated environmental consequences remain within predicted and/or designated ranges
ARTC	Australian Rail Track Corporation
BCA	Building Code of Australia
Blast misfire	The failure of one or more holes in a blast pattern to initiate
Built features	Includes any building or work erected or constructed on land, and includes dwellings and infrastructure such as any formed road, street, path, walk or driveway, any pipeline, water, sewer, telephone, gas or other service main
CCC	Community Consultative Committee
CHPP	Coal Handling and Preparation Plant
Conditions of this approval	Conditions contained in Schedules 2 to 5 inclusive
Council	Singleton Shire Council
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Department	Department of Planning and Infrastructure
Director-General	Director-General of the Department, or delegate
DRE	Division of Resources and Energy within the Department of Trade and Investment, Regional Infrastructure and Services
EA Mod 1	<i>Integra Mine Complex Modification 1 Environmental Assessment, prepared by EMGA Mitchell McLennan, dated 2 December 2011</i>
EA Mod 2	<i>Integra Mine Complex Modification 2 Environmental Assessment, prepared by EMGA Mitchell McLennan, dated September 2012</i>
EEC	Endangered Ecological Community as defined under the NSW <i>Threatened Species Conservation Act 1995</i>
Environmental consequences	The environmental consequences of subsidence impacts, including: damage to built features; loss of surface water flows to the subsurface; loss of standing pools; adverse water quality impacts; development of iron bacterial mats; rock falls; damage to Aboriginal heritage sites; impacts on aquatic ecology; and ponding
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPL	Environment Protection Licence issued under the POEO Act
Evening	The period from 6pm to 10pm
Feasible	Feasible relates to engineering considerations and what is practical to build or carry out
First workings	Development of main headings and gateroads underground
Heritage Branch	Heritage Branch of the Department
Incident	A set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in this approval
Integra mine complex	The open cut and underground project areas, considered collectively
Land	In general, the definition of land is consistent with the definition in the EP&A Act. However, in relation to the noise and air quality conditions in Schedules 3 and 4 it means the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this approval
Material harm to the environment	Actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Minister	Minister for Planning and Infrastructure, or delegate
Mitigation	Activities associated with reducing the impacts of the projects
MSB	NSW Mine Subsidence Board
NAG	Noise assessment group, see the figures in Appendix 5 for more detail
Negligible	Small and unimportant, such as to be not worth considering
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
Northern mining area	The area outlined with a solid white line on the figure in Appendix 3 titled "open cut project area"
NOW	NSW Office of Water
OC statement of commitments	The Proponent's commitments for the open cut project in Appendix 10
OEH	Office of Environment and Heritage

Offset strategy	The biodiversity and enhancement program described in the EA, and depicted generally in the figure in Appendix 8
Open cut mining operations	Includes overburden removal and the extraction, processing, handling, storage and transportation of coal within the open cut project area
Open cut project	The development described in the open cut project EA
Open cut project area	All land to which project application 08_0102 applies, as listed in Appendix 1 and outlined with a solid black line on the figure in Appendix 3
Open cut project EA	Environmental assessment titled <i>Integra Open Cut Project</i> , dated June 2009, and the associated response to submissions titled <i>Submissions Report</i> , dated March 2010
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Previous open cut EAs	The documents listed in Appendix 2
Previous underground EAs	The documents listed in Appendix 2
Privately-owned land	Land that is not owned by a public agency, or a mining company (or its subsidiary)
Projects	The open cut project and underground project considered collectively, including the implementation of any development associated with the previous open cut and underground EAs
Proponent	Integra Coal Operations Pty Ltd, or its successors
Public infrastructure	Linear and related infrastructure that provides services to the general public, such as roads, railways, water supply, gas supply, drainage, sewerage, telephony, telecommunications etc
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
Rehabilitation	The treatment or management of land disturbed by the projects for the purpose of establishing a safe, stable and non-polluting environment, and includes remediation
Remediation	Activities associated with partially or fully repairing the impacts and/or environmental consequences of the project
RMS	Roads and Maritime Services
ROM coal	Run-of-mine coal
Safe, serviceable and repairable	Safe means no danger to users, serviceable means available for its intended purpose, and repairable means damaged components can be repaired economically
Second workings	Extraction of coal from longwall panels, mini-wall panels or pillar extraction
Site	The land listed in Appendix 1, known collectively as the Integra mine complex
Subsidence	The totality of subsidence effects and impacts and their associated environmental consequences
Subsidence effects	Deformation of the ground mass due to mining, including all mining-induced ground movements, including both vertical and horizontal displacement, tilt, strain and curvature
Subsidence impacts	Physical changes to the ground and its surface caused by subsidence effects, including tensile and shear cracking of the rock mass, localised buckling of strata caused by valley closure and upsidence and surface depressions or troughs
UG statement of commitments	The Proponent's commitments for the underground project in Appendix 10
Underground mining operations	Includes first workings and the extraction, processing, handling, storage, and transportation of coal within the underground project area
Underground project	The development described in the underground project EA
Underground project area	All land to which project application 08_0101 applies, as listed in Appendix 1 and outlined with a dashed black line on the figure in Appendix 3
Underground project EA	Environmental assessment titled <i>Proposed Integra Underground Coal Project</i> , dated July 2009, and the associated response to submissions, titled <i>Integra Underground Project Collated Response to Submissions</i> , dated March 2010
Western mining area	The area outlined with a solid light blue line on the figure in Appendix 3 titled "open cut project area"

SCHEDULE 2 ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

1. The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction operation or rehabilitation of the projects.

TERMS OF APPROVAL

2. The Proponent shall carry out the open cut project generally in accordance with the:
 - (a) previous open cut EAs;
 - (b) open cut project EA;
 - (c) OC statement of commitments;
 - (d) EA Mod 1;
 - (e) EA Mod 2; and
 - (f) conditions of this approval.
3. The Proponent shall carry out the underground project generally in accordance with the:
 - (a) previous underground EAs;
 - (b) underground project EA;
 - (c) UG statement of commitments; and
 - (d) conditions of this approval.

Notes to Conditions 2 & 3:

- The general layout of the projects is shown in Appendix 4;
- This project approval is intended to regulate all existing and approved development on site; and
- The Proponent is to operate and manage both projects, to the greatest extent practicable, as an integrated mining complex.

4. If there is any inconsistency between the documents listed in condition 2 above, or any inconsistency between the documents listed in condition 3 above, the most recent document in the relevant condition shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.
5. The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
 - (a) any reports, strategies, plans, programs, reviews, audits, or correspondence that are submitted in accordance with the conditions of this approval; and
 - (b) the implementation of any actions or measures contained in these documents.

LIMITS ON APPROVAL

Mining Operations

6. The Proponent may carry out open cut mining operations on site until 31 December 2022.
7. The Proponent may carry out underground mining operations on site until 31 December 2035.

Note to Conditions 6 & 7: Under this approval, the Proponent is required to rehabilitate the site and carry out additional undertakings to the satisfaction of both the Director-General and the Director-General of DRE. Consequently, this approval will continue to apply in all respects - other than the right to conduct mining operations - until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily.

Coal Production

8. The Proponent shall not extract more than:
 - (a) 1.5 million tonnes of ROM coal from the open cut mining operations in the northern mining area in a calendar year;
 - (b) 4.5 million tonnes of ROM coal from the open cut mining operations in the western mining area in a calendar year; and
 - (c) 4.5 million tonnes of ROM coal from the underground mining operations on site in a calendar year.

Coal Transport

9. The Proponent shall not:
 - (a) export more than 7.3 million tonnes of coal from the site in a calendar year;

- (b) dispatch more than 7 trains a day from the site; and
 - (c) dispatch more than 3 trains a day from the site, when averaged over each calendar year.
10. The Proponent shall not transport coal from the site by road, except in an emergency situation and with the prior written approval of the Director-General.

Hours of Operation

11. The Proponent shall only carry out:
- (a) open cut mining operations in the northern mining area from 7am to 10pm, seven days a week (including public holidays); and
 - (b) vegetation clearing and topsoil stripping on site between 7am and 6pm.

SURRENDER OF CONSENTS AND APPROVALS

12. By the end of June 2011, or as otherwise agreed by the Director-General, the Proponent shall surrender all existing development consents and project approvals for the site (other than this approval and the development consent for the Glennies Creek to Ashton Water Pipeline granted by Council on 13 February 2004) in accordance with Sections 75YA and 104A of the EP&A Act.

Note: This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under Part 4A of the EP&A Act. Surrender of a consent or approval should not be understood as implying that works legally constructed under a valid consent or approval can no longer be legally maintained or used.

13. Prior to the surrender of these consents and/or approvals, the conditions of this approval (including any notes) shall prevail to the extent of any inconsistency with the conditions of these consents and/or approvals.

STRUCTURAL ADEQUACY

14. The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA and MSB.

Notes:

- Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works;
- Part 8 of the EP&A Regulation sets out the requirements for the certification of the projects; and
- The Integra mine complex is located in the Patrick Plains Mine Subsidence District. Under Section 15 of the Mine Subsidence Compensation Act 1961, the Proponent is required to obtain the MSB's approval before constructing or relocating any improvements on site.

DEMOLITION

15. The Proponent shall ensure that all demolition work is carried out in accordance with *Australian Standard AS 2601-2001: The Demolition of Structures*, or its latest version.

OPERATION OF PLANT AND EQUIPMENT

16. The Proponent shall ensure that all the plant and equipment used on site, or to transport coal from the site, is:
- (a) maintained in a proper and efficient condition; and
 - (b) operated in a proper and efficient manner.

STAGED SUBMISSION OF ANY STRATEGY, PLAN AND PROGRAM

17. With the approval of the Director-General, the Proponent may submit any strategy, plan or program required by this approval on a progressive basis.

Note: While any strategy, plan or program may be submitted on a progressive basis, the Proponent will need to ensure that the existing operations of the site are covered by suitable strategies, plans or programs at all times.

18. Until they are replaced by an equivalent strategy, plan or program approved under this approval, the Proponent shall continue to implement the existing strategies, plans or programs for development on site that have been approved under previous consents or approvals.

SCHEDULE 3 ENVIRONMENTAL PERFORMANCE CONDITIONS

ACQUISITION UPON REQUEST

- Upon receiving a written request for acquisition from the owner of the land listed in Table 1, the Proponent shall acquire the land in accordance with the procedures in Conditions 6-7 of Schedule 4.

Table 1: Land subject to acquisition upon request

Noise	Air Quality	Subsidence
9 – W & N Pendered	-	-
11 – F Ferraro	-	-
10 – E & B Kleinman	-	-
13 – P & K Russell	-	-
64 – W & A Gardner	-	-
-	47 – B & R Cherry	47 B & R Cherry
80 – G Donnellan	-	-
87 – B & R Richards	87 – B & R Richards	-
106 – B & R Richards	-	-
110 – G J Hall	110 – G J Hall	-
111 – T Burgess		
112 – S & C Ernst		
153 – R & D Hall	153 – R & D Hall	-
351 – Andrews	-	-
352 – Andrews	-	-

Note: To identify the locations referred to in Table 1, see the figures in Appendix 5.

Once, in the opinion of the Director-General, the open cut mining operations have been substantially completed on site this condition shall be replaced with Condition 1 of Appendix 6.

NOISE

Noise Criteria

- Except for the noise-affected land referred to in Table 1, the Proponent shall ensure that the noise generated by the projects does not exceed the criteria in Table 2 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.

Table 2: Noise criteria dB(A)

Location		Day	Evening	Night	
		L _{Aeq} (15min)	L _{Aeq} (15min)	L _{Aeq} (15min)	L _{A1} (1min)
NAG 1	All privately-owned land	38	38	36	46
NAG 2	All privately-owned land	39	39	37	47
NAG 3	All privately-owned land	40	40	39	49
NAG 4	99, 100	39	39	39	47
	88, 91, 95	40	40	40	47
	105, 161	41	41	41	47
	All other privately-owned land	42	42	37	47
NAG 5	104	35	35	35	52
	139	36	36	36	52
	103	37	37	37	52
	121	40	40	40	52
	118, 154	43	43	43	52
	Deleted	45	45	45	52

	Deleted	47	47	47	52
	All other privately-owned land	50	46	42	52
NAG 6	137	35	35	35	48
	133	37	37	37	48
	132	38	38	38	48
	All other privately-owned land	41	41	38	48
NAG 7	All privately-owned land	45	42	39	49
NAG 8	142	35	35	35	45
	All other privately-owned land	42	42	35	45
NAG 9	146, 148, 149	35	35	35	48
	143, 144, 145, 147, 150, 151, 152	36	36	36	48
	2	37	37	37	48
	3, 4	39	39	39	48
	All other privately-owned land	40	40	38	48
NAG 10	5	40	40	40	47
	6, 11	41	41	41	47
	8	42	42	42	47
	All other privately-owned land	39	39	37	47
NAG 11	18	35	35	35	49
	20, 21	37	37	36	49
	19	37	37	37	49
	17	38	38	38	49
	7	39	39	39	49
	12, 15	40	40	40	49
	14, 16	42	42	42	49
	All other privately-owned land	41	41	39	49
NAG 12	52, 55	35	35	35	45
	51, 56	37	37	37	45
	53, 57	38	38	38	45
	50, 54	39	39	39	45
	62	40	40	40	45
	All other privately-owned land	38	38	35	45
NAG A	24, 25, 26, 27, 28, 29, 30, 36, 37, 38, 39, 40, 41	35	35	35	46
	31	36	36	35	46
	42, 43	36	36	36	46
	32	37	37	35	46
	22, 23	37	37	37	46
	34	39	39	36	46
	35	39	39	35	46
	All other privately-owned land	39	39	36	46
NAG B	All privately-owned land	37	37	35	45
NAG C	47	39	39	39	45
	63	40	40	40	45
	All other privately-owned land	37	37	35	45
NAG D	44, 48	36	36	36	48
	49	39	39	39	48
	All other privately-owned land	40	40	38	48
NAG F	65, 66	39	39	39	50
	67	40	40	40	50
	68	42	42	42	50
	All other privately-owned land	40	40	40	50

NAG G	All privately-owned land	41	41	39	50
All other privately-owned land		35	35	35	45

Notes:

- To identify the locations referred to in Table 2, see the figures in Appendix 5; and
- Noise generated by the projects is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.

However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

Once, in the opinion of the Director-General, the open cut mining operations have been substantially completed on site this condition shall be replaced with Condition 2 of Appendix 6.

Noise Acquisition Criteria

3. If noise generated by the projects exceeds the criteria in Table 3 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner, the Proponent shall acquire the land in accordance with the procedures in Conditions 6-7 of Schedule 4.

Table 3: Noise Acquisition Criteria dB(A)

Location	Day	Evening	Night
	<i>L_{Aeq}(15min)</i>	<i>L_{Aeq}(15min)</i>	<i>L_{Aeq}(15min)</i>
All privately-owned land in NAG 1	44	44	42
All privately-owned land in NAG 2	45	45	43
All privately-owned land in NAG 3	46	46	45
All privately-owned land in NAG 4	48	48	43
All privately-owned land in NAG 5	56	52	48
All privately-owned land in NAG 6	47	47	44
All privately-owned land in NAG 7	51	48	45
All privately-owned land in NAG 8	48	48	41
All privately-owned land in NAG 9	46	46	44
All privately-owned land in NAG 10	45	45	43
All privately-owned land in NAG 11	47	47	45
All privately-owned land in NAG 12	44	44	41
All privately-owned land in NAG A	45	45	42
All privately-owned land in NAG B	43	43	41
All privately-owned land in NAG C	43	43	41
All privately-owned land in NAG D	46	46	44
All privately-owned land in NAG F	46	46	46
All privately-owned land in NAG G	47	47	45
All other privately-owned land	41	41	41

Notes:

- To identify the locations referred to in Table 3, see the figures in Appendix 5;
- Noise generated by the projects is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy; and
- For this condition to apply, the exceedances of the criteria must be systemic.

Cumulative Noise Criteria

4. Except for the noise-affected land referred to in Table 1, the Proponent shall implement all reasonable and feasible measures to ensure that the noise generated by the projects combined with the noise generated by other mines in the area does not exceed the criteria in Table 4 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.

Table 4: Cumulative Noise Criteria dB(A) L_{Aeq} (period)

Location	Day	Evening	Night
NAGs 4, 5, 8 and 9	55	45	40
All other privately-owned land	50	45	40

Notes:

- To identify the locations referred to in Table 4, see the figures in Appendix 5; and
- Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

Cumulative Noise Acquisition Criteria

- If the noise generated by the projects combined with the noise generated by other mines in the area exceeds the criteria in Table 5 at any residence on privately-owned land or on more than 25 percent of privately-owned land, then upon receiving a written request for acquisition from the landowner, the Proponent shall acquire the land on as equitable basis as possible with the relevant mines in accordance with the procedures in Conditions 6-7 of Schedule 4.

Table 5: Cumulative Noise Acquisition Criteria dB(A) L_{Aeq} (period)

Location	Day	Evening	Night
NAGs 4, 5, 8 and 9	60	50	45
All other privately-owned land	55	50	45

Notes:

- To identify the locations referred to in Table 5, see the applicable figures in Appendix 5;
- Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy; and
- For these conditions to apply, the exceedances of the criteria must be systemic.

Additional Noise Mitigation Measures

- Upon receiving a written request from the owner of any residence:
 - on the land listed in Table 1; or
 - on land listed in Table 6; or
 - on privately-owned land where subsequent noise monitoring shows the noise generated by the projects is greater than or equal to the criteria in Table 7,
 the Proponent shall implement additional noise mitigation measures (such as double-glazing, insulation, and/or air conditioning) at the residence in consultation with the landowner. These measures must be reasonable and feasible.

If within 3 months of receiving this request from the owner, the Proponent and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.

Once, in the opinion of the Director-General, the open cut mining operations have been substantially completed on site Table 6 in this condition shall be replaced with the Table in Condition 3 of Appendix 6.

Table 6: Land where additional noise mitigation measures are available on request

5 – D P Cox	6 – W G Cox
8 – DK Geelan	
14 – M Hoggan	16 – A Lambkin
20 – Mr Garvie	31 – C Craven
32 – M Langdon	48 – G Cheetham
47 – B & R Cherry	50 – D & M Bridge
53 – K & J Badior	54 – G Holmes
62 – D Moran	63 – J & M Moore
91 – T & D Olofsson	95 – J & T Clarke
105 – J & G McInerney	161 – V Lopes
Deleted	Deleted

Note: To identify the locations referred to in Table 6, see the figures in Appendix 5.

Table 7: Additional noise mitigation criteria dB(A)

Location	Day	Evening	Night
	$L_{Aeq}(15min)$	$L_{Aeq}(15min)$	$L_{Aeq}(15min)$
All privately-owned land in NAG 1	41	41	39
All privately-owned land in NAG 2	42	42	40
All privately-owned land in NAG 3	43	43	42
All privately-owned land in NAG 4	45	45	40
All privately-owned land in NAG 5	53	49	45
All privately-owned land in NAG 6	44	44	41
All privately-owned land in NAG 7	48	45	42
All privately-owned land in NAG 8	45	45	38
All privately-owned land in NAG 9	43	43	41
All privately-owned land in NAG 10	42	42	40
All privately-owned land in NAG 11	44	44	42
All privately-owned land in NAG 12	41	41	38
All privately-owned land in NAG A	42	42	39
All privately-owned land in NAG B	40	40	38
All privately-owned land in NAG C	40	40	38
All privately-owned land in NAG D	43	43	41
All privately-owned land in NAG F	43	43	43
All privately-owned land in NAG G	44	44	42
All other privately-owned land	38	38	38

Notes:

- To identify the locations referred to in Table 7, see the figures in Appendix 5;
- Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy; and
- For these conditions to apply, the exceedances of the criteria must be systemic.

7. If the cumulative noise generated by the projects combined with the noise generated by other mines in the area exceeds the criteria at any residence on the land referred to in Table 8, then upon receiving a written request from the owner, the Proponent shall implement additional noise mitigation measures (such as double-glazing, insulation, and/or air conditioning) at the residence in consultation with the landowner. These measures must be reasonable and feasible. The Proponent shall share the costs associated with implementing these measures on as equitable basis as possible with the relevant mines.

If within 3 months of receiving this request from the owner, the Proponent and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.

Table 8: Cumulative Noise Mitigation Criteria dB(A) L_{Aeq} (period)

Location	Day	Evening	Night
NAGs 4, 5, 8 and 9	57	47	42
All other privately owned land	52	47	42

Notes:

- To identify the locations referred to in Table 8, see the figures in Appendix 5;
- Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy; and
- For these conditions to apply, the exceedances of the criteria must be systemic.

Rail Noise

8. The Proponent shall seek to ensure that its rail spur is only accessed by locomotives that are approved to operate on the NSW rail network in accordance with noise limits L6.1 to L6.4 in RailCorp's EPL (No.

12208) and ARTC's EPL (No. 3142) or a Pollution Control Approval issued under the former *Pollution Control Act 1970*.

Operating Conditions

9. The Proponent shall:
- implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the operational, low frequency, and rail noise generated by the projects;
 - regularly assess the real-time noise monitoring and meteorological forecasting data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this approval;
 - maintain or improve the effectiveness of noise suppression equipment on plant at all times and ensure defective plant is not used operationally until fully repaired;
 - ensure that noise attenuated plant is deployed preferentially in locations relevant to sensitive receivers;
 - minimise the noise impacts of the Integra mine complex during meteorological conditions when the noise limits in this approval do not apply; and
 - co-ordinate the noise management on site with the noise management at nearby mines (including the Ashton, Rix's Creek and Mt Owen mines) to minimise the cumulative noise impacts of these mines and the Integra mine complex
- to the satisfaction of the Director-General.

Noise Management Plan

10. The Proponent shall prepare and implement a Noise Management Plan for the projects to the satisfaction of the Director-General. This plan must:
- be prepared in consultation with OEH, and submitted to the Director-General for approval by the end of May 2012;
 - describe the measures that would be implemented to ensure:
 - best management practice is being employed;
 - the noise impacts of the Integra mine complex are minimised during meteorological conditions when the noise limits in this approval do not apply; and
 - compliance with the relevant conditions of this approval;
 - describe the proposed management system in detail;
 - include a monitoring program that:
 - uses a combination of real-time and supplementary attended monitoring measures to evaluate the performance of the Integra mine complex;
 - adequately supports the proactive and reactive noise management system on site;
 - includes a protocol for determining exceedances of the relevant conditions in this approval;
 - evaluates and reports on the effectiveness of the noise management system on site;
 - provides for the annual validation of the noise model for the Integra mine complex; and
 - include a protocol that has been prepared in consultation with the owners of nearby mines (including the Ashton, Rix's Creek and Mt Owen mines) to minimise the cumulative noise impacts of these mines and the Integra mine complex.

BLASTING

Blasting Criteria

11. The Proponent shall ensure that the blasting on site does not cause exceedances of the criteria in Table 9.

Table 9: Blasting Criteria

Receiver	Airblast Overpressure (dB(Lin Peak))	Ground Vibration (ppv(mm/s))	Allowable Exceedance
Residence on privately-owned land	115	5	5% of the total number of blasts over a period of 12 months
	120	10	0%
Main Northern Railway culverts and bridges	-	25	0%
All public infrastructure	-	50	0%

However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner or infrastructure owner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

Blasting Hours

12. The Proponent shall only carry out blasting on site between 9am and 5pm Monday to Saturday inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the Director-General.

Blasting Frequency

13. The Proponent shall not carry out more than:
- (a) 1 blast a day in the northern mining area unless an additional blast is required following a blast misfire;
 - (b) 2 blasts a day in the existing Camberwell south pit, and then 1 blast a day when the mining moves from this pit into the western mining area unless an additional blast is required following a blast misfire; and
 - (c) 10 blasts a week on site, averaged over any 12 month period.

Property Inspections

14. If the Proponent receives a written request from the owner of any privately-owned land within 2 kilometres of the approved open cut mining pits on site for a property inspection to establish the baseline condition of any buildings and/or structures on his/her land, or to have a previous property inspection report updated, then within 2 months of receiving this request the Proponent shall:
- (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General to:
 - establish the baseline condition of the buildings and/or structures on the land or update the previous property inspection report; and
 - identify any measures that should be implemented to minimise the potential blasting impacts of the projects on these buildings and/or structures; and
 - (b) give the landowner a copy of the new or updated property inspection report.

Property Investigations

15. If any landowner of privately-owned land within 2 kilometres of any approved open cut mining pit on site claims that the buildings and/or structures on his/her land have been damaged as a result of blasting on site, then within 2 months of receiving this request the Proponent shall:
- (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to investigate the claim; and
 - (b) give the landowner a copy of the property investigation report.

If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damages to the satisfaction of the Director-General.

If the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.

Operating Conditions

16. The Proponent shall:
- (a) implement best blasting management practice on site to:
 - protect the safety of people and livestock in the surrounding area;
 - protect private or public property in the surrounding area;
 - minimise the dust and fume emissions of the blasting; and
 - (b) co-ordinate the blasting on site with the blasting at nearby mines (including Ashton, Rix's Creek and Mt Owen mines) to minimise the cumulative blasting impacts of the mines;
 - (c) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site,
- to the satisfaction of the Director-General.
17. The Proponent shall not undertake blasting within 500 metres of:
- (a) Middle Falbrook Road or Stony Creek Road without the approval of Council;
 - (b) the New England Highway without the approval of the RMS; and
 - (c) the Main Northern Railway without the approval of the ARTC.
18. The Proponent shall not carry out blasting in the northern or western mining areas that is within 500 metres of any privately-owned land or land not owned by the Proponent unless:

- (a) the Proponent has a written agreement with the relevant landowner to allow blasting to be carried out closer to the land, and the Proponent has advised the Department in writing of the terms of this agreement; or
- (b) the Proponent has:
 - demonstrated to the satisfaction of the Director-General that the blasting can be carried out without compromising the safety of the people or livestock on the land, or damaging the buildings and/or structures on the land; and
 - updated the Blast Management Plan to include the specific measures that would be implemented while blasting is being carried out within 500 metres of the land.

Blast Management Plan

19. The Proponent shall prepare and implement a Blast Management Plan for the open cut mining operations on site to the satisfaction of the Director-General. This plan must:
- (a) be prepared in consultation with **OEH**, and submitted to the Director-General for approval by the end of March 2011;
 - (b) describe the blast mitigation measures that would be implemented to ensure compliance with the relevant condition of this approval;
 - (c) describe the measures that would be implemented to ensure that the public can get up-to-date information on the proposed blasting schedule on site;
 - (d) include a blast monitoring program to evaluate the performance of the project; and
 - (e) include a protocol that has been prepared in consultation with the owners of the nearby mines for minimising and managing the cumulative blasting impacts of the mines.

AIR QUALITY & GREENHOUSE GAS

Odour

20. The Proponent shall ensure that no offensive odours are emitted from the site, as defined under the POEO Act.

Greenhouse Gas Emissions

21. The Proponent shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site to the satisfaction of the Director-General.

Air Quality Criteria

22. Except for the air quality-affected land referred to in Table 1, the Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the projects do not exceed the criteria listed in Tables 10, 11 or 12 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.

Table 10: Long term criteria for particulate matter

Pollutant	Averaging Period	^d Criterion
Total suspended particulate (TSP) matter	Annual	^a 90 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	Annual	^a 30 µg/m ³

Table 11: Short term criterion for particulate matter

Pollutant	Averaging Period	^d Criterion
Particulate matter < 10 µm (PM ₁₀)	24 hour	^a 50 µg/m ³

Table 12: Long term criteria for deposited dust

Pollutant	Averaging Period	Maximum increase in deposited dust level	Maximum total deposited dust level
^c Deposited dust	Annual	^b 2 g/m ² /month	^a 4 g/m ² /month

Notes to Tables 10–12:

- ^a Total impact (i.e. incremental increase in concentrations due to the projects plus background concentrations due to all other sources);
- ^b Incremental impact (i.e. incremental increase in concentrations due to the projects on their own);
- ^c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.
- ^d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General in consultation with **OEH**.

Air Quality Acquisition Criteria

23. If particulate matter emissions generated by the projects exceed the criteria in Tables 13, 14 or 15 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner the Proponent shall acquire the land in accordance with the procedures in Conditions 6-7 of Schedule 4.

Table 13: Long term acquisition criteria for particulate matter

Pollutant	Averaging Period	^d Criterion
Total suspended particulate (TSP) matter	Annual	^a 90 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	Annual	^a 30 µg/m ³

Table 14: Short term acquisition criteria for particulate matter

Pollutant	Averaging period	^d Criterion
Particulate matter < 10 µm (PM ₁₀)	24 hour	^a 150 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	24 hour	^b 50 µg/m ³

Table 15: Long term acquisition criteria for deposited dust

Pollutant	Averaging Period	Maximum increase in deposited dust level	Maximum total deposited dust level
^c Deposited dust	Annual	^b 2 g/m ² /month	^a 4 g/m ² /month

Notes to Tables 13–15:

- ^a Total impact (i.e. incremental increase in concentrations due to the projects plus background concentrations due to all other sources);
- ^b Incremental impact (i.e. incremental increase in concentrations due to the projects on their own);
- ^c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.
- ^d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General in consultation with **OEH**.

Additional Dust Mitigation Measures

24. Upon receiving a written request from the owner of any residence:
- on the air quality-affected land listed in Table 1; or
 - on the land listed in Table 16; or
 - on privately-owned land where subsequent air quality monitoring shows the dust generated by the projects is greater than or equal to the applicable criteria in Tables 10, 11 or 12 on a systemic basis, the Proponent shall implement additional dust mitigation measures (such as a first flush roof system, internal or external air filters, and/or air conditioning) at the residence in consultation with the owner. These measures must be reasonable and feasible.

If within 3 months of receiving this request from the owner, the Proponent and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.

Table 16: Land subject to dust mitigation on request

88 – M & T De Jong	106 – B & R Richards
Deleted	111 – T Burgess
112 – S & C Ernst	

Note: To identify the locations referred to in Table 16, see the applicable figures in Appendix 5.

Mine-owned Land

- 24A. The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are implemented so that particulate matter emissions generated by the project do not exceed the criteria in Tables 10, 11, and 12 at any occupied residence on any mine-owned land (including land owned by adjacent mines), unless:
- the tenant and/or landowner has been notified of any health risks in accordance with the notification requirements under schedule 4 of this approval;
 - the tenant on project-related land can terminate the tenancy agreement without penalty, subject to giving reasonable notice, and the Proponent uses its best endeavours to provide assistance with relocation and sourcing of alternative accommodation;
 - air mitigation measures such as air filters, a first flush roof water drainage system and/or air conditioning) are installed at the residence, if requested by the tenant and landowner (where owned by another mine other than the Proponent);
 - particulate matter air quality monitoring is undertaken to inform the tenant and landowner of potential health risks; and
 - monitoring data is presented to the tenant in an appropriate format, for a medical practitioner to assist the tenant in making an informed decision on the health risks associated with occupying the property,
- to the satisfaction of the Director-General.

Operating Conditions

25. The Proponent shall:
- implement best practice air quality management on site, including all reasonable and feasible measures to minimise the off-site odour, fume and dust emissions generated by the projects;
 - minimise any visible air pollution generated by the projects;
 - operate a comprehensive air quality management system on site that uses a combination of predictive meteorological forecasting and real-time air quality monitoring data to guide the day to day planning of mining operations and the implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this approval;
 - minimise the air quality impacts of the Integra mine complex during adverse meteorological conditions and extraordinary events (see note d in conditions 22 and 23);
 - minimise the surface disturbance of the site generated by the projects; and
 - co-ordinate the air quality management on site with the air quality management of nearby mines (including Ashton, Rix's Creek and Mt Owen mines) to minimise the cumulative air quality impacts of these mines and the Integra mine complex,
- to the satisfaction of the Director-General.

Air Quality & Greenhouse Gas Management Plan

26. The Proponent shall prepare and implement a detailed Air Quality & Greenhouse Gas Management Plan for the Integra mine complex to the satisfaction of the Director-General. This plan must:
- be prepared in consultation with OEH, and submitted to the Director-General for approval by the end of May 2012;
 - describe the measures that would be implemented to ensure:
 - best management practice is being employed;
 - the air quality impacts of the Integra mine complex are minimised during adverse meteorological conditions and extraordinary events; and
 - compliance with the relevant conditions of this approval;
 - describe the proposed air quality management system in detail;
 - include a monitoring program that:
 - uses a combination of real-time monitors and supplementary monitors to evaluate the performance of the Integra mine complex;
 - adequately supports the proactive and reactive air quality management system;
 - includes PM_{2.5} monitoring (although this obligation could be satisfied by the regional air quality monitoring network if sufficient justification is provided);

- evaluates and reports on the effectiveness of the air quality management system;
 - includes a protocol for determining any exceedances of the relevant conditions of this approval; and
- (e) include a protocol that has been prepared in consultation with the owners of nearby mines (including the Ashton, Rix's Creek and Mt Owen mines) to minimise the cumulative air quality impacts of these mines and the Integra mine complex.

METEOROLOGICAL MONITORING

27. During the life of the project, the Proponent shall ensure that there is a suitable meteorological station operating in the vicinity of the site that:
- (a) complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline; and
 - (b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the *NSW Industrial Noise Policy*.

SUBSIDENCE

Performance Measures

28. The Proponent shall ensure that the underground project does not cause any exceedance of the performance measures in Table 17.

Table 17: Subsidence Performance Measures

Water	
Glennies Creek alluvial aquifer	Negligible impact
Natural watercourses on site	No greater environmental consequences than predicted in the Underground Project EA
Xstrata Mt Owen Bettys Creek Diversions	No greater than the environmental consequences predicted in the Underground Project EA, unless the owner agrees otherwise in writing
Underground Project Creek Diversions	Remain hydraulically and geomorphologically stable
Other water storages and drainage lines	No greater than the environmental consequences predicted in the Underground Project EA
Biodiversity	
Threatened species, populations, habitat or ecological communities	Negligible impact
Built Features	
All built features, including the Main Northern Railway Line, Glennies Creek Power Station and Mt Owen Rail Spur	Safe, serviceable and repairable, unless the owner agrees otherwise in writing
Public Safety	
Public Safety	No additional risk due to mining

Note: These subsidence impact performance measures should be read in conjunction with the conditions relating to rehabilitation at the end of this Schedule.

First Workings

29. The Proponent shall not carry out first workings on site that are inconsistent with the approved mine plans without the written approval of the Director-General.

Extraction Plan

30. The Proponent shall prepare and implement an Extraction Plan for all second workings on site to the satisfaction of the Director-General. This plan must:
- (a) be prepared by a team of suitably qualified and experienced persons whose appointment has been endorsed by the Director-General;
 - (b) be approved by the Director-General before the Proponent undertakes any second workings covered by the plan;
 - (c) include detailed plans of the proposed second workings and any associated surface development;
 - (d) include detailed performance indicators for each of the performance measures in Table 17;
 - (e) describe the measures that would be implemented to ensure compliance with the performance measures in Table 17, and remediate any predicted subsidence impacts and/or environmental consequences;

- (f) provide revised predictions of the conventional and non-conventional subsidence effects, subsidence impacts and environmental consequences of the proposed second workings, incorporating any relevant information obtained since this approval, that specifically addresses the incremental and cumulative subsidence effects and impacts of multi-seam mining;
- (g) include the following to the satisfaction of **DRE**:
 - a subsidence monitoring program to:
 - provide data to assist in the management of the risks associated with subsidence;
 - validate the subsidence predictions; and
 - analyse the relationship between the subsidence effects and impacts under the Extraction Plan and any ensuing environmental consequences;
 - a Built Features Management Plan, which has been prepared in consultation with the owners of such features, to manage the potential impacts and consequences of subsidence on any built features;
 - a Public Safety Management Plan to ensure public safety in the underground project area;
 - a revised Rehabilitation Management Plan;
- (h) include:
 - a revised Water Management Plan, which has been prepared in consultation with **OEH** and **NOW**, to manage the potential impacts and consequences of subsidence on surface water and groundwater resources, flooding and existing and proposed creek diversions;
 - a revised Biodiversity Management Plan, which has been prepared in consultation with **OEH**, to manage the potential impacts and consequences of subsidence on biodiversity;
 - a Land Management Plan, which has been prepared in consultation with relevant landowners, to manage the potential impacts and consequences of subsidence on land in general;
 - a revised Heritage Management Plan to manage the potential impacts and consequences of subsidence on heritage sites or values; and
 - a program to collect sufficient baseline data for future Extraction Plans.

This condition does not apply to any second workings that are covered by an existing Subsidence Management Plan approval at the date of this approval.

Payment of Reasonable Costs

- 31. The Proponent shall pay all reasonable costs incurred by the Department to engage suitably qualified, experienced and independent persons (if required) to review the adequacy of any aspect of the Extraction Plan.

SOIL & WATER

Water Supply

- 32. The Proponent shall ensure that it has sufficient water for all stages of the projects, and if necessary, adjust the scale of mining operations to match its water supply.

Note: The Proponent is required to obtain the necessary water licences for the projects under the Water Act 1912 and/or Water Management Act 2000.

Baseflow Offsets

- 33. The Proponent shall offset the loss of any baseflow to the surrounding watercourses and/or associated creeks caused by the projects to the satisfaction of the Director-General.

Notes:

- *This condition does not apply in the case of losses of baseflow which are negligible.*
- *Offsets should be provided via the retirement of adequate water entitlements to account for the loss attributable to the projects.*
- *The Proponent is not required to provide additional baseflow offsets where such offsets have already been provided under previous consents or approvals for the projects. These existing offsets are to be described and evaluated in the Surface and Ground Water Response Plan (see below).*

Compensatory Water Supply

- 34. The Proponent shall provide compensatory water supply to any landowner of privately-owned land whose water entitlements are impacted (other than an impact that is negligible) as a result of the projects, in consultation with **NOW**, and to the satisfaction of the Director-General.

The compensatory water supply measures must provide an alternative long-term supply of water that is equivalent to the loss attributed to the project. Equivalent water supply must be provided (at least on an interim basis) within 24 hours of the loss being identified.

If the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.

If the Proponent is unable to provide an alternative long-term supply of water, then the Proponent shall provide alternative compensation to the satisfaction of the Director-General.

Surface Water Discharges

35. The Proponent shall ensure that all surface water discharges from the site comply with the:
- (a) discharge limits (both volume and quality) set for the projects in any EPL; or
 - (b) relevant provisions of the POEO Act or *Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002*.

Glennies Creek and Station Creek Alluvial Aquifers

36. The Proponent shall not undertake any open cut mining operations within 150 metres of the Glennies Creek alluvial aquifer or Station Creek alluvial aquifer without the prior written approval of the Director-General. In seeking this approval, the Proponent must consult with NOW and demonstrate to the satisfaction of the Director-General that adequate safeguards have been incorporated into the Surface and Groundwater Response Plan (see below) to minimise, prevent and/or adequately offset groundwater leakage from the alluvial aquifers.

Notes: The alluvial aquifers and 150 metre buffer zones are shown conceptually on the figure in Appendix 7. This condition does not restrict the Proponent's right to construct and use water management works, access tracks, environmental bunds, remediation works and other similar works.

Creek Diversions for the Underground Project

37. The Proponent shall carry out the proposed diversions of Bettys Creek and Main Creek in the underground project area to the satisfaction of the Director-General.
38. Within 6 months of completing the construction of the diversions, the Proponent shall submit an as-executed report, certified by a practising engineer, to the Director-General and NOW.

Note: The objective of the report is to confirm that the diversions are sufficiently hydraulically and geomorphologically stable.

Xstrata Mt Owen Bettys Creek Diversions

39. The Proponent shall:
- (a) commission a suitably qualified and independent expert, whose appointment has been approved by the Director-General, to carry out a detailed survey of geotechnical, geomorphic and ecological baseline condition of the Xstrata Mt Owen Bettys Creek Diversions:
 - prior to carrying out any second workings under the creek diversions; and
 - within 6 months of completing the second workings under these creek diversions; and
 - (b) provide a copy of these surveys to the Department within a month of the completion of each survey.

Water Management Plan

40. The Proponent shall prepare and implement a Water Management Plan for the projects to the satisfaction of the Director-General. This plan must be prepared in consultation with **OEH**, NOW and **DRE**, and submitted to the Director-General for approval by the end of June 2011.

In addition to the standard requirements for management plans (see Condition 2 of Schedule 5), this plan must include:

- (a) a Site Water Balance, which must:
 - include details of:
 - sources and security of water supply;
 - water use on site;
 - water management on site; and
 - any off-site water transfers, and
 - describe what measures would be implemented to minimise clean water use on site;

- (b) a Creek Diversion Management Plan for the proposed creek diversions in the underground project area, which must:
- be consistent with any related requirements in future Extraction Plan(s); and
 - include:
 - a vision statement for the creek relocations;
 - an assessment of the water quality, ecological, hydrological and geomorphic baseline conditions within each creek;
 - the detailed design specifications for the creek relocations;
 - a construction program for the creek relocations, describing how the work would be staged, and integrated with mining operations;
 - a revegetation program for the relocated creeks using a range of suitable native species;
 - water quality, ecological, hydrological and geomorphic performance and completion criteria for the creek relocations based on the assessment of baseline conditions; and
 - a program to monitor and maintain the water quality, ecological, hydrological and geomorphic integrity of the creek diversions;
- (c) an Erosion and Sediment Control Plan, which must:
- identify activities that could cause soil erosion and generate sediment;
 - describe measures to minimise soil erosion and the potential transport of sediment to downstream waters;
 - describe the location, function and capacity of erosion and sediment control structures; and
 - describe what measures would be implemented to maintain these structures for the life of the projects;
- (d) a Surface Water Management Plan, which must include:
- detailed baseline data on surface water flows and quality in creeks and other waterbodies that could potentially be affected by the projects;
 - surface water impact assessment criteria including trigger levels for investigating any potentially adverse surface water impacts from the projects;
 - a program to monitor and assess surface water flows and quality, impacts on water users and stream health;
- (e) a Groundwater Management Plan, which must include:
- detailed baseline data of groundwater levels, yield and quality in the region, and privately-owned groundwater bores, which could be affected by the projects;
 - groundwater impact assessment criteria including trigger levels for investigating any potentially adverse groundwater water impacts from the projects; and
 - a program to monitor and assess:
 - groundwater inflows to the open cut mining operations; and
 - impacts of the projects on the region's aquifers, any groundwater bores and surrounding watercourses, in particular Glennies Creek and Station Creek and adjacent alluvium; and
- (f) a Surface and Groundwater Response Plan, which must include:
- a response protocol for any exceedances of the surface water and groundwater assessment criteria;
 - measures to offset the loss of any baseflow to watercourses caused by the projects;
 - measures to compensate landowners of privately-owned land whose water supply is adversely affected by the projects; and
 - measures to mitigate and/or offset any adverse impacts on groundwater dependent ecosystems or riparian vegetation.

BIODIVERSITY

Biodiversity Offset

41. The Proponent shall implement the offset strategy summarised in Table 18, described in the open cut and underground project EAs, and shown conceptually in the figure in Appendix 8 to the satisfaction of the Director-General.

Table 18: Biodiversity Offset Strategy for the Integra Mine Complex

Offset Areas	Minimum Size
Northern Offset Area	121 hectares
Southern Offset Area	39 hectares
Western Offset Area	94 hectares
Supplementary Offset Area	33 hectares
Bridgman Offset Area	86 hectares

42. By the end of **September 2012**, unless the Director-General agrees otherwise, the Proponent shall revise the offset strategy referred to above, in consultation with **OEH**, and to the satisfaction of the Director-General. The revised offset strategy must:
- (a) ensure provision of at least 140 hectares of Narrow-leafed Ironbark-Spotted Gum-Forest Red Gum Forest (or a suitable equivalent) to further offset the impact of the open cut project; and
 - (b) include an additional 6 hectares of Central Hunter Swamp Oak Forest (or a suitable equivalent) to offset the impact of the underground project on the Glendell Biodiversity Offset Area.

Long Term Security of Offsets

43. By the end of **September 2014**, the Proponent shall make suitable arrangements to provide appropriate long term security for all the areas in the revised offset strategy to the satisfaction of the Director-General.

Biodiversity Management Plan

44. The Proponent shall prepare and implement a Biodiversity Management Plan for the projects to the satisfaction of the Director-General. This plan must:
- (a) be prepared in consultation with **OEH**, and submitted to the Director-General for approval by the end of December 2011;
 - (b) describe how the implementation of the offset strategy would be integrated with the overall rehabilitation of the site (see below);
 - (c) include:
 - a description of the short, medium, and long term measures that would be implemented to:
 - implement the offset strategy; and
 - manage the remnant vegetation and habitat, both on site and in the offset areas;
 - detailed performance and completion criteria for the implementation of the offset strategy;
 - a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for:
 - implementing revegetation and regeneration within the offset areas, including establishment of canopy, sub-canopy (if relevant), understorey and ground strata;
 - maximising salvage and beneficial use of resources in areas that are to be impacted, including vegetative, soil and cultural heritage resources;
 - protecting vegetation and soil outside the areas to be impacted;
 - rehabilitating Bettys Creek and Main Creek;
 - managing salinity;
 - conserving and reusing topsoil;
 - undertaking pre-clearance surveys;
 - managing impacts on fauna;
 - landscaping the site to minimise visual impacts;
 - collecting and propagating seed;
 - salvaging and reusing material from the site for habitat enhancement;
 - controlling weeds and feral pests, including terrestrial and aquatic species;
 - managing grazing and agriculture on site and in the biodiversity offset areas;
 - controlling access;
 - bushfire management; and
 - managing potential conflicts between the offset areas and Aboriginal cultural heritage values;
 - a description of the potential risks to the successful implementation of the biodiversity offset strategy, and a description of the contingency measures that would be implemented to mitigate these risks;
 - a program to monitor the effectiveness of these measures, and progress against the performance and completion criteria; and
 - details of who would be responsible for monitoring, reviewing, and implementing the plan.
- 44A** The Proponent shall commission a suitably qualified, experienced and independent person approved by the Director-General to conduct an audit of all biodiversity offset areas referred to in conditions 41 and 42 above. The audit report is to be submitted to the Director-General by the end of July 2012 for approval and must:
- (a) report on current baseline data on flora and fauna within each biodiversity offset area, including the condition of all key vegetation communities;
 - (b) compare the current condition of each vegetation community within each biodiversity offset area to that surveyed in 2007, including a report on any works and/or other disturbance that has taken place since those surveys;
 - (c) evaluate the effectiveness of management measures undertaken to date in improving the biodiversity value of each biodiversity offset area; and
 - (d) recommend any additional improvement works for each biodiversity offset area and provide a schedule for their implementation.

Conservation Bond

45. Within 6 months of the approval of the Biodiversity Management Plan (see above), the Proponent shall lodge a conservation bond with the Department to ensure that the offset strategy is implemented in accordance with the performance and completion criteria of the Biodiversity Management Plan.

The sum of the bond shall be determined by:

- (a) calculating the full cost of implementing the offset strategy; and
- (b) employing a suitably qualified quantity surveyor to verify the calculated costs.

If the offset strategy is implemented to the satisfaction of the Director-General, the Director-General will release the bond. If the offset strategy is not implemented to the satisfaction of the Director-General, the Director-General will call in all or part of the conservation bond, and arrange for the satisfactory implementation of the strategy.

With the agreement of the Director-General, this bond may be combined with the rehabilitation securities administered by the Minister for Mineral Resources.

HERITAGE

Further Archaeological Investigation

46. Prior to carrying out any development in the parts of the site outlined in purple on the figure in Appendix 8, unless the Director-General agrees otherwise, the Proponent shall carry out further archaeological testing and investigation within the broader area outlined in purple on the figure in Appendix 8 to the satisfaction of the Director-General.

Heritage Management Plan

47. The Proponent shall prepare and implement a Heritage Management Plan for the projects to the satisfaction of the Director-General. This plan must:
- (a) be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the Director-General;
 - (b) be prepared in consultation with **OEH**, the Aboriginal community, the Heritage Branch, Council, local historical organisations and any relevant landowners;
 - (c) be submitted to the Director-General for approval by the end of March 2011;
 - (d) include programs/procedures for the following in relation to Aboriginal heritage management on site:
 - recording, salvaging and/or managing all Aboriginal sites, objects and deposits that are to be destroyed within the open cut project area;
 - conserving, managing and monitoring all Aboriginal sites, objects and deposits that are to be protected within the open cut project area, including the 3 scarred trees identified within the western mining area;
 - maintaining and managing access to Aboriginal sites, objects and deposits by the Aboriginal community, including provision of an appropriate Keeping Place;
 - managing the discovery of any new Aboriginal objects or skeletal remains identified during the projects; and
 - ongoing consultation and involvement of the Aboriginal community in the conservation and management of Aboriginal cultural heritage values on the site.
 - (e) include programs/ procedures for the following, in accordance with the applicable guidelines of the Heritage Branch:
 - further historical investigation of the area outlined in purple on the figure in Appendix 8 to identify the potential archaeological resources within the area,;
 - archaeological testing of the potential archaeological resources within the area outlined in purple on the figure in Appendix 8;
 - further archaeological investigation of any areas where the archaeological testing (referred to above) identifies significant archaeological deposits;
 - archaeological excavation of the known grave on site, identified as the James Halliday Glennie grave site;
 - detailed archival recording of the Dulwich property if it is to be mined, or the preparation of a detailed conservation management plan for the Dulwich property if it is not to be mined (subject to the agreement of the landowner);
 - archival recording of any other heritage items to be destroyed by the project;
 - conserving, managing, monitoring, and where appropriate, relocating any non-Aboriginal sites, objects and deposits on the site;

- interpreting the findings of the additional heritage or archaeological investigations carried out on the site; and
- managing the discovery of any new non-Aboriginal objects or skeletal remains identified during the projects.

TRANSPORT

Coal Transport

48. Deleted.

Monitoring of Coal Transport

49. The Proponent shall:
- keep accurate records of:
 - amount of coal transported from the site (on a monthly basis);
 - the date and time of each train movement from the site; and
 - make these records publicly available on its website at the end of each calendar year.

Road and Intersection Upgrade Works

50. The Proponent shall design and construct the Middle Falbrook Road intersection to the reasonable satisfaction of Council prior to commencing construction activities that require access from Middle Falbrook Road to the site.

VISUAL

Visual Amenity and Lighting

51. The Proponent shall:
- minimise the visual impacts, and particularly the off-site lighting impacts, of the projects;
 - take all practicable measures to further mitigate off-site lighting impacts from the projects; and
 - ensure that all external lighting associated with the Integra mine complex complies with *Australian Standard AS4282 (INT) 1995 - Control of Obtrusive Effects of Outdoor Lighting*, or its latest version, to the satisfaction of the Director-General.

Additional Visual Mitigation Measures

52. Upon receiving a written request from the owner of any residence on privately-owned land which has significant direct views of the mining operations on site, the Proponent shall implement additional visual mitigation measures (such as landscaping treatments or vegetation screens) on the land in consultation with the landowner. These measures must be reasonable and feasible, and directed towards minimising the visibility of the mining operations from the residence.

If within 3 months of receiving this request from the owner, the Proponent and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.

WASTE

53. The Proponent shall:
- minimise the waste generated by the projects; and
 - ensure that the waste generated by the projects is appropriately stored, handled, and disposed of, to the satisfaction of the Director-General.
54. The Proponent shall prepare and implement a Waste Management Plan for the projects to the satisfaction of the Director-General. This plan must:
- be prepared in consultation with DRE, and submitted the Director-General for approval by the end of March 2011;
 - identify the various waste streams of the projects;
 - estimate the volumes of tailings and reject material that would be generated by the projects;
 - describe and justify the proposed strategy for disposing of this waste material;
 - describe what measures would be implemented to meet the requirements set out above; and
 - include a program to monitor the effectiveness of these measures.

BUSHFIRE MANAGEMENT

55. The Proponent shall:
- ensure that the Integra mine complex is suitably equipped to respond to fires on site; and
 - assist the Rural Fire Service and emergency services as much as possible if there is a fire in the vicinity of the site.

REHABILITATION

Rehabilitation Objectives

56. The Proponent shall rehabilitate the site to the satisfaction of the Director-General of **DRE**. This rehabilitation must be generally consistent with both the rehabilitation strategy described in the open cut and underground project EAs – and depicted conceptually in the figure in Appendix 9 – and the objectives in Table 19.

Table 19: Rehabilitation Objectives

Area/Domain	Rehabilitation Objectives
Site (as a whole)	Safe, stable & non-polluting
Surface infrastructure	To be decommissioned and removed, unless the Director-General agrees otherwise
Other land affected by the projects	Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of: <ul style="list-style-type: none">local native plant species (unless the Director-General agrees otherwise); anda landform consistent with the surrounding environment
Xstrata Mt Owen Bettys Creek Diversions	Rehabilitate to the same or better geotechnical, geomorphic and ecological condition as prior to mining, unless the owner agrees otherwise
Sections of Bettys Creek and Main Creek to be undermined	Hydraulically and geomorphologically stable, with diverse habitats and ecology
Underground Project Creek Diversions	Hydraulically and geomorphologically stable, with diverse habitats and ecology
Built features	Repair to pre-mining condition or equivalent unless: <ul style="list-style-type: none">the owner agrees otherwise; orthe damage is fully restored, repaired or compensated for under the <i>Mine Subsidence Compensation Act 1961</i>
Community	Minimise the adverse socio-economic effects associated with mine closure

Progressive Rehabilitation

57. The Proponent shall carry out rehabilitation of the site progressively, that is, as soon as reasonably practicable following the disturbance.

Rehabilitation Management Plan

58. The Proponent shall prepare and implement a Rehabilitation Management Plan for the Integra mine complex to the satisfaction of the Director-General of **DRE**. This plan must:
- be prepared in consultation with the Department, DEECW, NOW, Council and the CCC;
 - be prepared in accordance with any relevant **DRE** guideline;
 - build, to the maximum extent practicable, on the other management plans required under this approval; and
 - be submitted to the Director-General of **DRE** for approval by the end of June 2011.

SCHEDULE 4 ADDITIONAL PROCEDURES

NOTIFICATION OF LANDOWNERS

1. By the end of December 2010, the Proponent shall:
 - (a) notify in writing the owners of:
 - the land listed in Table 1 of Schedule 3 that they have the right to require the Proponent to acquire their land at certain stages during the projects;
 - any residence on the land listed in Table 1 (noise-affected) or Table 6 of Schedule 3 that they are entitled to ask for additional noise mitigation to be installed at their residence at certain stages during the projects;
 - any residence on the land listed in Table 1 (air quality-affected) or Table 16 of Schedule 3 that they are entitled to ask for additional air quality mitigation measures to be installed at their residence at certain stages of the projects; and
 - any privately-owned land within 2 kilometres of any approved open cut mining pit on site that they are entitled to ask for an inspection to establish the baseline condition of any buildings or structures on their land, or to have a previous property inspection report updated; and
 - (b) send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the owners and/or existing tenants of any land (including mine-owned land) where the predictions in the open cut or underground project EAs identify that the dust emissions from the projects are likely to be greater than the relevant air quality criteria in Schedule 3 at some stage during the projects.
2. Within 2 weeks of obtaining monitoring results showing:
 - (a) an exceedance of the relevant criteria in Schedule 3, the Proponent shall notify the affected landowner and/or tenants in writing of the exceedance, and provide regular monitoring results to each of these parties until the projects are complying with the relevant criteria again;
 - (b) an exceedance of the relevant criteria in Conditions 6(c) or 7 of Schedule 3, the Proponent shall notify the applicable owner in writing that they are entitled to ask for additional noise mitigation to be installed at their residence;
 - (c) an exceedance of the relevant criteria in Conditions 22, 23 of Schedule 3, the Proponent shall send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including the tenants of any mine-owned land); and
 - (d) an exceedance of the relevant criteria in Condition 24(c) of Schedule 3, the Proponent shall notify the applicable owner of any residences on the land that they are entitled to ask for additional air quality mitigation measures to be installed at their residence.

INDEPENDENT REVIEW

3. If an owner of privately-owned land considers the projects to be exceeding the relevant criteria in Schedule 3, then he/she may ask the Director-General in writing for an independent review of the impact of the projects on his/her land.

If the Director-General is satisfied that an independent review is warranted, then within 2 months of the Director-General's decision the Proponent shall:

 - (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to:
 - consult with the landowner to determine his/her concerns;
 - conduct monitoring to determine whether the projects are complying with the relevant criteria in Schedule 3; and
 - if the projects are not complying with these criteria then:
 - determine if more than one mine is responsible for the exceedance, and if so the relative share of each mine towards the impact on the land;
 - identify the measures that could be implemented to ensure compliance with the relevant criteria; and
 - (b) give the Director-General and landowner a copy of the independent review.
4. If the independent review determines that the projects are complying with the relevant criteria in Schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.

If the independent review determines that the projects are not complying with the relevant criteria in Schedule 3, and that the projects are primarily responsible for this non-compliance, then the Proponent shall:

- (a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent person, and conduct further monitoring until there is compliance with the relevant criteria; or
- (b) secure a written agreement with the landowner to allow the exceedances of the relevant criteria, to the satisfaction of the Director-General.

If the independent review determines that the projects are not complying with the relevant acquisition criteria in Schedule 3, and that the projects are primarily responsible for this non-compliance, then upon receiving a written request from the landowner, the Proponent shall acquire all or part of the landowner's land in accordance with the procedures in Conditions 6-7 below.

5. If the independent review determines that the relevant criteria in Schedule 3 are being exceeded, but that more than one mine is responsible for this exceedance, then together with the relevant mine/s the Proponent shall:
 - (a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent person, and conduct further monitoring until there is compliance with the relevant criteria; or
 - (b) secure a written agreement with the landowner to allow exceedances of the relevant criteria, to the satisfaction of the Director-General.

If the independent review determines that relevant acquisition criteria in Schedule 3 are being exceeded, but that more than one mine is responsible for the exceedance, then upon receiving a written request from the landowner, the Proponent shall acquire all or part of the landowner's land on as equitable a basis as possible with the relevant mine/s in accordance with the procedures in Conditions 6-7 below.

LAND ACQUISITION

6. Within 3 months of receiving a written request from a landowner with acquisition rights, the Proponent shall make a binding written offer to the landowner based on:
 - (a) the current market value of the landowner's interest in the land at the date of this written request, as if the land was unaffected by the projects, having regard to the:
 - existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and
 - presence of improvements on the land and/or any approved building or structure which has been physically commenced on the land at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of any additional mitigation measures required under Conditions 6,7 or 24 of Schedule 3;
 - (b) the reasonable costs associated with:
 - relocating within the Singleton or Muswellbrook local government areas, or to any other local government area determined by the Director-General; and
 - obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and
 - (c) reasonable compensation for any disturbance caused by the land acquisition process.

However, if at the end of this period, the Proponent and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Director-General for resolution.

Upon receiving such a request, the Director-General will request the President of the NSW Division of the Australian Property Institute (the API) to appoint a qualified independent valuer to:

- consider submissions from both parties;
- determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above;
- prepare a detailed report setting out the reasons for any determination; and
- provide a copy of the report to both parties.

Within 14 days of receiving the independent valuer's report, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.

However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Director-General for review. Any request

for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Director-General will determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above, the independent valuer's report, the detailed report disputing the independent valuer's determination, and any other relevant submissions.

Within 14 days of this determination, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the Director-General's determination.

If the landowner refuses to accept the Proponent's binding written offer under this condition within 6 months of the offer being made, then the Proponent's obligations to acquire the land shall cease, unless the Director-General determines otherwise.

7. The Proponent shall pay all reasonable costs associated with the land acquisition process described in Condition 6 above, including the costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.
-

SCHEDULE 5 ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

1. The Proponent shall prepare and implement an Environmental Management Strategy for the projects to the satisfaction of the Director-General. This strategy must:
 - (a) be submitted to the Director-General for approval by the end of March 2011;
 - (b) provide the strategic framework for the environmental management of the projects;
 - (c) identify the statutory approvals that apply to the projects;
 - (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the projects;
 - (e) describe the procedures that would be implemented to:
 - keep the local community and relevant agencies informed about the operation and environmental performance of the projects;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the course of the projects;
 - respond to any non-compliance; and
 - respond to emergencies; and
 - (f) include:
 - copies of any strategies, plans and programs approved under the conditions of this approval; and
 - a clear plan depicting all the monitoring required to be carried out under the conditions of this approval.

Management Plan Requirements

2. The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:
 - (a) detailed baseline data;
 - (b) a description of:
 - the relevant statutory requirements (including any relevant approval, licence or lease conditions);
 - any relevant limits or performance measures/criteria; and
 - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the projects or any management measures;
 - (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
 - (d) a program to monitor and report on the:
 - impacts and environmental performance of the projects; and
 - effectiveness of any management measures (see (c) above);
 - (e) a contingency plan to manage any unpredicted impacts and their consequences;
 - (f) a program to investigate and implement ways to improve the environmental performance of the projects over time;
 - (g) a protocol for managing and reporting any:
 - incidents;
 - complaints;
 - non-compliances with the conditions of this approval and statutory requirements; and
 - exceedances of the impact assessment criteria and/or performance criteria; and
 - (h) a protocol for periodic review of the plan.

Note: The Director-General may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.

Annual Review

3. By the end of March 2012, and annually thereafter, the Proponent shall review the environmental performance of the projects to the satisfaction of the Director-General. This review must:
 - (a) describe the development (including any rehabilitation) that was carried out in the past year, and the development that is proposed to be carried out over the next year;
 - (b) include a comprehensive review of the monitoring results and complaints records of the projects over the past year, which includes a comparison of these results against the:
 - relevant statutory requirements, limits or performance measures/criteria;
 - monitoring results of previous years; and

- relevant predictions in the documents referred to in Conditions 2 or 3 of Schedule 2;
- (c) identify any non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;
- (d) identify any trends in the monitoring data over the life of the projects;
- (e) identify any discrepancies between the predicted and actual impacts of the projects, and analyse the potential cause of any significant discrepancies; and
- (f) describe what measure will be implemented over the next year to improve the environmental performance of the projects.

Revision of Strategies, Plans & Programs

4. Within 3 months of:
 - (a) the submission of an annual review under Condition 3 above;
 - (b) the submission of an incident report under Condition 6 below;
 - (c) the submission of an audit report under Condition 8 below, or
 - (d) any modification of the conditions of this approval (unless the conditions require otherwise),
 the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Director-General.

Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the projects.

Community Consultative Committee

5. The Proponent shall establish and operate a new Community Consultative Committee (CCC) for the projects in general accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects* (Department of Planning, 2007, or its latest version), and to the satisfaction of the Director-General. This CCC must be operating by the end of March 2011.

Notes:

- *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Proponent complies with this approval;*
- *In accordance with the guideline, the Committee should be comprised of an independent chair and appropriate representation from the Proponent, Council, recognised environmental groups and the local community;*
- *The new CCC may be comprised of members of the existing CCCs for the Integra mine complex at the date of this approval; and*
- *Prior to March 2011, the responsibilities of the CCC under this approval may be exercised by the existing CCCs for the Integra mine complex.*

REPORTING

Incident Reporting

6. The Proponent shall notify the Director-General and any other relevant agencies of any incident associated with the projects as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.

Regular Reporting

7. The Proponent shall provide regular reporting on the environmental performance of the projects on its website, in accordance with the reporting arrangements in any approved plans or programs of the conditions of this approval.

INDEPENDENT ENVIRONMENTAL AUDIT

8. By the end of December 2011, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the projects. This audit must:
 - (a) be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;
 - (b) include consultation with the relevant agencies;
 - (c) assess the environmental performance of the projects and whether they are complying with the relevant requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals);
 - (d) review the adequacy of any approved strategies, plans or programs required under these approvals; and, if appropriate

- (e) recommend measures or actions to improve the environmental performance of the projects, and/or any strategy, plan or program required under these approvals.

Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Director-General.

9. Within 6 weeks of the completing of this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, together with its response to any recommendations contained in the audit report.

ACCESS TO INFORMATION

10. From the end of December 2010, the Proponent shall:
- (a) make copies of the following publicly available on its website:
- the documents referred to in Conditions 2 and 3 of Schedule 2;
 - all current statutory approvals for the projects;
 - all approved strategies, plans and programs required under the conditions of this approval;
 - the monitoring results of the projects, reported in accordance with the specifications in any conditions of this approval, or any approved plans or programs;
 - a complaints register, updated on a monthly basis;
 - minutes of CCC meetings;
 - the annual reviews of the projects;
 - any independent environmental audit of the projects, and the Proponent's response to the recommendations in any audit; and
 - any other matter required by the Director-General;
- (b) keep this information up-to-date, to the satisfaction of the Director-General.
-

APPENDIX 1 SCHEDULE OF LAND

Underground Project Area

Lot Number	Deposited Plan Number
8	6830
10	6830
11	6830
12	6830
13	6830
17	6830
21	6830
791	580967
792	586255
1	600327
2	600327
3	600327
4	600327
1	606344
2	606344
3	606344
4	606344
1	608457
2	622070
710	624852
71	625171
1	626854
100	633743
1	655758
1	701939
2	701939
3	701939
1	745211
1	741653
PT79	752442
93	752442
2	752450
10	752450
64	752499
65	752499
66	752499
622	1097524
1	770733
2	770733
1	780607
2	780607
1	781057
1	783398
532	788015
1	799154
332	832646
12	835203
921	844642
922	844642
923	844642
111	850054
112	850054
1	851867
2	851867
3	851867
4	851867
5	851867
6	851867
7	851867
8	851867
2	859544
3	859544
5	859544
6	859544
7	859544

Lot Number	Deposited Plan Number
8	859544
924	862883
925	862883
1	865784
Pt1	940619
1	998045
1	1009231
123	1067863
1	1083482
560	1104561
G	37613
1	113540
2	113540
1	246434
2	246434
4	246434
5	246434
6	246434
5	264089
1	597205
2	597205
1	628652
2	628652
1	725247
174	729917
22	752442
91	752442
92	752442
2	752450
6	752450
10	752450
120	752450
43	752455
75	752455
77	752455
78	752455
98	752455
70	777661
1	802596
2	802596
1	810309
233	829334
235	829334
237	829334
239	829334
240	829334
12	855251
1	873260
2	873260
7	1075078
1	1083482
2	1083482
1	1111102
2	1111102
3	1111102
4	1111102
6	1111104
Access Road	
5	113540
32	752455
44	752455
45	752455
73	752455
74	752455
75	752455
76	752455
78	752455
86	752455
95	752455

Open Cut Project Area

Lot Number	Deposited Plan Number
1	264434
2	752450
44	752455
1/95	752455
G	37613
76	752455
98	752455
710	624852
2	1083482
6	246434
70	777661
3	752455
4	246434
1/100	633743
1	810309
1	212284
1	725247
233	829334
1/6	752450
2	246434
1/77	752455
2	873260
1/45	752455
1	628652
2	113540
235	829334
1	802596
240	829334
2	597205
2	810309
2	810309
1/792	586255
1/32	752455
91	752442
92	752442
5	264089
1/73	752455
12	855251
237	829334
2	212284
1	752450
2	628652
1/239	829334
1/136	752455
1/791	580967
174	729917
51	551899
22	752442
5	246434
8	246434
1/4	113540
1/4	606344
231	829334
1	597205
1/213	106786
1/74	752455
2	802596
8	251618
1/93	752422
1/10	752450
75	752455
1/43	752455
7	113538
1/86	752455
1/1	783398
78	752455
1/120	752450
71	777661

Lot Number	Deposited Plan Number
1	113540
1	873260
1	1075078
1	1083482

APPENDIX 2 PREVIOUS EAS

Glennies Creek Colliery (105/90)

- Environmental Impact Statement (EIS) dated 20 August 1990 prepared by Dames & Moore in accordance with Section 77(3) of the Environmental Planning and Assessment Act, and certified by Warren Atkinson and supplementary information supplied by the Applicant to the Singleton Shire Council ("the Council") by letters dated 20 November 1990, 19 February 1991, submissions to Commission of Inquiry;
- The Statement of Environmental Effects in support of a Section 96(2) Application for the Glennies Creek Coal Mine, dated July 1998, prepared by R.W. Corkery and Co Pty Ltd;
- Statement of Environmental Effects in support of a Section 96(2) application for the Glennies Creek Coal Mine, dated June 2001, prepared by R.W. Corkery and Co Pty Ltd;
- The Statement of Environmental Effects in support of an application to Modify the Development Consent for the Glennies Creek Coal Mine, dated December 2001, prepared by Mr Bob Corbett, Manager – Environmental Services with AMCI Australia Pty Ltd; Letter from Bob Corbett to NPWS/PlanningNSW dated the 23 April 2002 regarding flora and fauna issues; Air Quality Impact Assessment: Glennies Creek Ventilation Shaft dated the 19 April 2002, prepared by Holmes Air Science; Letter from Bob Corbett to EPA/PlanningNSW dated the 15 May 2002 regarding additional information requested on air quality; and Archaeological Assessment prepared by John Appleton dated April 2002;
- The information provided in support of a Section 96(1A) application, dated January 2005, prepared by Glennies Creek Coal Management Pty Ltd; and the Statement of Environmental Effects in support on an application to modify the Development Consent for the Glennies Creek Colliery, dated November 2005, prepared by Glennies Creek Coal Management Pty Ltd; and
- The Statement of Environmental Effects prepared by Environmental Resources Management Pty Ltd dated May 2008 to support the Section 96(1A) application by Integra Coal Operations dated May 2008.

Camberwell Coal Project (86/2889)

- Camberwell Coal Project, Glennies Creek - Environmental Impact Statement, dated October, 1989, as modified by the works set out in figures 1 and 2 attached to the April 1992 Notice of Amendment;
- Camberwell Coal Pty Limited to the Singleton Shire Council letter dated 21 December, 1989 advising on rail facilities;
- Letter from Camberwell Coal Pty Limited to the Singleton Shire Council, dated 29 January, 5 February, 6 February, 1990;
- Responses to letters of objection submitted to Council by Camberwell Coal Pty Limited dated 25 January, 1990;
- Responses by Camberwell Coal Pty Limited to comments submitted by government bodies, dated 5 February, 1990;
- Statement of Environmental Effects in support of a Section 96(2) application for the Camberwell Coal Mine, dated 2 July 2001, prepared by HLA-Envirosciences Pty Ltd;
- Additional information provided by PJ Murray in response to submissions received on the proposal in a letter dated 29 August 2001;
- Information provided by Camberwell coal Pty Limited accompanying the application to modify development consent received 20 November 2003;
- Statement of Environmental Effects in support of a Section 96(2) application for the Camberwell Coal Mine, dated July 2004, prepared by David Lane Associates;
- Statement of Environmental Effects Coal Handling and Preparation Plant Upgrade Camberwell Coal Mine, dated 31 March 2005, prepared by HLA Envirosciences Pty Limited;
- Statement of Environmental Effects Coal Handling and Preparation Plant Workshop, dated 31 July 2006, prepared by Camberwell Coal Pty Limited;
- Environmental Assessment for the Proposed Modification of Development Consent DA 86/2889 Integra Open Cut Increase in Annual ROM (ROM) Coal Production from 3.8Mt to 4.5Mt, dated 29 February 2008, prepared by Integra Coal Operations Pty Ltd; and
- Statement of Environmental Effects titled Relocation of Explosives Magazine Compound and Reload Facilities, dated 22 March 2010, prepared by Integra Coal Operations Pty Limited.

Glennies Creek Colliery Surface Facilities (06_0057)

- Environmental Assessment titled Glennies Creek Colliery Environmental Assessment of Surface Facilities and Activities dated July 2006, and the associated response to submissions, titled Responses to Issues Raised in Submissions (Project Application 06_0057) dated 23 October 2006 prepared by Glennies Creek Coal Management Pty Ltd;
- Letter from the Proponent to the Department amending the project application, dated 3 October 2006;
- Modification application and supporting information titled Proposed Modifications to Forest Road Ventilation Shaft Area, dated October 2008; and
- Modification application and supporting information titled Supporting Information for a s75W Application to Modify Condition 16 of Schedule 3, Project Approval (PA) 06_0057 – Integra Coal Operations Pty Ltd, dated June 2009.

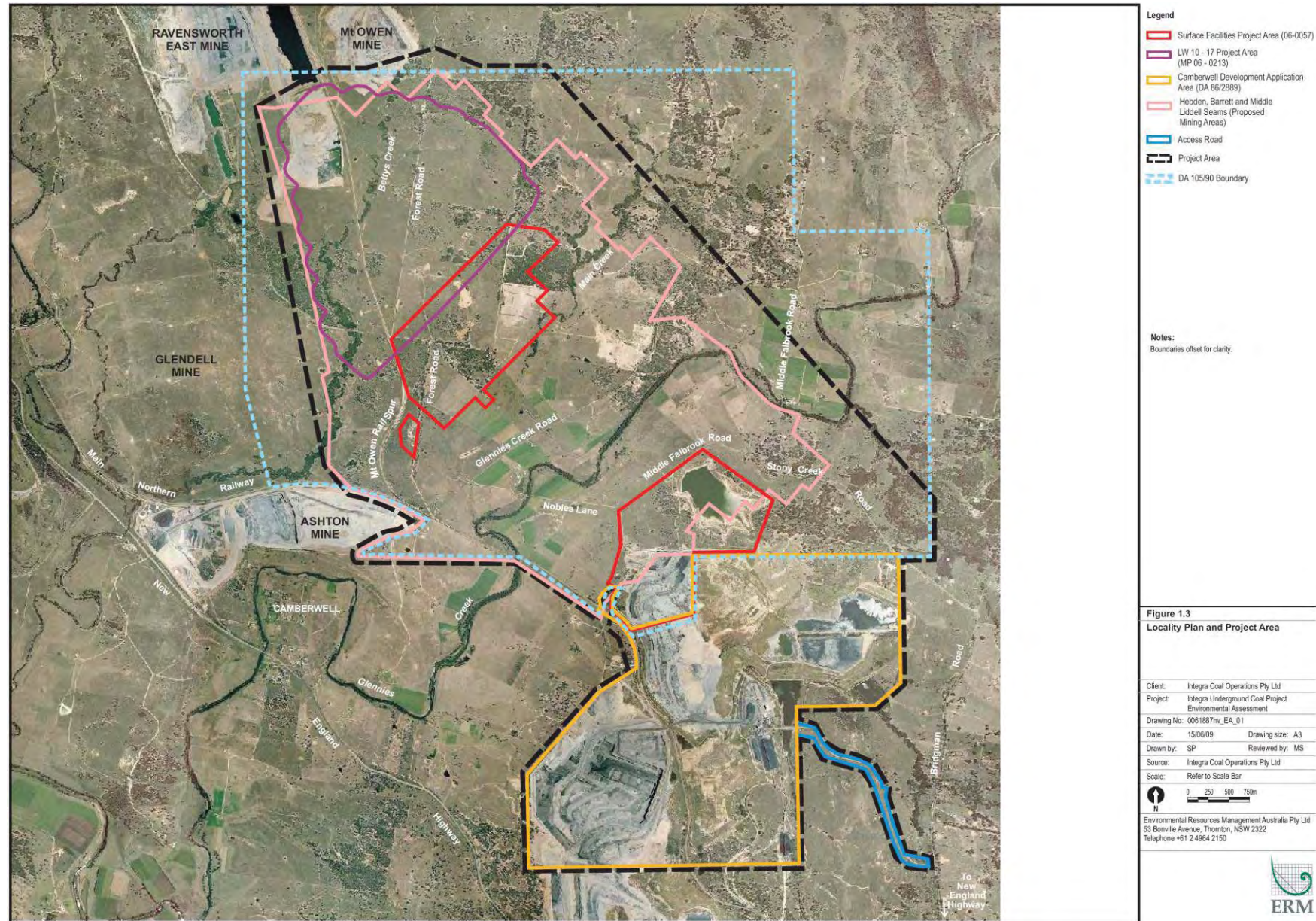
Glennies Creek Underground Coal Project (06_0213)

- Environmental Assessment titled Glennies Creek Colliery Longwalls 10 to 17 Part 3A Environmental Assessment for Integra Coal Operations Pty Limited dated 19 September 2007, and the associated response to submissions, titled Glennies Creek Part 3A Application – Longwall Panels 10-17 Middle Liddell Seam Response to Submissions, dated February 2008 prepared by Environmental Resources Management Australia Pty Ltd.

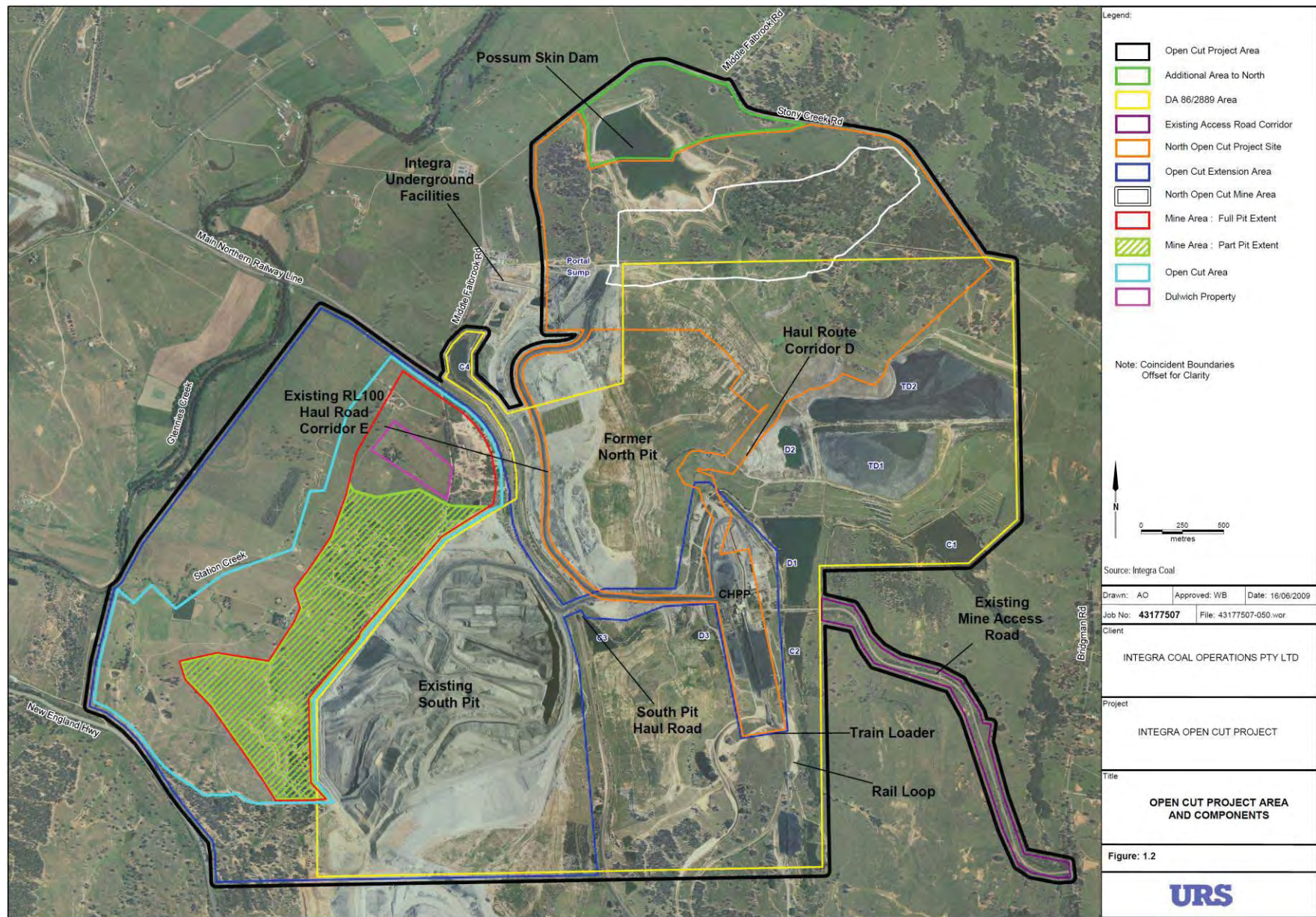
Glennies Creek Open Cut Coal Project (06_0073)

- Environmental Assessment titled Environmental Assessment Glennies Creek Open Cut Coal Mine, Volumes 1-3, dated October 2007, and the associated responses to submissions, titled Response to Government Agency Submissions Glennies Creek Open Cut Coal Mine, dated February 2008 and Supplementary Response to Government Agency Submissions Glennies Creek Open Cut Coal Mine, dated June 2008 prepared by RW Corkery & Co Pty Ltd.

APPENDIX 3 PROJECT AREAS

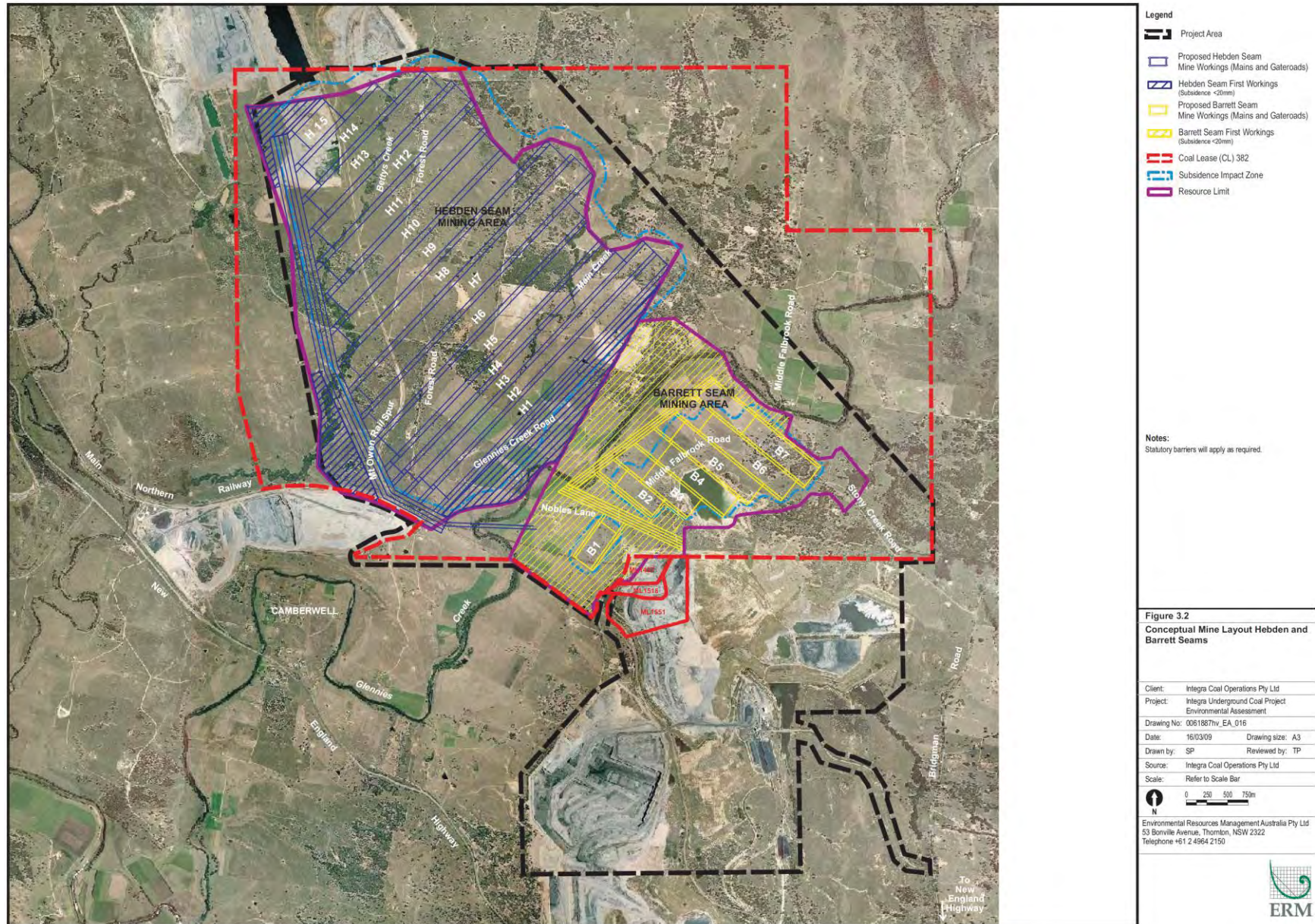


Underground Project Area

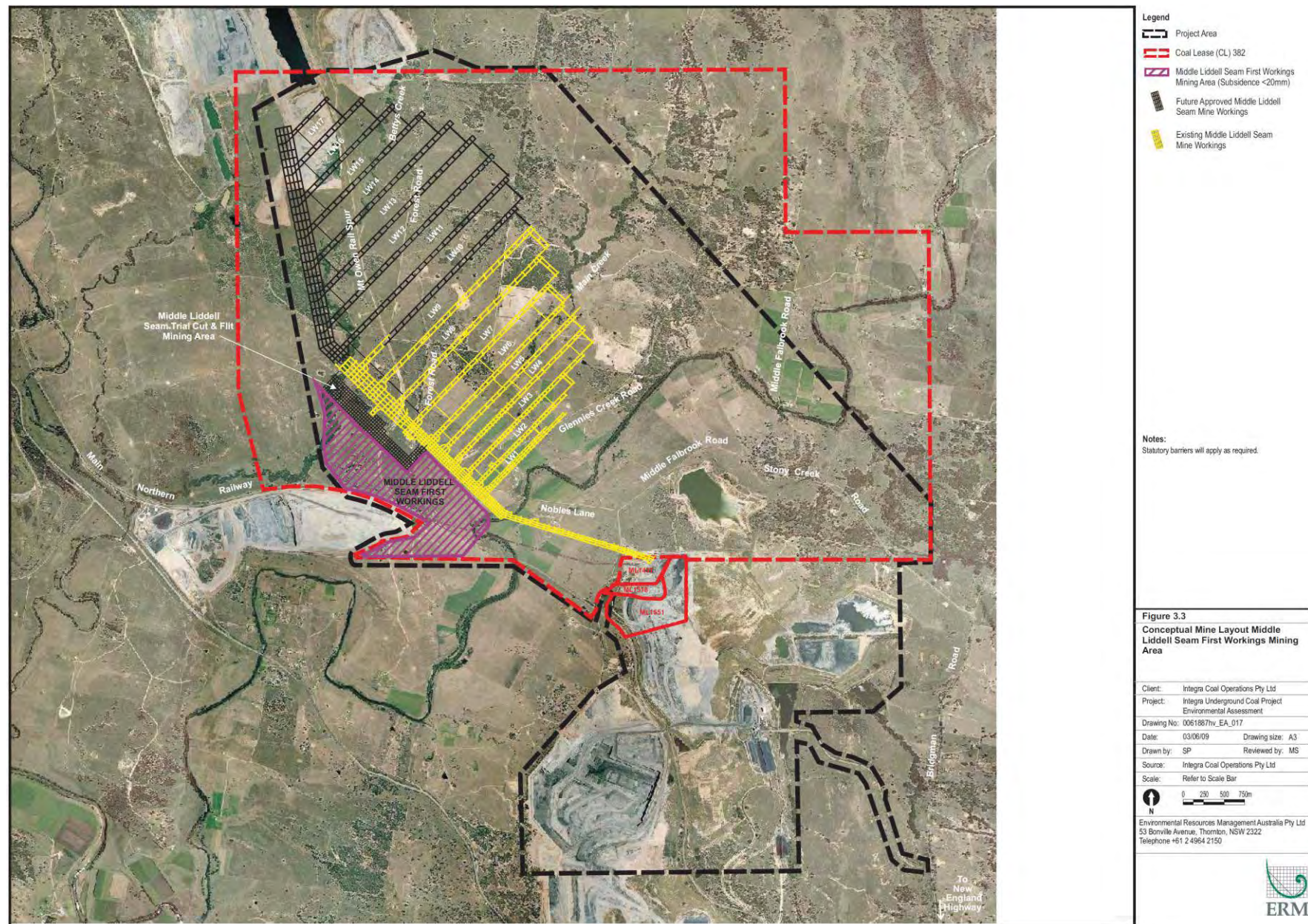


Open Cut Project Area

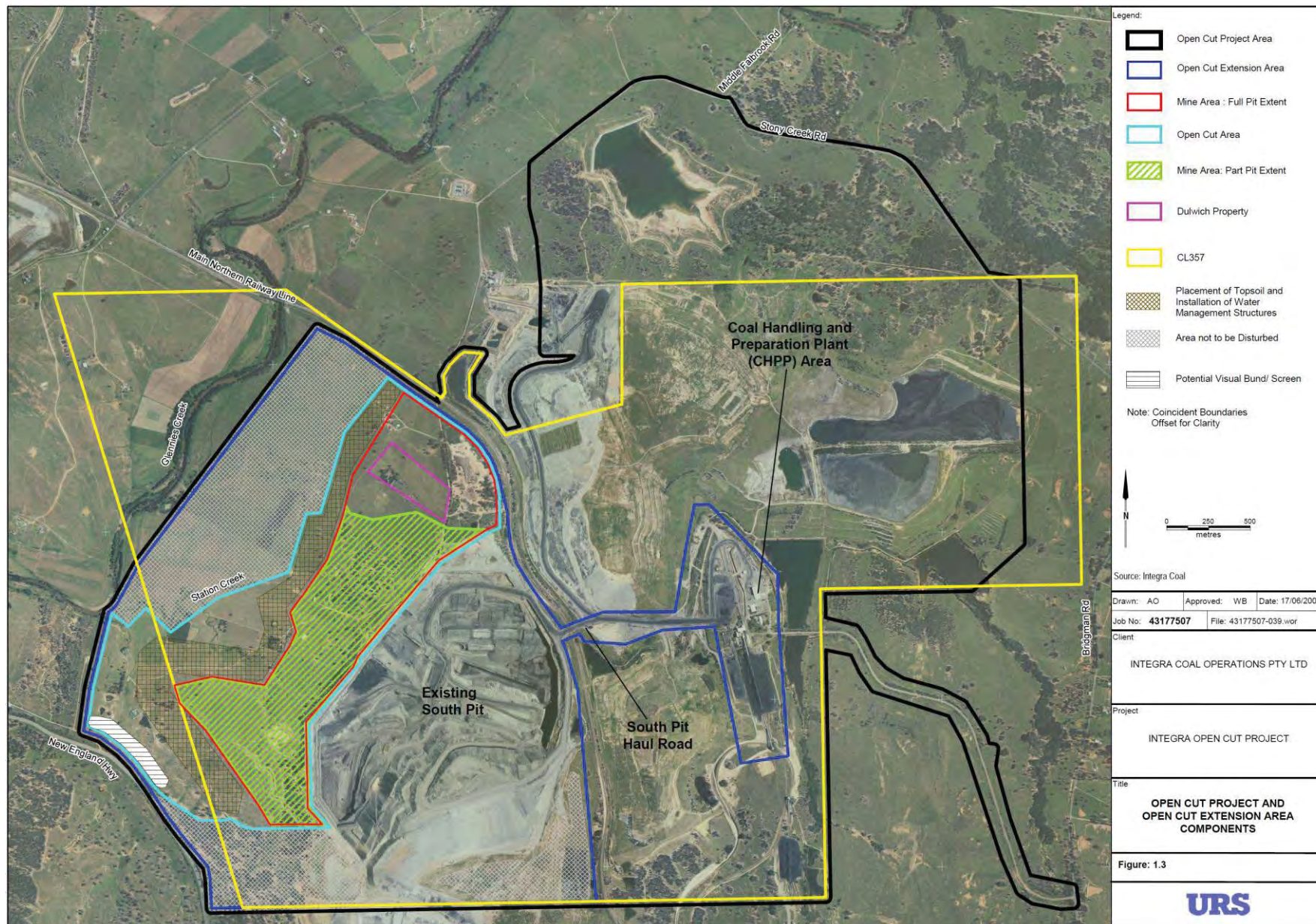
APPENDIX 4 PROJECT LAYOUT PLANS



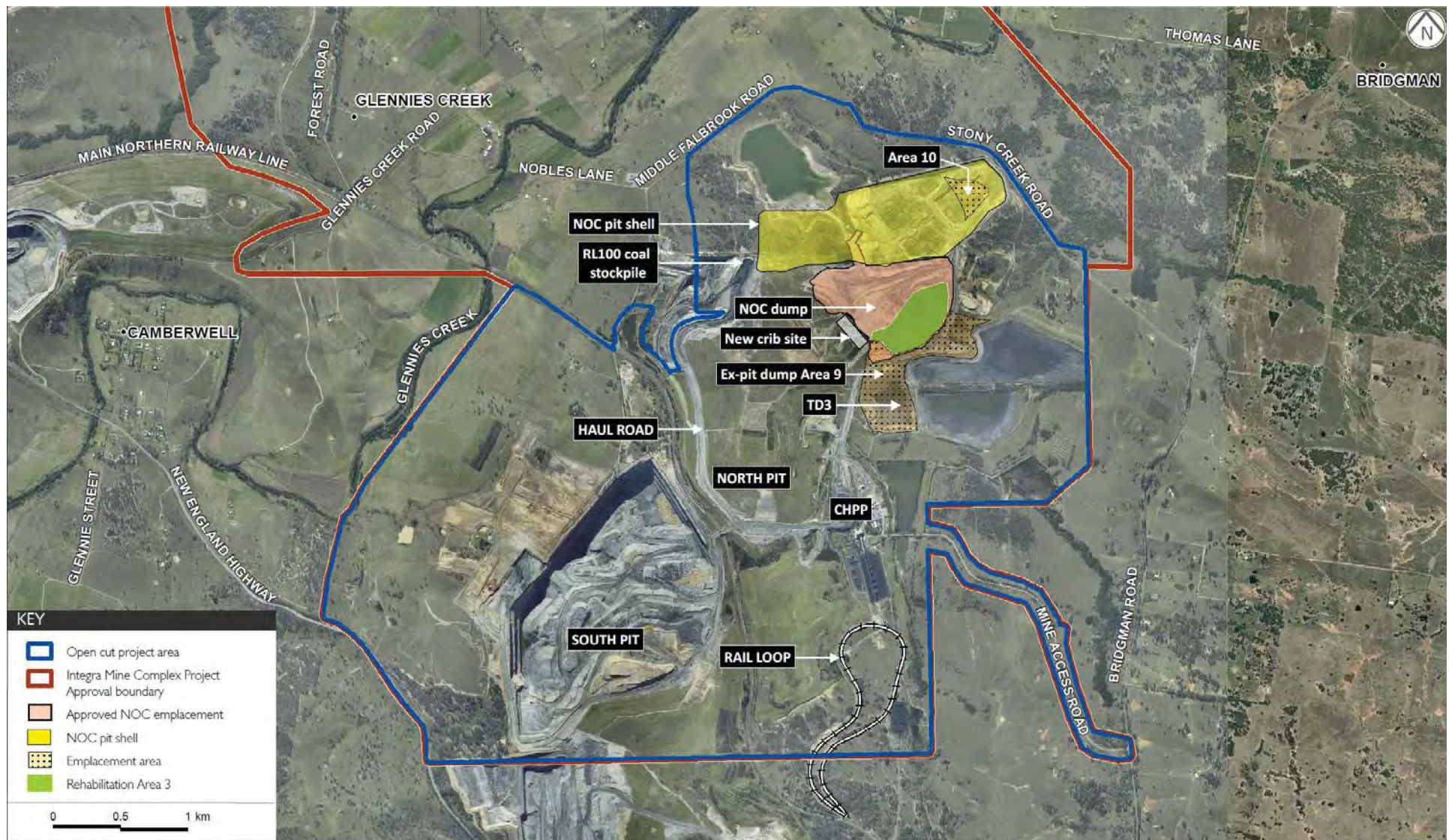
Hebden and Barrett Mining Areas



Middle Liddell Mining Areas

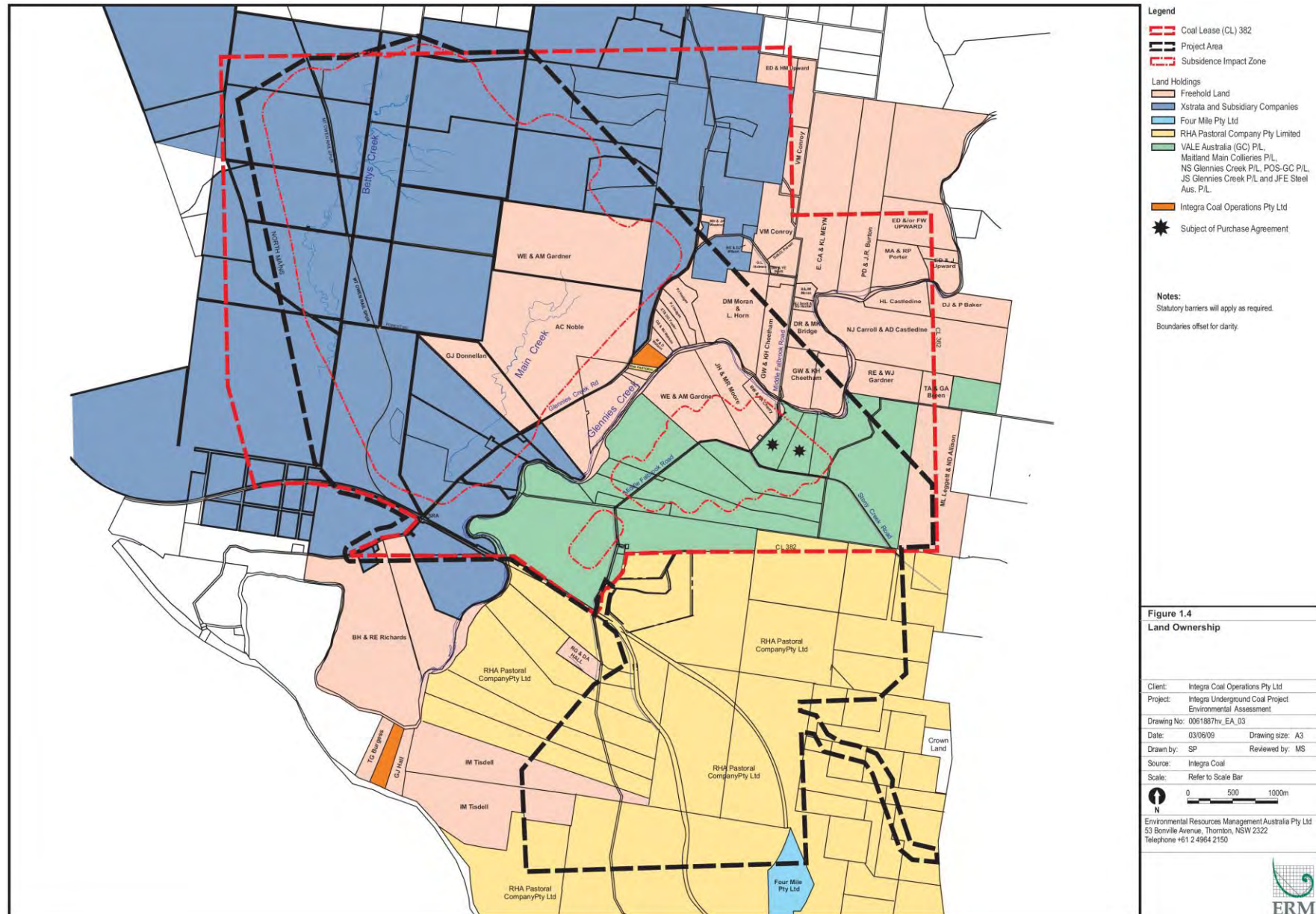


Western Mining Area and Surface Infrastructure



Modification 1 – Overburden Emplacement Area 9 and Crib Site Relocation

APPENDIX 5 LAND OWNERSHIP PLANS & RESIDENTIAL RECEIVERS



Legend

- Coal Lease (CL) 382
- Project Area
- Subsidence Impact Zone

Land Holdings

- Freehold Land
- Xstrata and Subsidiary Companies
- Four Mile Pty Ltd
- RHA Pastoral Company Pty Limited
- VLE Australia (GC) P/L
- Maitland Main Collieries P/L
- NS Glenties Creek P/L, POS-GC P/L, JS Glenties Creek P/L and JFE Steel Aus. P/L
- Integra Coal Operations Pty Ltd

★ Subject of Purchase Agreement

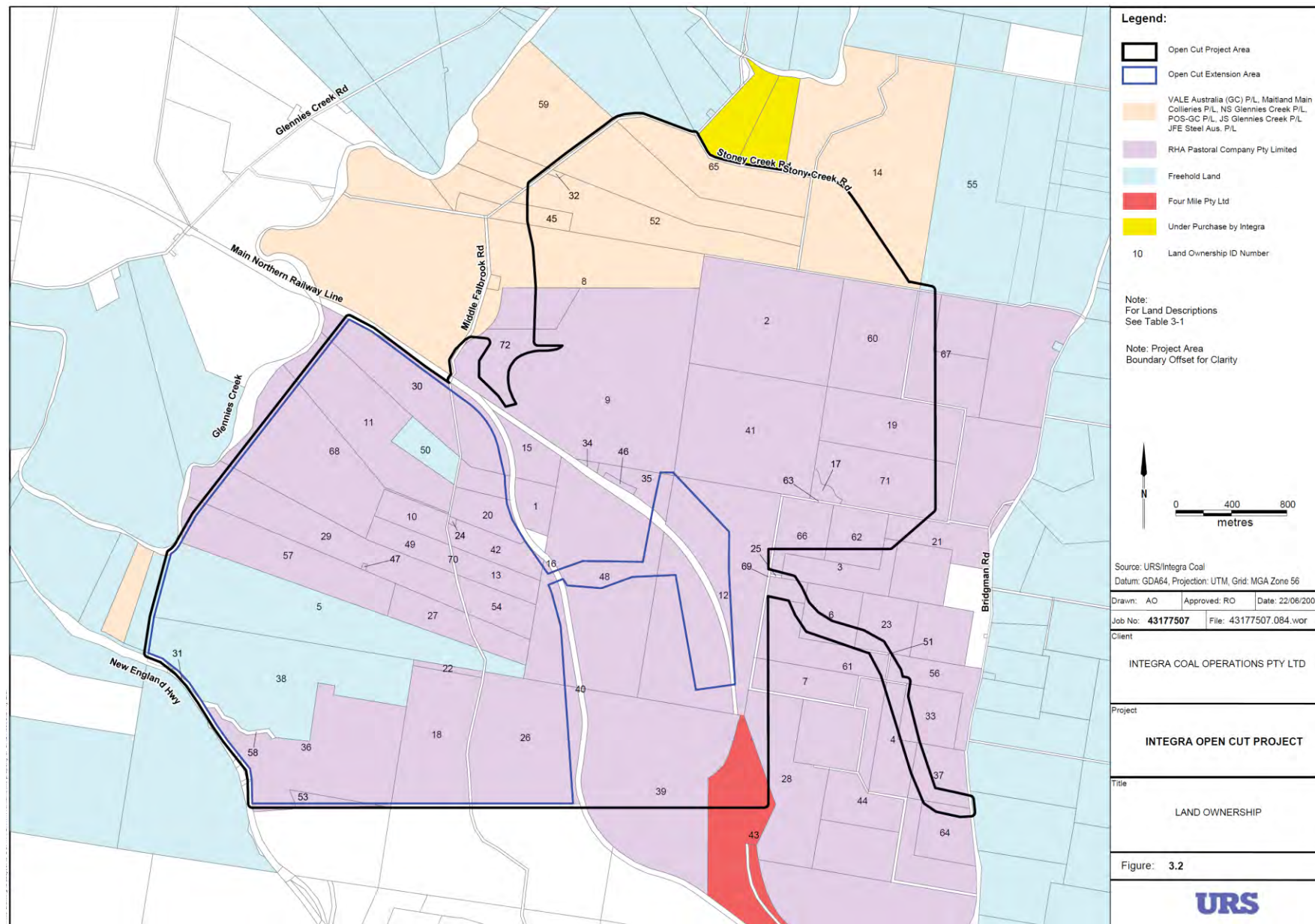
Notes:
Statutory barriers will apply as required.
Boundaries offset for clarity.

Figure 1.4
Land Ownership

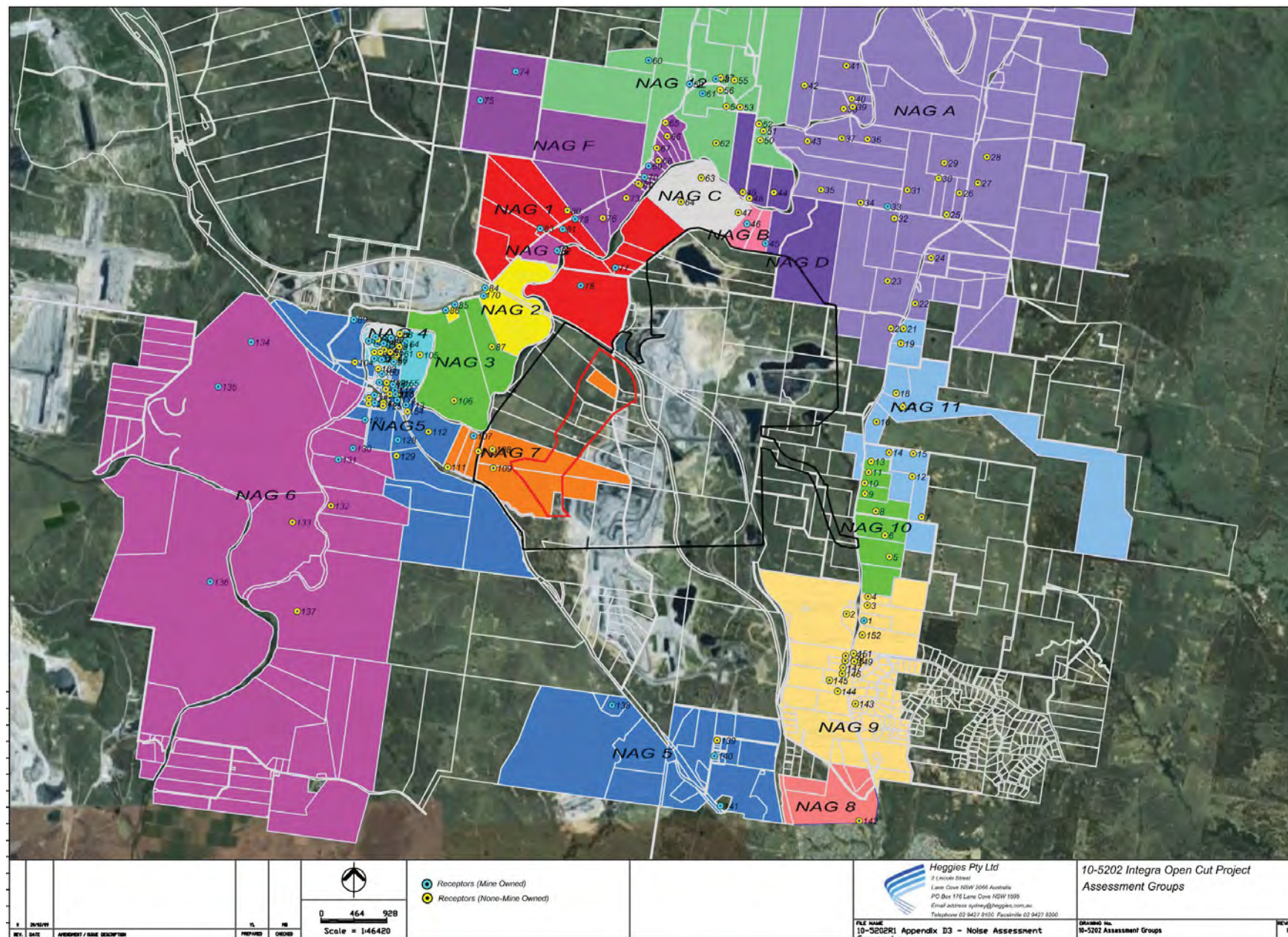
Client:	Integra Coal Operations Pty Ltd
Project:	Integra Underground Coal Project Environmental Assessment
Drawing No:	0061887nv_EA_03
Date:	03/06/09
Drawn by:	SP
Reviewed by:	MS
Source:	Integra Coal
Scale:	Refer to Scale Bar

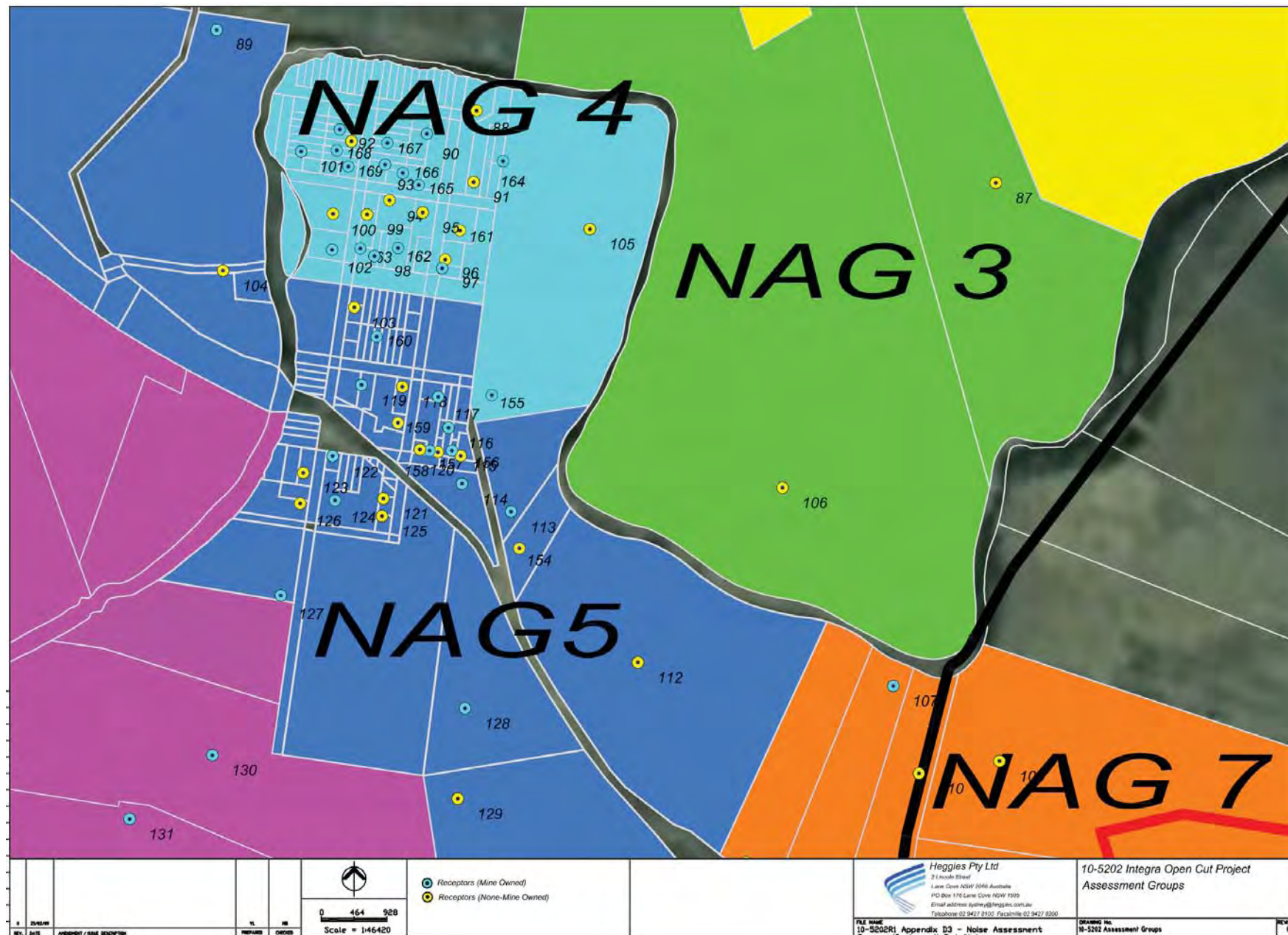
0 500 1000m

Environmental Resources Management Australia Pty Ltd
53 Bonville Avenue, Thornhill, NSW 2322
Telephone +61 2 4964 2150



Open Cut Project Land Ownership (at time of EA production)





Residential Receivers in Camberwell Village

APPENDIX 6 ALTERNATE NOISE CONDITIONS

Acquisition on Request following Cessation of Open Cut Mining Operations

- Upon receiving a written request for acquisition from the owner of the land listed in Table 1, the Proponent shall acquire the land in accordance with the procedures in Conditions 6-7 of Schedule 4.

Table 1: Land subject to acquisition upon request

Noise	Subsidence
80 – G Donnellan	47 – B & R Cherry
153 – R & D Hall	

Note: To identify the locations referred to in Table 1, see the figures in Appendix 5.

NOISE

Noise Criteria

- Except for the noise-affected land referred to in Table 1, the Proponent shall ensure that the noise generated by the projects does not exceed the criteria in Table 2 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.

Table 2: Noise criteria dB(A)

		Day	Evening	Night	Night
		$L_{Aeq(15min)}$	$L_{Aeq(15min)}$	$L_{Aeq(15min)}$	$L_{A1(1min)}$
NAG 1	All privately-owned land	38	38	36	46
NAG 2	All privately-owned land	39	39	37	47
NAG 3	87	42	42	42	49
	106	39	39	39	49
	All other privately-owned land	40	40	39	49
NAG 4	88, 91, 95, 99, 100, 105, 161	35	35	35	47
	All other privately-owned land	42	42	37	47
NAG 5	111	37	37	37	52
	112	36	36	36	52
	118	39	39	39	52
	154	36	36	36	52
	103, 104, 121, 139	35	35	35	52
	All other privately-owned land	50	46	42	52
NAG 6	132, 133, 137	35	35	35	48
	All other privately-owned land	41	41	38	48
NAG 7	110	38	38	38	49
	All other privately-owned land	45	42	39	49
NAG 8	142	35	35	35	45
	All other privately-owned land	42	42	35	45
NAG 9	2, 3, 4, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152	35	35	35	48
	All other privately-owned land	40	40	38	48
NAG 10	10	42	42	42	47
	9	41	41	41	47
	11, 13	40	40	40	47
	8	38	38	38	47
	6	36	36	36	47
	5	35	35	35	47

	All other privately-owned land	39	39	37	47
NAG 11	7, 12, 14, 15, 16, 17, 18	35	35	35	49
	All other privately-owned land	41	41	39	49
NAG 12	62	37	37	37	45
	50	36	36	36	45
	51, 52, 53, 54, 55, 56, 57	35	35	35	45
	All other privately-owned land	38	38	35	45
NAG A	22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43	35	35	35	46
	All other privately-owned land	39	39	36	46
NAG B	All privately-owned land	37	37	35	45
NAG C	47	36	36	36	45
	63	37	37	37	45
	64	38	38	38	45
	All other privately-owned land	37	37	35	45
NAG D	49	36	36	36	48
	44, 48	35	35	35	48
	All other privately-owned land	40	40	38	48
NAG F	67, 68	39	39	39	50
	65, 66	37	37	37	50
	All other privately-owned land	40	40	40	50
NAG G	All privately-owned land	41	41	39	50
	All other privately-owned land	35	35	35	45

Notes:

- To identify the locations referred to in Table 2, see the applicable figures in Appendix 5; and
- Noise generated by the projects is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.

However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

Additional Noise Mitigation Measures

3.

Table 6: Land subject to noise mitigation measures on request

9 – W & N Pendered	10 – E & B Kleinman
11 – F Ferraro	13 – P & K Russell
64 – W & A Gardner	87 – B & R Richards

Note: To identify the locations referred to in Table 6, see the applicable figures in Appendix 5.

APPENDIX 7 GLENNIES CREEK AND STATION CREEK ALLUVIAL AQUIFERS

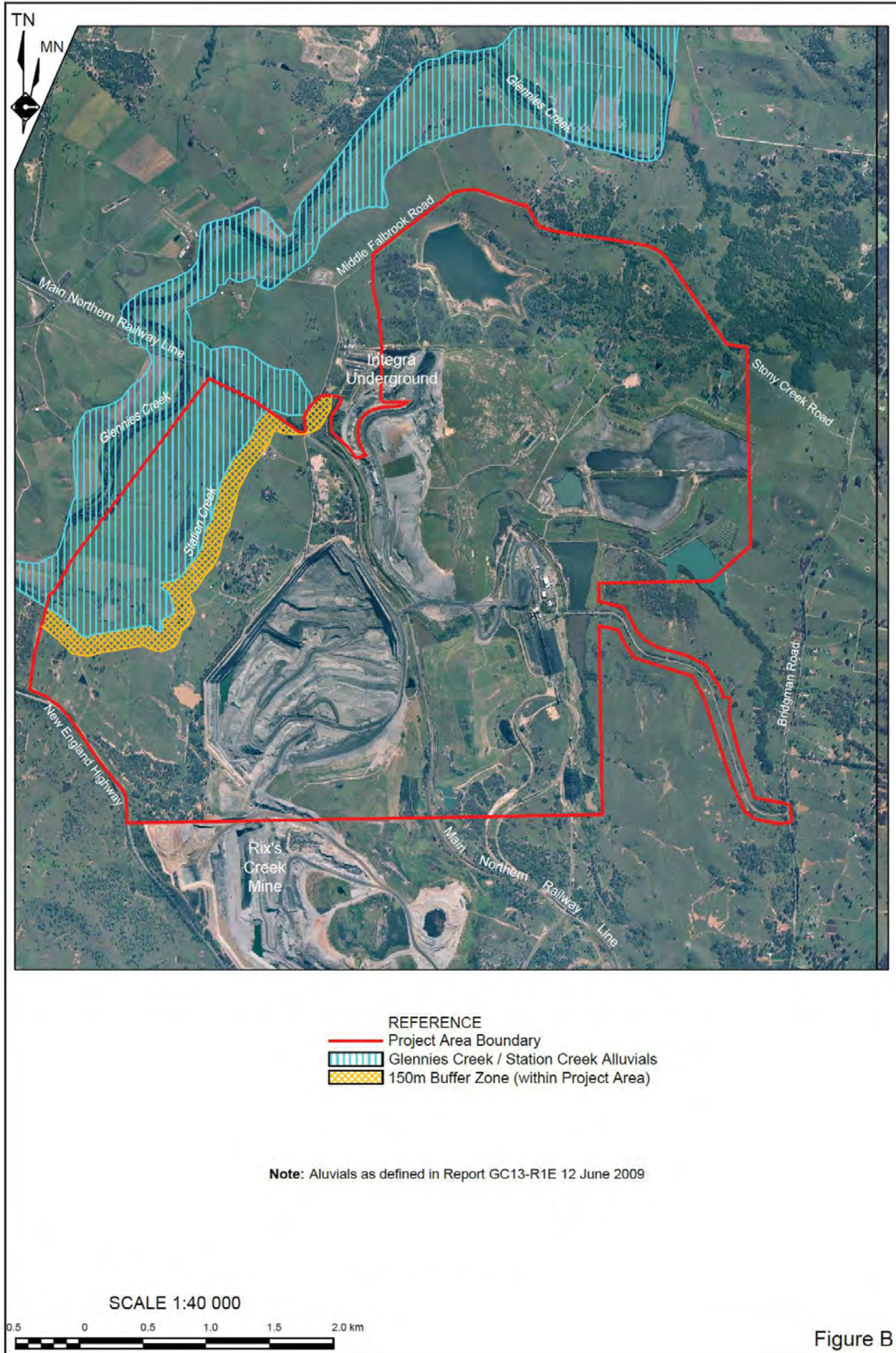
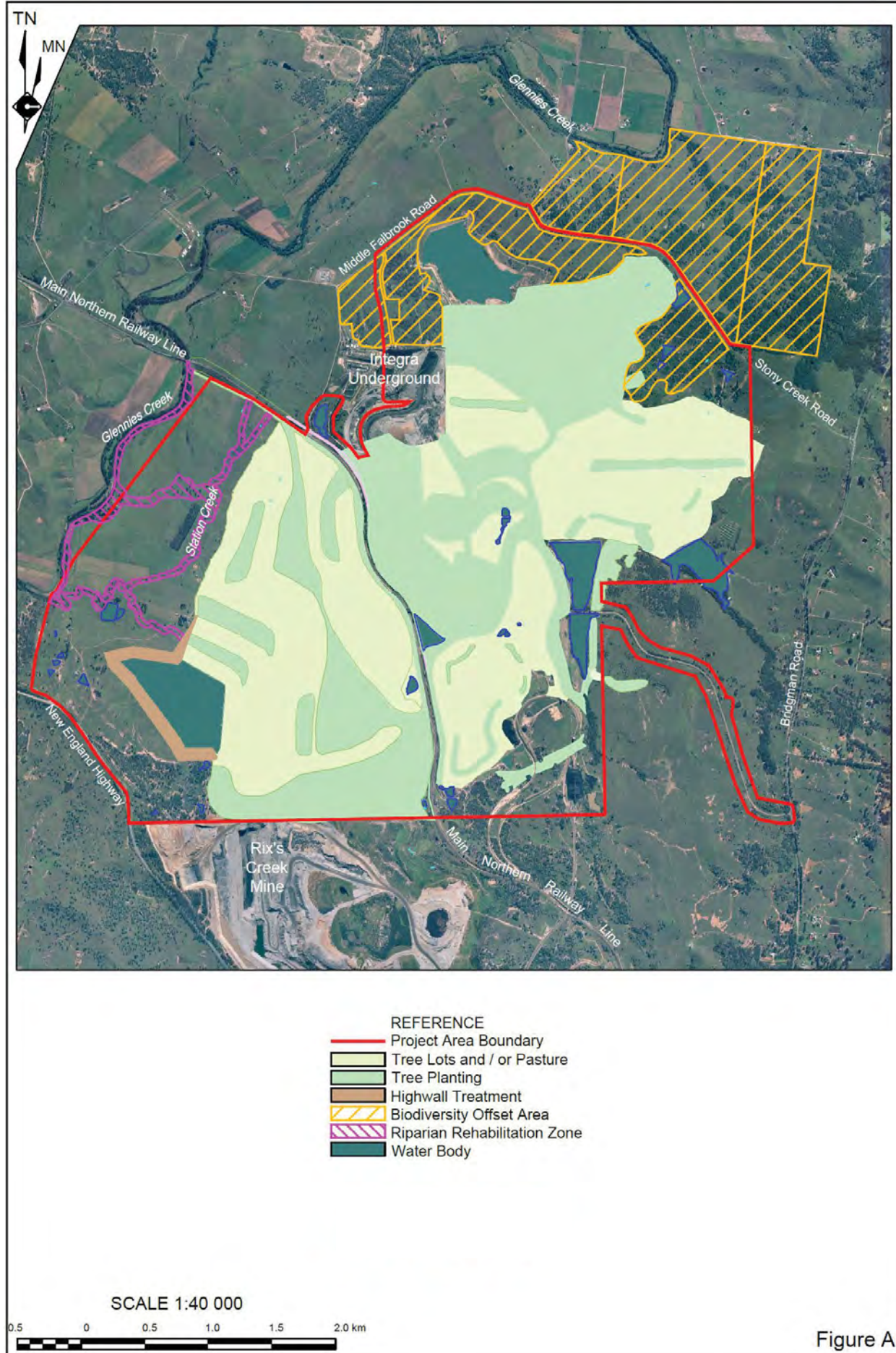


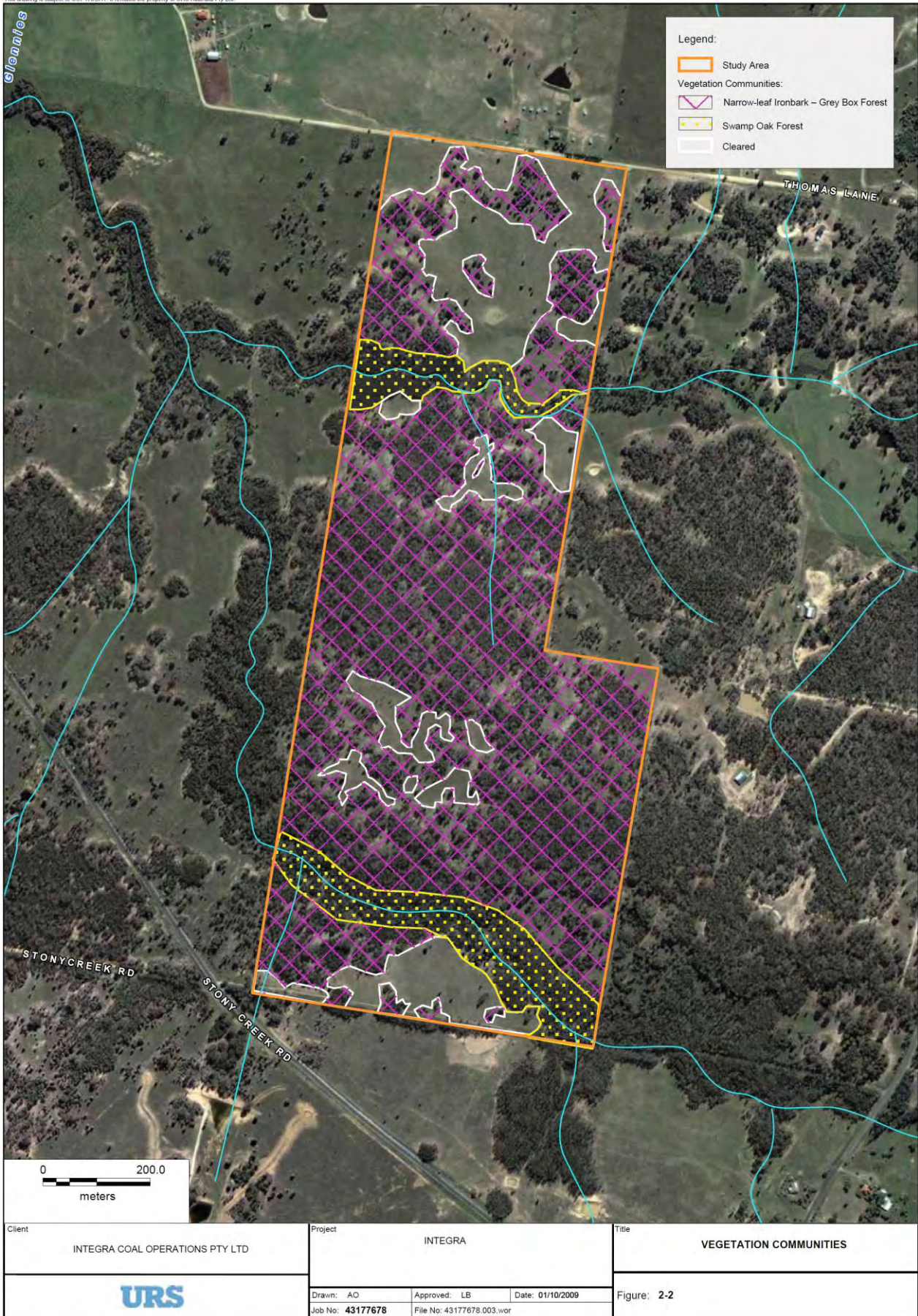
Figure B

APPENDIX 8 AREA FOR FURTHER ARCHAEOLOGICAL INVESTIGATION



APPENDIX 9 CONCEPTUAL FINAL LANDFORM AND OFFSETS







APPENDIX 10 STATEMENT OF COMMITMENTS

Underground Project Statement of Commitments

Desired Outcome	Existing or Proposed Actions	Timing
STATUTORY REQUIREMENTS		
Compliance with all conditional requirements in all approvals, licences and leases.	<ul style="list-style-type: none"> The development will be carried out as outlined in the following: <ul style="list-style-type: none"> this Environmental Assessment Report (EA); Project Approval; Environment Protection Licence; Subsidence Management Plans (SMPs); Mining Lease(s); and any other approvals, licences or leases. 	<ul style="list-style-type: none"> Continuous and as required.
All operations conducted in accordance with all relevant documentation.	<ul style="list-style-type: none"> Undertake all activities in accordance with the accepted Mining Operations Plan; environmental procedures; safety management plan and/or site-specific documentation in force at that time. 	<ul style="list-style-type: none"> Continuous and as required.
STAKEHOLDER CONSULTATION		
That effective communication/consultation is undertaken throughout the life of the Project.	<ul style="list-style-type: none"> Preparation of a community newsletter following Project Approval. 	<ul style="list-style-type: none"> Within three months from the date of Project Approval.
	<ul style="list-style-type: none"> Biannual meetings of the Community Consultative Committee. 	<ul style="list-style-type: none"> Continuous and as required.
	<ul style="list-style-type: none"> Ongoing communication with the management of Xstrata and provision of subsidence monitoring data. 	<ul style="list-style-type: none"> Continuous and as required.
	<ul style="list-style-type: none"> Conduct a more detailed assessment of the potential impacts of subsidence on items of Xstrata infrastructure. 	<ul style="list-style-type: none"> Prior to longwall mining under areas containing Xstrata owned infrastructure.
SUBSIDENCE		
Potential adverse impacts from subsidence are managed, monitored and remediated where necessary.		
<i>Subsidence management</i>	<ul style="list-style-type: none"> Subsidence Management Plan applications will be submitted to the DPI detailing strategies to manage subsidence impacts, inclusive of measures referenced in this EA. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
	<ul style="list-style-type: none"> The mine plan for the Barrett seam longwall blocks will be developed and operated to provide a minimum 40 metre separation between the boundary to the connected alluvium and the 20mm subsidence line. 	<ul style="list-style-type: none"> Prior to the commencement of longwall mining in the affected area and ongoing.
	<ul style="list-style-type: none"> In addition to the overarching SMPs, specific management plans will be developed which will address potential subsidence impacts on specific items or areas of sensitivity, roads and associated infrastructure, transmission lines, communication infrastructure, Bettys Creek, farm fences, farm buildings and farm dams. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
	<ul style="list-style-type: none"> Subsidence monitoring involving cross lines, longitudinal lines and three dimensional surveying will be undertaken to confirm the levels of subsidence occurring and enable refinements to subsidence predictions. 	<ul style="list-style-type: none"> Prior to, during and after mining in the Barrett and Hebden Seams.
	<ul style="list-style-type: none"> Temporary remediation works will progress during mining, with permanent remediation works completed following full subsidence 	<ul style="list-style-type: none"> Continuous and as required.

Desired Outcome	Existing or Proposed Actions	Timing
Management of subsidence impacts on surface infrastructure.	impacts in an area.	
	<ul style="list-style-type: none"> The new Forest Road Subsidence Management Plan to be built upon the existing management plan to reflect the expected subsidence and associated impacts. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
	<ul style="list-style-type: none"> As part of Hebden SMP development, a management plan for Glennies Creek Road and associated infrastructure will be prepared. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
	<ul style="list-style-type: none"> As part of Barrett SMP development, a management plan for Middle Falbrook Road and associated infrastructure will be prepared. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
	<ul style="list-style-type: none"> Possum Skin Dam will be decommissioned. 	<ul style="list-style-type: none"> Prior to the commencement of longwall mining which would potentially affect the stability or integrity of the dam wall.
	<ul style="list-style-type: none"> The current Electricity Transmission Lines Subsidence Management Plan will be revised for inclusion in the new SMPs and will detail management of subsidence effects on powerlines. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
	<ul style="list-style-type: none"> The existing management plan for the Forest Road communications/Telstra line will be reviewed and updated in consultation with Telstra to reflect changes resulting from this proposal. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
	<ul style="list-style-type: none"> Stakeholder consultation and monitoring of the existing communication cable adjacent to the Mt Owen Rail Spur will be carried out to ensure the cable remains serviceable during subsidence. 	<ul style="list-style-type: none"> As required.
	<ul style="list-style-type: none"> Should XMO's mine plan change, any potential subsidence effects on its tailings dams or highwalls will be addressed in the relevant SMPs at that time. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
	<ul style="list-style-type: none"> ICO will undertake a more detailed assessment of potential impacts on the Ravensworth East / XMO and Glendell Open Cuts. 	<ul style="list-style-type: none"> Following finalisation of the surface mine layout and prior to mining within these areas.
	<ul style="list-style-type: none"> ICO will provide stakeholders such as Singleton Shire Council and landowners who border roads with a monthly update of the location of the longwall face relative to the road, and the estimated progress of the longwall during the following month. 	<ul style="list-style-type: none"> Monthly.
	<ul style="list-style-type: none"> Signs will be erected by ICO at points on the road at the edge of the longwall subsidence impact zone. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
	<ul style="list-style-type: none"> Approval will be sought from DPI and ARTC prior to any mining within the Main Northern Railway protection zone. Any proposed workings in the Main Northern Railway protection zone will be designed to be long term stable – taking site conditions into consideration 	<ul style="list-style-type: none"> Prior to mining within the protection zone.

Desired Outcome	Existing or Proposed Actions	Timing
Ensure minimal subsidence impacts on natural features.	<ul style="list-style-type: none"> The Hebden SMPs to be developed will incorporate and build upon the existing Surface Drainage Management Plan. A Bettys Creek Diversion Management Plan will be prepared as part of the Hebden SMPs. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area. Prior to the commencement of proposed longwall mining in the affected area.
	ICO will prepare: <ul style="list-style-type: none"> a response strategy to address any destabilisation of Main Creek; a works programming for any necessary remedial works in Main Creek should subsidence expression initiate incision and headward erosion; an outline of expansion of piezometric monitoring; and a TARP as part of a surface water and groundwater monitoring and management program. 	Prior to Hebden Seam longwall mining undermining Man Creek.
Ensure minimal subsidence impacts on farm infrastructure.	<ul style="list-style-type: none"> The Hebden SMPs and Barrett SMPs to be developed will incorporate and build upon the existing Farm Fences, Farm Buildings and Farm Dams Subsidence Management Plans, as appropriate. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
	<ul style="list-style-type: none"> In consultation with the relevant landowner, ICO will remediate any dam that is damaged by subsidence (or has its storage capacity reduced by more than 10 percent) to a condition similar to that prior to subsidence. 	<ul style="list-style-type: none"> As required.
ECOLOGY		
Operations are managed such that adverse impacts to native flora and fauna are prevented, minimised and/or offset.	<ul style="list-style-type: none"> ICO will implement the following flora and fauna management procedures. <ul style="list-style-type: none"> Revegetate the planned Bettys Creek diversion channel and adjacent areas; Undertake surveys along the creek diversion and revegetated areas to record any significant loss of planted seedlings and monitor the use of revegetated areas by native fauna. Revegetation design, weed management, exclusion of cattle and ongoing monitoring in the area of the Bettys Creek diversion will be coordinated in consultation with Glendell. The abandoned Bettys Creek channel will be managed (ie weed control and exclusion of cattle) in conjunction with the ongoing management and monitoring of the proposed diversion. Based on the ephemeral nature of the existing channel, consideration will be given to blocking off the abandoned channel at the downstream end to act as a billabong to retain any surface flows. Undertake pre-clearance inspections of borehole sites. Where possible, the inspections will be undertaken during the summer flowering period to optimise detection of <i>Bothriochloa biloba</i> and to avoid impacting directly on any individual plants. 	<ul style="list-style-type: none"> Continuous, as required.
HERITAGE		
Operations are managed such that adverse impacts to significant Aboriginal and Historical heritage items are	<ul style="list-style-type: none"> Artefact scatters (sites 37-3-0597, 37-3-0595 and 37-3-0027) that will be destroyed by the proposed Bettys Creek diversion will be salvaged and 	<ul style="list-style-type: none"> Prior to the diversion of Bettys Creek.

Desired Outcome	Existing or Proposed Actions	Timing
avoided, minimised and/or offset.	<p>involve the following.</p> <ul style="list-style-type: none"> • During clearing works in the areas where surface earthworks will occur, a qualified archaeologist will undertake field work with assistance from the Aboriginal community. • Artefacts will be recorded individually and, once any site is salvaged, all materials and list of details collected for each artefact will be provided to the Local Aboriginal Land Council. 	
	<ul style="list-style-type: none"> • Monitoring of excavation works along the banks of Bettys Creek will be undertaken by a representative of the Aboriginal community. 	<ul style="list-style-type: none"> • During excavations works undertaken for the diversion of Bettys Creek.
	<ul style="list-style-type: none"> • The area to be impacted by the realignment of Main Creek will be re-surveyed with the assistance of the local Aboriginal community and any sites fully recorded and logged prior to the confirmation of the channels' locations and designs. 	<ul style="list-style-type: none"> • Prior to the diversion of Main Creek.
	<ul style="list-style-type: none"> • Should the additional survey works in the area to be impacted by the realignment of Main Creek highlight any areas of high cultural or scientific significance, the alignment of the proposed works will be altered and / or subsurface investigations will be undertaken in consultation with DECC and DoP. 	<ul style="list-style-type: none"> • Prior to the diversion of Main Creek.
	<ul style="list-style-type: none"> • Sites 37-3-0682, 37-3-0683 and any additional sites recorded during the survey will be salvaged prior to construction commencing and all activities requiring soil removal associated with the realignment of Main Creek will be monitored by representatives of the Aboriginal community. The salvage will: <ul style="list-style-type: none"> • be undertaken by a qualified archaeologist during clearing works in the areas where surface earthworks will occur with assistance from the Aboriginal community; and • include recording of individual artefacts. Once any site is salvaged, all materials and list of details collected for each artefact will be provided to the Local Aboriginal Land Council. 	<ul style="list-style-type: none"> • Prior to the diversion of Main Creek
	<ul style="list-style-type: none"> • Monitoring of excavation works along the banks of Main Creek will be undertaken by a representative of the Aboriginal community. 	<ul style="list-style-type: none"> • During excavations works undertaken for the diversion of Main Creek.
	<ul style="list-style-type: none"> • Infrastructure will be sited to avoid impacts to known heritage sites. Should impacts be unavoidable, DECC and the local Aboriginal community representatives will be consulted. 	<ul style="list-style-type: none"> • Continuous, as required.
	<ul style="list-style-type: none"> • The Aboriginal community will be given the opportunity to collect any surface artefacts from the planned surface (remediation) activities. 	<ul style="list-style-type: none"> • Prior to ground disturbing works in an area.
	<ul style="list-style-type: none"> • In consultation with the local Aboriginal community, the existing Aboriginal Cultural Heritage Management Plan (ACHMP) will be revised and built upon to detail management of project induced effects. 	<ul style="list-style-type: none"> • Prior to the commencement of ground disturbing works.
Ensure minimal subsidence impacts on archaeology.	<ul style="list-style-type: none"> • DECC and the Local Aboriginal Community Representatives will be consulted should there be impacts to potential Aboriginal deposits as a result of remediation works along creeks and works to rehabilitate cracks. 	<ul style="list-style-type: none"> • Prior to any remediation that may be required.
	<ul style="list-style-type: none"> • A qualified archaeologist will assess the potential impact of the planned works. 	<ul style="list-style-type: none"> • Prior to any subsidence remediation works.
	<ul style="list-style-type: none"> • Should subsidence levels be greater than predicted, archaeological sub - 	<ul style="list-style-type: none"> • As required.

Desired Outcome	Existing or Proposed Actions	Timing
	<p>surface testing may be undertaken in affected areas with the involvement of the Aboriginal stakeholders and DECC.</p> <ul style="list-style-type: none"> The Hebden SMPs to be developed will incorporate and build upon the existing Archaeology Subsidence Management Plan. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
SURFACE WATER		
Operations are managed such that adverse impacts to surface water are prevented, minimised and/or offset.	<ul style="list-style-type: none"> ICO will maintain the existing surface water monitoring program, and undertake additional monitoring including collection of grab samples during or immediately after surface runoff events along ephemeral watercourses; monthly water quality sampling of major water storages on the site; collection of data on water quantity and at least weekly collection of underground mine dewatering and raw water supply volume data. 	<ul style="list-style-type: none"> Continuous, as required.
	<ul style="list-style-type: none"> ICO will maintain a photographic record of the creeks and dam walls to determine historical (baseline) rates of erosion. 	<ul style="list-style-type: none"> Continuous, as required.
	<ul style="list-style-type: none"> As part of the erosion and flood studies, ICO will assess whether rapid changes in channel or floodplain form occur in the aftermath of runoff events. 	<ul style="list-style-type: none"> Continuous, as required.
	<ul style="list-style-type: none"> Monitoring results will be reported in the AEMR and distributed to the relevant Government agencies, CCC members and other relevant stakeholders. 	<ul style="list-style-type: none"> Annually.
	<p>ICO will prepare:</p> <ul style="list-style-type: none"> a response strategy to address any destabilisation of Main Creek; a works programming for any necessary remedial works in Main Creek should subsidence expression initiate incision and headward erosion; an outline of expansion of piezometric monitoring; and a TARP as part of a surface water and groundwater monitoring and management program. 	<p>Prior to Hebden Seam longwall mining undermining Man Creek.</p>
	<ul style="list-style-type: none"> No impacts will occur to licensed water users, basic landholder rights or minimum baseflows in Glennies Creek regulated river or environmental water requirements. 	<ul style="list-style-type: none"> Continuous.
	<ul style="list-style-type: none"> A Site Water Management Plan will be prepared outlining management measures associated with potential erosivity of the Bettys Creek diversion or degradation of Glennies Creek and any subsidence effects that may occur on the diversion or Glennies Creek and its associated alluvium. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
	<ul style="list-style-type: none"> The mine plan will be developed and operated such that no detectable or measureable ingress of surface water into the mine workings will be generated that can't be reversed. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
	<ul style="list-style-type: none"> Integra Coal will not restrict Xstrata Coal's ability to stabilise and reconfigure the diversion to Bettys Creek, and will develop an updated Site Water Management Plan to manage any adverse impacts from extraction of the Hebden Seam panels, including the collection of monitoring data by an independent consultant agreed to by ICO and Xstrata prior to the diversion being undermined. 	<ul style="list-style-type: none"> Prior to the commencement of proposed longwall mining in the affected area.
	<ul style="list-style-type: none"> Integra Coal will provide evidence that their water accounting procedure 	<ul style="list-style-type: none"> Continuous, as required.

Desired Outcome	Existing or Proposed Actions	Timing
	<p>complies with dealings rules as prescribed under the Hunter Regulated River Water Sharing Plan (HRRWSP) and/or Hunter Unregulated River and Alluvium Water Sharing Plan (HURAWSP).</p> <ul style="list-style-type: none"> • Integra Coal will ensure it has sufficient water to meet mine operational demands in accordance with the statutory rules of the Hunter Regulated River Water Sharing Plan (HRRWSP) and/or Hunter Unregulated River and Alluvium Water Sharing Plan (HURAWSP), and any other statutory instruments in force under the Water Act 1912, and Water Management Act 2000. Should insufficient water be available to continue mining operations, mining operations will be scaled back to meet water supply requirements. • any proposed workings under Glennies Creek and its associated alluvium will be designed to be stable in the long term, taking site conditions into consideration 	<ul style="list-style-type: none"> • Continuous, as required.
GROUNDWATER		
Operations are managed such that adverse impacts to local and regional groundwater resources are prevented, minimised and/or offset.	<ul style="list-style-type: none"> • The current groundwater monitoring program will continue with ongoing review and possible modification of the program as further data is obtained and interpreted. Annual reports documenting and interpreting the collected data will be prepared. 	<ul style="list-style-type: none"> • Continuous, as required.
	<ul style="list-style-type: none"> • Groundwater samples will be collected annually from selected piezometers and analysed at a NATA registered laboratory for major ions and selected metals. The groundwater program will be maintained in its current form, with a review of the program after interpretation of the first 12 months' data. 	<ul style="list-style-type: none"> • Annually, as required.
	<ul style="list-style-type: none"> • A private well monitoring program will be initiated to determine its pre mining yield if requested by a private bore owner. • Should a reduction in groundwater availability be detected, remedial action will be undertaken by Integra to offset the measured losses. Such actions may include digging the well deeper, installing a new well or installing a replacement bore. 	<ul style="list-style-type: none"> • 12 months prior to extraction of the Barrett Seam (subject to the timing of any request). • Subsequent to detecting a loss of groundwater availability due to mining.
	<ul style="list-style-type: none"> • Performance indicators will be identified and a statistical assessment will be undertaken to detect when, or if, a significant change has occurred in the groundwater system and to benchmark the natural variation in groundwater quality and standing water levels. 	<ul style="list-style-type: none"> • Prior to longwall mining in the Hebden Seam.
	<ul style="list-style-type: none"> • Contingency procedures will be developed. Activation of contingency procedures will be linked to the assessment of monitoring results. 	<ul style="list-style-type: none"> • As required.
	<ul style="list-style-type: none"> • Following the completion of extraction of each longwall panel, a report will be prepared that summarises relevant monitoring data. Relevant monitoring and management activities for each year will also be reported in the AEMR. 	<ul style="list-style-type: none"> • Following the completion of extraction of each longwall panel and in the AEMR.

Desired Outcome	Existing or Proposed Actions	Timing
AIR QUALITY		
Operations are managed to minimise potential adverse impacts to the environment, residences and the community.	<ul style="list-style-type: none"> Implement the following air quality control procedures. Coal handling areas, stockpiles, roads and trafficked areas will be maintained in a moist condition using water carts and / or water sprays to minimise wind-blown and traffic-generated dust. Water sprays will be used at the longwall and development face to control particulates. All haul roads will have edges clearly defined with marker posts or equivalent to control their locations, especially when crossing large overburden emplacement areas. Obsolete roads will be ripped and re-vegetated; Development of minor roads will be limited and the locations of these will be clearly defined. Minor roads used regularly for access etc will be watered/treated to control dust. Due to OHS regulations regarding underground air quality, dust generated underground will be minimised. Currently this includes the application of water and/or use of dust suppressants. 	<ul style="list-style-type: none"> Continuous, as required.
	<ul style="list-style-type: none"> ICO will continue air monitoring in accordance with the Integra Underground EMS Procedure 002-2, Air Quality Monitoring Program, including monitoring weather conditions, TSP, PM₁₀ (using HVAS), real time PM₁₀ (using TEOM) and dust fallout. 	<ul style="list-style-type: none"> Continuous.
	<ul style="list-style-type: none"> The results of the ongoing air quality monitoring program will be communicated to residents in the Local Community. 	<ul style="list-style-type: none"> Continuous, as required.
GREENHOUSE GASES		
Manage operations such that greenhouse gas emissions on the environment are minimised and beneficial use of methane is maximised.	<ul style="list-style-type: none"> Fugitive methane emissions will be captured for energy generation where possible. If not feasible, flaring will be adopted, where practicable. 	<ul style="list-style-type: none"> Continuous.
	<ul style="list-style-type: none"> Greenhouse gas emissions will be estimated and reported annually. 	<ul style="list-style-type: none"> Following commencement of proposed mining.
	<ul style="list-style-type: none"> Energy and greenhouse gas emission reduction initiatives will be implemented throughout the life of the development, including the following. <ul style="list-style-type: none"> The efficiency of all new and upgraded mobile and fixed equipment will be considered during procurement for fuel powered equipment. Ensuring equipment will be maintained to retain high levels of energy efficiency. The inventory of emissions developed for this environmental assessment will be maintained. Emissions and abatement strategies will be reported annually as part of the internal environmental reporting and National Greenhouse and Energy Reporting obligations and in the AEMR. 	<ul style="list-style-type: none"> Continuous, as required.
NOISE AND VIBRATION		
Operations are managed to minimise potential adverse impacts on the environment, residences and the community.	<ul style="list-style-type: none"> ICO will implement the following noise management procedures and monitoring programs. 	<ul style="list-style-type: none"> Continuous, as required.

Desired Outcome	Existing or Proposed Actions	Timing
	<ul style="list-style-type: none"> • Use of conveyors instead of haul roads where approved. • Construction of acoustic bunds adjacent to haul roads where recommended by an acoustic consultant. • Use of routine monitoring results to refine on-site noise mitigation measures and operating procedures. • Undertake noise audits at boundary positions to static sources to verify potential change in overall sound emissions. • Undertake regular discussions with potentially affected residents to proactively identify noise related issues of concern. • Undertake quarterly monitoring at identified representative receivers. • Implement acoustic mitigation at residences where exceedances of the project specific criteria are demonstrated via the monitoring program and requested by the landowner. • Consideration of negotiated agreements with landowners where exceedances of the project specific criteria are substantiated by monitoring. • Informing residents that the existing community information line for Integra Underground would apply to this proposal. • Existing and / or additional real time noise monitoring will be utilised to manage, assess and control potential emissions from the Integra Open Cut and Underground operations. 	
	<ul style="list-style-type: none"> • A blast management protocol will be developed in conjunction with XMO to manage potential impacts from other mine's blasting on the underground mining activities. 	<ul style="list-style-type: none"> • Prior to the commencement of proposed mining in the vicinity of open cut mining operations.
	<ul style="list-style-type: none"> • Integra will investigate the feasibility of installing an overland conveyor to transport coal from the Integra Underground to the Integra CHPP and provide the outcomes of that investigation to the Director-General. 	<ul style="list-style-type: none"> • Prior to 30 June 2010
TRANSPORT		
Management of rail infrastructure.	<ul style="list-style-type: none"> • A new Mt Owen Rail Spur Management Plan will be prepared in consultation with XMO, and will include monitoring, stakeholder consultation and mitigation measures. 	<ul style="list-style-type: none"> • Prior to the commencement of proposed longwall mining in the affected area.
Management of roads.	<ul style="list-style-type: none"> • Current traffic and transport management measures will continue. In addition, linemarking of Stony Creek Road and Middle Falbrook Road will be undertaken if requested by Council. 	<ul style="list-style-type: none"> • Continuous.
WASTE		
Avoidance of unnecessary resource consumption; reuse, reprocessing, recycling and energy recovery wherever possible and, where this is not possible, disposal of wastes in an environmentally responsible manner.	<ul style="list-style-type: none"> • Wastes will continue to be managed in accordance with the Integra Underground Procedure PRO_0381 - Waste Management, including the following. <ul style="list-style-type: none"> • Reuse of mine water for dust suppression at the Integra Underground and Open Cut, in the CHPP and at neighbouring mines. • All waste oils will be pumped into on site storage tanks for subsequent transfer to a registered waste disposal company. • Old batteries will be stored in a designated bin prior to collection by a licensed contractor. • All scrap steel will be stored in dedicated skips and sold to scrap steel 	<ul style="list-style-type: none"> • Continuous, as required.

Desired Outcome	Existing or Proposed Actions	Timing
	<ul style="list-style-type: none"> merchants for recycling. Bulk chemical containers will be returned to suppliers for reuse as part of the supply agreement. Pallets will be collected by a recycling contractor. Colour-coded recycling containers will be placed in identified areas for collection of cardboard and paper products and collected regularly by licensed contractors / recyclers. Sewerage waste from site offices, administration building, maintenance areas and bath houses will be treated using an aerated wastewater treatment system before being discharged to an anaerobic and aerobic dam system. The water will then be irrigated onto adjacent land. Sludge from the aerated wastewater systems will be pumped out as required by contractors and disposed of to a licensed facility. Hazardous materials will be stored in accordance with Australian Standards. Old paints /preservatives, disused chemicals, solvents and coolants will be stored in allocated areas prior to being removed by a licensed hazardous waste contractor. Liquid waste from parts washers will be stored in 200L containers for removal by licensed waste contractors. Waste oil filters will be taken to a recycling facility by a registered waste disposal contractor. Materials containing liquids will be removed by a licensed contractor for recycling or disposal at a licensed waste management facility. Domestic wastes and maintenance consumables will be separated and collected by waste contractors. 	
REHABILITATION		
That effective rehabilitation is undertaken at the completion of mining.	<ul style="list-style-type: none"> Rehabilitation associated with proposed mining will be undertaken in accordance with the relevant MOP, REMP, Extraction Plans and SMPs. 	<ul style="list-style-type: none"> Following the completion of mining in the affected area.
SOCIO-ECONOMIC		
Net benefits of the proposal sufficiently outweigh potential adverse impacts.	<ul style="list-style-type: none"> A social impact monitoring strategy will be developed that quantifies the impacts on the local community and the effectiveness of strategies implemented in minimising these impacts. 	<ul style="list-style-type: none"> Following commencement of proposed longwall mining in the affected area.

Open Cut Project Statement of Commitments

Item	Mitigation Measure and Commitment	Implementation
General		
A1	Integra will comply with all conditional requirements in all approvals, licences and leases.	Throughout the life of the Project.
A2	Integra will conduct all operations in accordance with all relevant documentation including: <ul style="list-style-type: none"> Mining Operations Plan; environmental procedures; and safety management plans and/or site specific documentation. 	Continuous as required
Soils and Land Capability		
B1	Strip material to the depths stated in Table 6-3 .	Continuous during operations
B2	Material will not be stripped in either extremely wet or dry conditions.	Continuous during operations

Item	Mitigation Measure and Commitment	Implementation
B3	Stripped material will be used immediately (where practicable) to avoid the requirement for stockpiling.	Continuous during operations
B4	Tracking over previously laid soil will be avoided to minimise compression effects.	Continuous during operations
B5	The surface of soil stockpiles will be left in as a coarsely textured a condition as possible to promote rainfall infiltration and minimise erosion.	Continuous during operations
B6	A maximum stockpile height of 3m will be maintained where practicable.	Continuous during operations
B7	Stockpiles will be positioned away from drainage lines and/or upslope water diversion banks or similar controls will be installed.	Continuous during operations
B8	Downslope sedimentation controls will be installed until the soil stockpiles are appropriately stabilised.	Continuous during operations
B9	If long-term stockpiling is planned (i.e. greater than 3 months), stockpiles will be seeded and fertilised as soon as possible.	Continuous during operations
B10	Prior to re-spreading stockpiled topsoil onto reshaped overburden, it will be decided if individual stockpiles require herbicide application and / or 'scalping' of weed species prior to topsoil spreading.	As required
B11	An inventory of available soil will be maintained to ensure adequate topsoil materials are available for planned rehabilitation activities.	Continuous during operations
B12	Topsoil will be spread to a nominal depth of 0.10m.	Continuous during operations
Groundwater		
C1	Standing water levels and groundwater quality will be assessed in accordance with Table 7.3 , Table 7.4 and Table 7.5 .	Continuous during and after operations
C2	All results will be reviewed and updated monitoring and remediation plans will be developed as required in consultation with DWE, DPI-MR and DECC.	Continuous during and after operations
C3	If required, contingency measures will be developed to manage any adverse impacts identified by monitoring that may indicate unanticipated effects in the groundwater system's response to mining in the proposed Pit.	Continuous during and after operations
C4	If the impacts of mining on the alluvium and Foybrook Formation groundwater systems are demonstrated to be greater than anticipated, Integra will: <ul style="list-style-type: none"> • assess the significance of these impacts; • investigate measures to minimise these impacts; and • describe what measures will be implemented to reduce, minimise, mitigate or remediate these impacts in the future to the satisfaction of the Director-General. 	Continuous during and after operations
C5	Rehabilitation of groundwater dependent ecosystems will be incorporated as part of the Offset Strategy (refer Commitment E10). Trigger thresholds for the groundwater management response will be identified and included in the Rehabilitation Strategy.	Continuous during and after operations
C6	The amount of water pumped into or out of the proposed Pit will be monitored to assess the actual volume of water stored within the pit as well as to assess the groundwater inflows and evaporation effects.	Continuous during operations
C7	All new bores will be installed by suitably licensed drillers after obtaining the relevant license from DWE.	Continuous during and after operations
C8	If monitoring results indicate the agreed standard or performance indicators are not being achieved, remedial actions will be implemented as appropriate.	Continuous during and after operations
C9	An annual report will be prepared by a qualified hydrogeologist and include a statistical analysis of the results of the parameters measured, an interpretation of water quality and standing water level changes.	Annually during and after operations
C10	All relevant monitoring and management activities for each year will be reported in the AEMR.	Annually
C11	ICO will adhere to the operating rules of the Hunter Regulated River Water Sharing Plan (HRRWSP) and the Hunter Unregulated River Water Sharing Plan (HURRWSP), thereby ensuring that the operation of the proposed extended Pit will protect Glennies Creek and its associated well connected alluvial water sources.	Continuous during and after operations
C12	Ongoing verification of the EA predictions and contingency measures will be attained by development and adherence to a surface water and groundwater monitoring and management plan (SW&GWMP) that will be prepared, in consultation with NOW. Cut off thresholds that relate to potential mining induced depressurisation impacts in the connected Glennies Creek Alluvium will be established and documented in the SW&GWMP.	Continuous during and after operations

Item	Mitigation Measure and Commitment	Implementation
C13	During excavation of the western periphery of the pit, geological mapping will be used to assess the potential southerly extension of a fault identified in the drift to the Integra Underground and, if identified, its significance. If the fault is present in the pit, it will be investigated to assess whether it can provide a connective hydrological pathway between the pit and the Glennies Creek alluvium through re-activation of the fault. If appropriate, the hydrological significance of the fault will be assessed through incorporating its hydrological properties into the existing FEFLOW groundwater model.	Continuous during operations
Surface Water		
D1	Construct diversions to direct clean water away from areas of disturbance, to a standard suitable to contain an ARI 50 year rainfall event.	Prior to and progressively during operations.
D2	Construct dirty water diversions to collect stormwater runoff from disturbed areas and deliver this water to sedimentation basins.	Prior to and progressively during operations.
D3	Construct sedimentation basins to treat disturbed area runoff prior to discharge.	Prior to and progressively during operations.
D4	Continue and extend existing Water Management System.	Continuous during operations
D5	Continue the existing Surface Water Monitoring Program and extend to include: <ul style="list-style-type: none"> collection of grab samples along ephemeral watercourses such as Station Creek, during or immediately after surface runoff events; monthly water quality sampling of water storages on the site; and regular collection of data on water quality, storage water levels (including the Portal Sump) and pumping volumes between storages. 	Continuous during operations
D6	All pumped inflows to dirty water storages will cease when the storage water level reaches a defined Maximum Operating Level.	Continuous during operations
D7	If the weather outlook indicates future significant rainfall, water will be pumped out of any dirty water storage (with the potential to discharge offsite) that is within 100 mm of spilling, provided that a suitable alternative storage location is available elsewhere on the site.	Continuous during operations
D8	In the event of a dirty water discharge offsite, water samples will be collected at the overflow from the spilling storage and at the surface water sampling locations along Station Creek (for spills within the Station Creek catchment). For a spill from Possum Skin Dam, a sample will be collected at the discharge point and at the point of inflow to Glennies Creek.	Continuous during operations
D9	If a spill occurs, an incident report will be prepared which documents the circumstances leading to the spill, the measures taken to prevent the spill, the estimated spill volume and duration, and the measured water quality results. Any spillage will be reported to DECC in accordance with the requirements of the site's Environment Protection Licence.	Continuous during operations
D10	After construction of drainage works is complete, disturbed areas will be topsoiled and revegetated using a combination of pasture grasses and cover crops to stabilise the ground surface.	During and following operations as appropriate.
D11	As part of the rehabilitation activities, above ground landforms will feature drainage provisions designed to effectively capture and divert surface water run-off to stable disposal areas prior to being discharged into surrounding watercourses.	During and following operations as appropriate.
Biodiversity		
E1	A Flora and Fauna Management Plan will be developed and include measurements for the minimisation or avoidance of impacts on native flora and fauna. This will include: <ul style="list-style-type: none"> pre-clearance surveys; groundcover clearance protocol; site management measures such as temporary exclusion fencing, maximum vehicle speeds and reducing the use of lighting to decrease impacts on nocturnal fauna; and limiting vehicular and personnel entry into retained vegetation through temporary exclusion fencing, locating access roads and tracks to avoid habitat and use of signage where necessary. 	Prior to commencement of operations.
E2	Fauna management procedures will include: <ul style="list-style-type: none"> monitoring of trees for fauna before and during clearing operations; avoiding trees with resident fauna as much as practicable; 	Prior to and during operations.

Item	Mitigation Measure and Commitment	Implementation
	<ul style="list-style-type: none"> • demarcation and avoidance of identified hollow bearing trees wherever possible; • carefully sawing and placing intact hollow-bearing trunks and branches into adjacent areas of native vegetation; • replacing habitat, such as nest boxes, where habitat trees are to be removed; • maintaining existing maximum vehicle speed limits within the Open Cut Project Area to reduce fauna road fatalities; • limiting vehicular and personnel entry into retained vegetation through temporary exclusion fencing; and • directing lighting at operating equipment to reduce light spill onto nocturnal fauna species in adjacent vegetation. 	
E3	<p>Pre-clearance surveys will involve:</p> <ul style="list-style-type: none"> • diurnal searches for birds, nests and roosts including targeted searches for communal nests of the Grey-crowned Babbler; • active searches for microbats, including checking under exfoliating bark; and • nocturnal surveys, including stag watching of identified habitat trees, specifically focusing on observing use of trees by microbats. 	Prior to clearing activities.
E4	If threatened species nests or nestlings are observed within or close to the Open Cut Area then clearing will be postponed until the nestlings have hatched and fully-fledged. If operational constraints mean that this delay is not practicable then DECC will be consulted to determine if relocating the species is acceptable.	Prior to and during clearing operations.
E5	<p>A groundcover clearance protocol will be implemented and involve:</p> <ul style="list-style-type: none"> • removal of large woody debris using excavator grabs or raking if practicable; • placing of intact large woody debris within adjacent areas of intact vegetation; • stripping and stockpiling leaf litter and topsoil separately from deeper fill material; and • reusing leaf litter and topsoil in rehabilitation works. 	During clearing and soil stripping activities.
E6	Fencing will be implemented to exclude grazing by cattle within retained patches of remnant vegetation to improve habitat value and floral diversity.	Prior to, continuous, during and following operations.
E7	A weed and pest management plan will be prepared and implemented as part of management procedures in order to control feral animals and to limit the spread of weeds.	Prior to commencement of and during operations.
E8	Revegetation of suitable components of the Open Cut Area will be undertaken using species representative of the Ironbark Woodland.	During rehabilitation and revegetation programs.
E9	<p>Subject to the receipt of all necessary approvals/permits, a creek rehabilitation program will be undertaken along Station and Glennies Creeks and will include:</p> <ul style="list-style-type: none"> • erosion control, rubbish removal, complementary planting, weed control, habitat enhancement and exclusion of grazing stock from riparian zones; and • a monitoring and management program to identify and manage noxious weed infestations. 	Prior to, continuous during and following mining operations.
E10	<p>Integra will implement a biodiversity offset package in consultation with DECC to compensate for the potential clearing of 19ha of remnant native vegetation and will include:</p> <ol style="list-style-type: none"> 1. Revegetation of suitable components of the Open Cut Area; 2. Conservation and rehabilitation of the degraded riparian and forest habitat along Glennies and Station Creeks; and 3. Identification and permanent conservation of a suitable woodland offset in the locality, a minimum of 30ha in size, in consultation with DECC. <ul style="list-style-type: none"> • Pending the satisfaction of the 3 components above, Integra will provide a bond or security to DECC which could be used in the event that Integra does not identify a suitable offset in the specified timeframe. 	In accordance with Project Approval requirements.
Traffic and Transportation		
F1	Adhere to RTA and Council restrictions on transport hours and safety/warning requirements for transportation of oversize loads on local roads.	Continuous during operations.
F2	Minimise the duration of road closures on the southern end of Middle Falbrook Road during blasting.	When blasting within 500m of the open sections of Middle Falbrook Road.
F3	Blasting within 500m of the Main Northern Railway line will be controlled under the existing procedure (PRO_2029 Blasting Adjacent to the Main Northern Railway Line) that has been developed in consultation with ARTC.	When blasting within 500m of the Main Northern Railway Line.

Item	Mitigation Measure and Commitment	Implementation
F4	Provide notification on the morning prior to a blast of blast times to residents and others who request to be included on the blast notification list.	Prior to all blasts.
Noise and Blasting		
G1	Use noise mitigated mobile equipment to achieve the predicted noise emission levels at the identified receptors.	Continuous during operations
G2	Restrict evening and night-time mining operations, where practicable, to areas that minimise emission levels outside of the Project boundary.	Continuous during operations
G3	Undertake development activities such as tree clearing and soil stripping during day time operations only, where practicable.	Continuous during operations
G4	Refine on-site noise mitigation measures and operating procedures, i.e. based upon monitoring results.	Continuous during operations
G5	Initiate regular discussions with potentially affected residents to proactively identify noise-related issues of concern.	Continuous during operations
G6	Consider acoustic mitigation at residences where exceedances of the project specific criteria are substantiated by monitoring.	Continuous during operations
G7	Consider negotiated agreements with landowners where exceedances of the project specific criteria are substantiated by monitoring.	Continuous during operations
G8	Continued implementation of the existing Explosive Hazard Management Plan to ensure the safety of employees and the public during explosives handling and blasting operations.	Continuous during operations
G9	Restrict blasting to between the hours of 9.00am and 5.00pm Monday to Saturday, unless blasts outside this time are required for misfire re-blast, emergency or safety reasons.	Continuous during operations
G10	Blast design and implementation to be undertaken by a suitably qualified blasting engineer and/or experienced shot-firer to ensure ANZEC Guidelines are met at all non-project related residences surrounding the Open Cut Project Area.	Continuous during operations
G11	Refine blast mitigation measures and operating procedures as required, based on monitoring results.	Continuous during operations
G12	Provide notification on the morning prior to a blast of blast times to local residents and others who request to be included on the notification list.	Continuous during operations
G13	Use aggregate as the stemming material (not drill dust) in order to fully contain the explosives within the blasthole.	Continuous during operations
G14	In the case of the Part Pit Extent (i.e. Integra is unable to acquire Residence 153 or negotiate an agreement with the owner), blasting will not be undertaken within a 500m Exclusion Zone surrounding the 'Dulwich' residence and 200m from the property boundary until such time that it can demonstrate to the Director-General that blasting can be undertaken without an unacceptable risk to the resident, residents, their stock or residence.	Continuous during operations
Air Quality		
H1	Only the minimum area required for the operation of the Open Cut Project will be disturbed. Reshaping, topsoil emplacement and rehabilitation of overburden emplacement areas will occur as soon as practicable after the completion of overburden emplacement.	Continuous during operations.
H2	Coal handling areas/stockpiles will be kept in a moist condition using water carts to minimise wind-blown and traffic-generated dust.	Continuous during operations.
H3	Water sprays will be available for use on ROM coal stockpiles as required to reduce airborne dust.	Continuous during operations.
H4	All roads and trafficked areas will be watered when required using water trucks.	Continuous during operations.
H5	All haul roads would be clearly defined, especially where they cross overburden emplacement areas.	Continuous during operations.
H6	Development of minor roads will be limited and the locations of these will be clearly defined.	Continuous during operations.
H7	Minor roads used regularly for access etc will be watered.	Continuous during operations.
H8	Obsolete roads will be ripped and re-vegetated.	Continuous during operations.
H9	Access tracks used by topsoil stripping equipment during their loading and unloading cycle will be watered.	Continuous during operations.
H10	Long term soil stockpiles (not used for over 3 months) will be revegetated.	Continuous during operations.
H11	Dust aprons, dust extraction systems or water injection will be used during drilling operations.	Continuous during operations.
H12	Adequate stemming will be used during blasting.	Continuous during operations.
H13	A real-time PM ₁₀ monitor (TEOM) will be implemented at the location agreed with the DECC in accordance Conditions of Consent for North Open Cut (PA 06_0073). This will be located in the vicinity of Residence 48. Should the 24-hour average concentrations of PM ₁₀ approach the cumulative assessment criteria 150 µg/m ³ , the Operations Manager (Open Cut) of the	Continuous during operations.

Item	Mitigation Measure and Commitment	Implementation
	mine would review the current Open Cut operations and take remedial action to ensure the impact on the property is kept below the criteria. Should the criteria be reached, then all Open Cut operations will cease.	
H14	A real-time PM ₁₀ (TEOM) will be located in the vicinity of Residences 108 to 112. Should the 24-hour average concentrations of PM ₁₀ approach the cumulative assessment criteria 150 µg/m ³ , the Operations Manager (Open Cut) will review the current Open Cut operations and take remedial action to ensure the impact on the property is kept below the criteria. Should the criteria be reached, then all Open Cut operations will cease.	Continuous during operations.
H15	Rather than establish an additional monitor at Residence 87, Integra will negotiate with Ashton mine the joint use of data from the existing real-time PM ₁₀ (TEOM) monitor at this location (see TEOM No. 3 on Figure 12-3 for location).	Continuous during operations.
H16	Integra will negotiate with Ashton Coal for the joint use of data from the other sites in the Ashton mine monitoring network (see Figure 12-3 for locations). This will enable real-time monitoring of the impacts of the operations to the west of the Open Cut Project Area.	Continuous during operations.
H17	The results from the dust monitoring program will be regularly reviewed to ensure the data being collected is meaningful. Where warranted, the program will be adjusted in consultation with DECC, with operating/management measures modified accordingly.	Continuous during operations.
H18	During Years 1 -3 of the Part Pit Extent (i.e. in the case that Integra is unable to acquire Residence 153 or negotiate an agreement with the owner), additional controls will be implemented and will include: <ul style="list-style-type: none"> • re-positioning of the main waste and coal haul routes to reduce impacts on Dulwich; • treatment of the main haul routes to achieve a level of dust control greater than 75%; • development of an Environmental Management Plan that will address environmental controls to be implemented as part of pre-operational phase soil removal activities; • control of emissions from drilling operations through the application of water; and • increasing the moisture content of the ROM coal in-pit. 	Prior to the commencement of operations and continuous during operations.
Aboriginal Archaeology		
I1	All actions and strategies for the management of cultural heritage values will be defined in an Aboriginal Cultural Heritage Management Plan developed in consultation with participating Aboriginal groups.	Prior to the commencement of operations.
I2	Prior to any soil disturbing activities, archaeological surveys will be conducted in those areas within the Open Cut Area to be impacted but which have not been surveyed to date. These areas include the Dulwich Property.	Prior to commencement of operations within potentially affected area not previously surveyed.
I3	Sites which will not be impacted by open cut mining will be identified on mine plans with the requirement not to disturb the ground in these areas. If there is risk of impact, temporary fencing will be erected and restrictions placed on access.	Prior to commencement of operations.
I4	Sites which may be directly or indirectly impacted by activities associated with mining will be identified on mine plans with development avoiding impact to these sites. Where development associated activities occur in close proximity to sites, temporary fencing will be constructed. Where direct impact is unavoidable the strategies outlined in I5 will be followed.	Prior to commencement of operations.
I5	Sites which will be directly impacted by open cut mining will be subject to: <ul style="list-style-type: none"> • collection and recording of surface artefacts and storage in accordance with the requirements of Aboriginal Groups; and • targetted subsurface salvage excavation programs as determined in consultation with the Aboriginal stakeholders. 	Prior to disturbance.
I6	A 'Keeping Place' will be provided for the secure storage of cultural material collected. The Keeping Place will be determined and agreed in consultation with the Aboriginal Groups during the formulation of the Aboriginal Cultural Heritage Management Plan. The Keeping Place will be retained in perpetuity subject to the recommendations of the Aboriginal Groups with regard to the long-term positioning of the sites.	Prior to commencement of operations.
European Heritage		
J1	Work Method Statements for archaeological investigation will be prepared for Zone 1 and, dependant on the acquisition of Dulwich, for Zone 2 as identified in Figure 14-2 .	Prior to commencement of operations within Zone 1 and/or 2.
J2	Project planning and timing will take into consideration any heritage management requirements.	Continuous during operations.
J3	If Dulwich is acquired, a WMS for heritage management and archaeological investigation will be prepared specifically for Zone 3 (Figure 14-2);	Prior to commencement of mine operations in Zone 3.

Item	Mitigation Measure and Commitment	Implementation
	or If Dulwich is not acquired, a Conservation Management Plan will be prepared to minimise and monitor project impacts on Dulwich.	Prior to commencement of activities which may impact on Zone 3.
J4	A forensic anthropologist will be engaged to prepare a detailed management plan for the excavation of the grave of James Glennie.	Prior to commencement of mine operations within 200m of European Heritage Zone 2.
J5	Should any other burial sites be exposed during surface scraping operations within the Mine Area, work will cease and appropriate personnel and authorities informed. If the remains are identified as historical in nature, management for skeletal remains will be undertaken by appropriate personnel and a report issued to the Coroner.	Continuous during operations.
J6	In the case of an intersection between European and Indigenous management strategies, or any other environmental management strategy, Integra will co-ordinate appropriate consultation between the parties in order to develop and agreement on how to proceed.	Continuous during operations
J7	Copies of final excavation reports will be issued to local libraries, historical societies, the NSW Heritage Branch Library and State Library of NSW.	On completion of excavation reports.
Visual		
K1	To the extent practicable, reduce the potential visual impact through the construction of visual amenity bunds/screens or soil stockpiles to temporarily screen views towards the proposed Open Cut Area.	Continuous during operations
K2	To reduce lighting impacts to sensitive receptors, work programs will be arranged, where possible, so that some activities that may be visible from surrounding view locations, occur within daylight hours of operation.	Continuous during operations
K3	Floodlights within the Open Cut Extension Area will be positioned to minimise the potential for lighting to impact sensitive receptors.	Continuous during operations
K4	Where possible, haulage roads and overburden tipping areas will be configured to minimise the potential impact associated with headlights and flashing lights associated with vehicles travelling across the Open Cut Project Area.	Continuous during operations
K5	Integra will consider any reasonable request by a residential receptor for assistance to establish a visual screen within their property through planting and/or landscape works, where such works would effectively reduce the visual impact of activities associated with the proposed Open Cut Extension.	Continuous during operations
Rehabilitation		
L1	Suitable species of vegetation will be planted and established to achieve the nominated post-mine land uses. The rehabilitation plan will clarify the projects rehabilitation goals and outcomes and will confirm the monitoring and management proposals.	Continuous during operations
L2	The majority of the post-mine landform will be revegetated with a combination of native and improved pasture species with scattered tree lots and tree corridors linking the surrounding rehabilitated areas, proposed tree planting corridors and surrounding existing native vegetation.	Progressively during operations
L3	The final landform will be stable and not subject to slumping or excessive erosion which would result in the agreed post mining landform not being achieved.	Prior to completion of Project activities and lease relinquishment
L4	The outside facing slopes of the post-mine landform will generally be a maximum of 10° where they are above the natural land surface. The internal facing slopes and those below natural surface reporting to the final void (including the low wall areas) will generally be a maximum of 18°.	Progressively during operations

Appendix B

Revised Biodiversity Offset Strategy



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Integra Mine Complex Modification 4

Environmental Assessment

Prepared for Integra Coal Operations Pty Ltd | May 2014



Appendix B

Revised Biodiversity Offset Strategy

Revised Biodiversity Offset Strategy

Integra Mine Complex Modification 4

Prepared for Integra Coal Operations Pty Limited | 17 April 2014



Revised Biodiversity Offset Strategy

Final

Report J14028RP2 | Prepared for Integra Coal Operations Pty Limited | 17 April 2014

Prepared by **C. Thompson**

Approved by **L. Stewart**

Position Senior Ecologist

Position Director

Signature 

Signature 

Date 17/04/14

Date 17/04/14

This report has been prepared in accordance with the brief provided by the client and has relied upon the information collected at or under the times and conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of the client and no responsibility will be taken for its use by other parties. The client may, at its discretion, use the report to inform regulators and the public.

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Document Control

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1 Introduction

1.1 Background

The Integra Mining Complex (Complex) is located in the Hunter Coalfields of the Sydney Basin and is entirely within the Singleton Local Government Area. It is approximately 10 km north-west of Singleton town centre, in the locality of Camberwell (Figure 1.1).

The Complex comprises underground and open cut coal mining operations which have been active since 1991 under the former Glennies Creek and Camberwell joint ventures. The Complex currently operates under a single project approval instrument which combines the Project Approvals for Integra Underground and Integra Open Cut (PA 08_0101 and PA 08_0102, respectively). The Project Approvals were granted under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Project Approval includes requirements for a biodiversity offset strategy to compensate for approved impacts on biodiversity including:

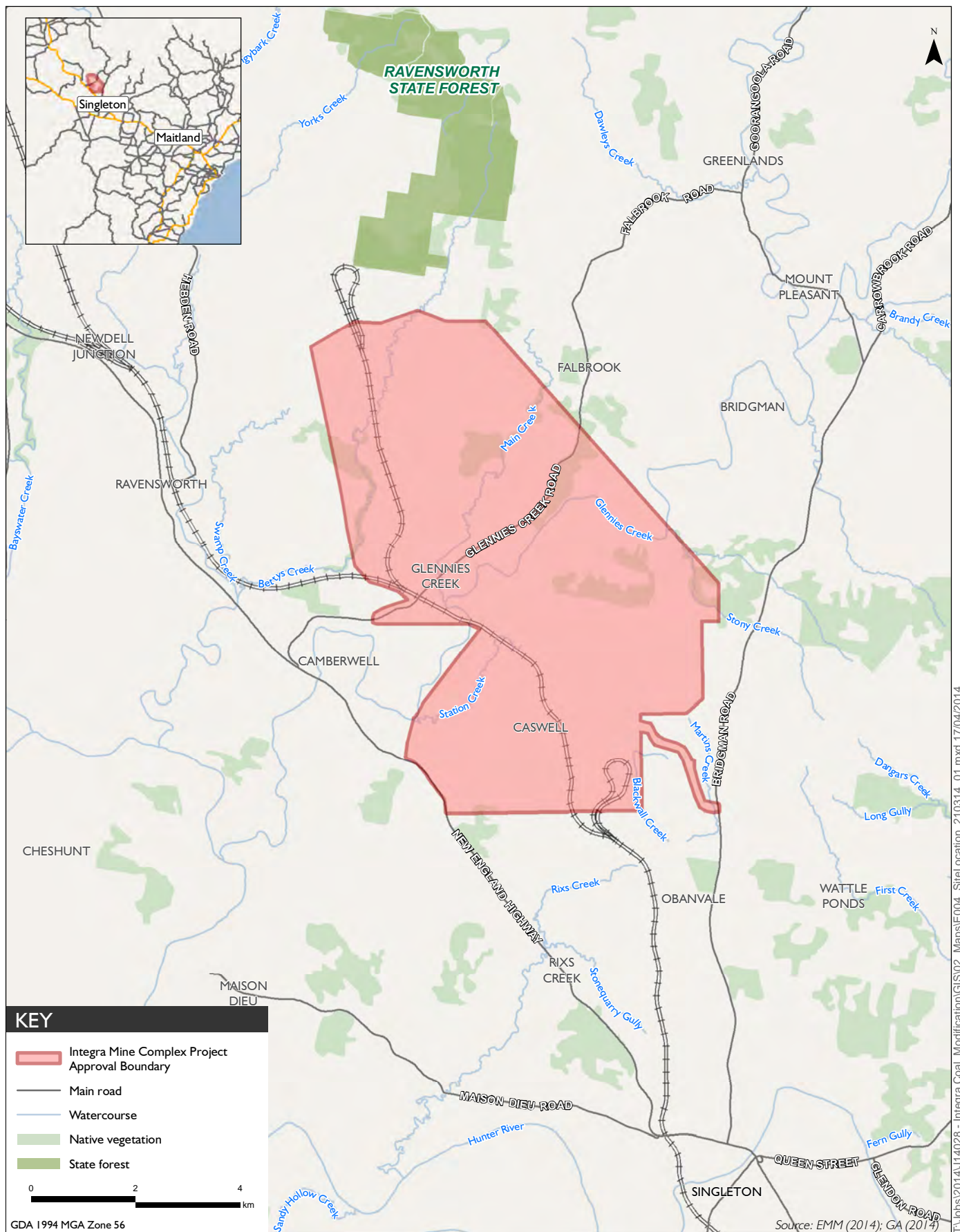
41. The Proponent shall implement the offset strategy summarised in Table 18, described in the open cut and underground project EAs, and shown conceptually in the figure in Appendix 8 to the satisfaction of the Director-General.

Table 18 Biodiversity Offset Strategy for the Complex	
Offset Areas	Minimum size
Northern Offset Area	121 hectares
Southern Offset Area	39 hectares
Western Offset Area	94 hectares
Supplementary Offset Area	33 hectares
Bridgman Offset Area	86 hectares

42. By the end of September 2012, unless the Director-General agrees otherwise, the Proponent shall revise the offset strategy referred to above, in consultation with OEH, and to the satisfaction of the Director-General. The revised offset strategy must:

- (a) ensure provision of at least 140 hectares of Narrow-leaved Ironbark-Spotted Gum-Forest Red Gum Forest (or a suitable equivalent) to further offset the impact of the open cut project; and
- (b) include an additional 6 hectares of Central Hunter Swamp Oak Forest (or a suitable equivalent) to offset the impact of the underground project on the Glendell Biodiversity Offset Area.

43. By the end of September 2014, the Proponent shall make suitable arrangements to provide appropriate long term security for all the areas in the revised offset strategy to the satisfaction of the Director-General.



Integra's approved biodiversity offset strategy was developed to offset the ecological impacts from the project on native vegetation and fauna habitat. Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest, which is part of the Central Hunter Ironbark–Spotted Gum–Grey Box Forest in the NSW North Coast and Sydney Basin Bioregions Endangered Ecological Community (EEC) (the Central Hunter Ironbark–Spotted Gum–Grey Box Forest EEC) and Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC (Swamp Oak Floodplain Forest EEC), are the only intact EECs listed under the TSC Act that have been impacted by approved mining operations at the Complex.

The approved biodiversity offset strategy included four offset areas; namely, the Northern, Southern, Western and Supplementary Biodiversity Offset Areas (BOAs), and was subsequently amended to include the Bridgman BOA (Figure 1.2). The Martin's Creek BOA was later incorporated to further compensate for vegetation clearance associated with the Open Cut and Underground Projects and to meet the requirements of the consolidated Project Approvals.

In total, the approved biodiversity offset strategy currently comprises 575.3 hectares (ha) of BOAs (based on figures provided in PB 2012). These are currently managed in accordance with the Integra Biodiversity Management Plan (BMP) (VALE 2013). The BMP includes a range of management measures to be implemented to improve the biodiversity values of the BOAs over time. This includes fencing, grazing management, weed control, fire management, access management, feral and overabundant native herbivore and pest management, habitat creation and supplementary planting.

1.2 Proposed modification

Exploration activities, undertaken since the offset strategy was approved, have identified a significant coal resource under the Northern, Western and Supplementary BOAs. This resource is valued at approximately \$6.2 Billion.

Modification 2 sought an extension to the timeframe for long term security of the biodiversity offset strategy. The EA prepared for Modification 2 (EMM 2012) highlighted the significance of coal resources identified under the Northern, Western and Supplementary offset areas. The possibility of future alterations to Integra's biodiversity offset strategy was foreshadowed in the Modification 2 EA, which noted that if alternative offsets were to be sought in the future, they would be fully assessed and approval would be sought at the relevant time. Approval for Modification 2 was granted in February 2013.

Since Modification 2 was approved, substantial time and effort has been invested in sourcing and assessing alternative offsets that would provide an improved biodiversity outcome should the approved strategy be affected.

Schedule 3 Condition 43 of the Project Approvals requires the long term security for the areas in Integra's offset strategy to the satisfaction of the Director-General by September 2014. Long term security of the current biodiversity offset areas, as required under Condition 43 would result in the sterilisation of the resource identified under the Northern, Western and Supplementary offset areas, meaning future mining of this resource would be prevented. Sterilisation would have significant economic impacts for the Complex, such as potential reductions in investment, revenue, export earnings, jobs and substantial regional economic flow-on benefits.

Accordingly, Integra is seeking to modify its biodiversity offset strategy to:

- remove the Western and Supplementary Offset Areas;
- reduce the size of the Northern, Southern and Martin's Creek Offset Areas; and

- incorporate an additional offset area, located approximately 30 km to the west of the Complex, adjoining Wollemi National Park in Singleton LGA.

It is noted that the EA for Modification 2 (EMM 2012) contemplated the use of the Upper Hunter Strategic Assessment (UHSA) for the provision of alternative offsets. While Integra continues to participate in the UHSA, the outcomes of the process are not yet available. Accordingly, due to the need to have long term security in place for the BOAs by September 2014 in accordance with condition 43 of the project approvals, Integra has sought this modification to its approved BOS under Section 75W of the EP&A Act.

Integra is committed to securing the revised BOS proposed by this modification by September 2014 in accordance with Condition 43 of the project approvals.

No other changes to approved operations are proposed. The proposed modification does not involve any physical works, including any additional mining, disturbance, physical alterations, vegetation clearing, or the like.

1.3 Objectives

This report provides an overview of the ecological values of the revised biodiversity offsets. It aims to provide a comparison of the revised biodiversity offsets against the requirements of the Project Approvals, the approved biodiversity offset strategy and relevant OEH policies.

The revised biodiversity offset strategy aims to ensure that:

- revised BOAs are similar in condition, contain similar vegetation types and threatened species habitat to the approved offset areas;
- revised BOAs provide the same or better offset to impact ratios for threatened ecological communities (TECs) as the approved offset areas; and
- revised BOAs provide suitable habitat for all threatened species previously identified at the Complex.

1.4 Glossary

approved biodiversity offset strategy	The biodiversity offset strategy for the consolidated approval (2012) incorporating the Northern, Southern, Supplementary, Western, Bridgman and Martin's Creek BOAs.
approved BOAs	The Northern, Southern, Supplementary, Western, Bridgman and Martin's Creek BOAs included in the consolidated approval (2012).
approved project	The Integra Mine Complex Project approved under the consolidated approval (2012) incorporating the Integra Open Cut (PA 08_0102) Integra Underground (PA 08_0101).
offsite BOA	The two land parcels lots that comprise the Appletree Flat BOA.
onsite BOAs	The biodiversity offset areas that are located within, or partially within the Complex.
revised biodiversity offset strategy	The revised biodiversity offset strategy proposed under the modification outlined in Chapter 4 of this report incorporating the Northern, Southern, Bridgman, Martin's Creek and Appletree Flat BOAs.
revised BOAs	The revised boundaries of the BOAs presented in Chapter 4 of this report for the Northern, Southern and Martin's Creek BOAs, the entire Bridgman BOA and the two land parcels that comprise the Appletree Flat BOA.
the Complex	The Integra open cut and underground project areas, including the BOAs.

2 Approved project and biodiversity offset strategy

2.1 Approved project impacts

Project Approvals incorporated the impacts from the Integra Underground and Integra Open Cut projects. The impacts on native vegetation from the approved project are summarised in Table 2.1. A total of 102.1 ha of native vegetation disturbance has been approved for the Complex, including 92.3 ha of forest, and 9.8 ha of disturbed native vegetation (equivalent to Derived Grassland/Native Pasture).

Table 2.1 Native vegetation in the approved project area

Vegetation community	Area of native vegetation impacted (ha)		
	Integra Open Cut (PA 08_0102)	Integra Underground (PA 08_0101)	Total
Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest ¹	87.3	0	87.3
Swamp Oak Forest ²	0	5	5
Shrubland	0.7	0	0.7
Tussock Grassland	6.1	3	9.1
Total native vegetation impacted	94.1	8	102.1
Total area impacted (includes exotic grassland and cleared areas)	405.7	8	413.7

Note: 1. Meets the description of Central Hunter Ironbark–Spotted Gum–Grey Box Forest EEC.
2. Meets the description of Swamp Oak Floodplain Forest EEC.

Of the vegetation approved to be removed, 87.3 ha meets the description of Central Hunter Ironbark–Spotted Gum–Grey Box Forest EEC and 5 ha meets the description of Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC (Swamp Oak Floodplain Forest EEC).

No threatened species or communities listed as matters of National Environmental Significance under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) were identified in the approved project area, or required offsets.

The approved impacts on threatened species habitat vary for each species recorded or with known habitat in the Complex (Table 2.2). Generally, 88 ha of threatened species habitat occurs in the approved project area. However this is higher for the Yellow-bellied Sheathtail Bat which has broader habitat requirements, with 357.1 ha of habitat approved to be removed. No threatened flora species were identified in the approved project area.

Table 2.2 Area of habitat in the approved project area

Threatened fauna	Area of habitat impacted (ha)		Total
	Integra Open Cut ¹ (PA 08_0102)	Integra Underground (PA 08_0101)	
Squirrel Glider (woodland habitat)	87.3	0.0	87.3
Grey-crowned Babbler (woodland habitat)	88.0	0.0	88.0
Eastern Bent-wing Bat (woodland habitat)	88.0	0.0	88.0
Eastern Freetail Bat (woodland habitat)	88.0	0.0	88.0
Yellow-bellied Sheath-tail Bat (woodland and grassland habitat)	354.1	3.0	357.1
Grey-headed Flying Fox (woodland habitat)	87.3	0.0	87.3
Speckled Warbler (woodland habitat)	88.0	0.0	88.0
Brown Treecreeper (woodland habitat)	88.0	0.0	88.0
Brush-tail Phascogale (woodland habitat)	87.3	0.0	87.3

2.2 Approved offset strategy

The approved biodiversity offset strategy includes 193.8 ha of Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest which meets the description of Central Hunter Ironbark–Spotted Gum–Grey Box Forest EEC. It also includes the commitment to regenerate 10 ha of this community (Cunningham 2007). This results in an offset to impact ratio of 2.4:1 for this community (Table 2.3). The offset strategy also includes 53.4 ha of Swamp Oak Forest, part of the Swamp Oak Floodplain Forest EEC. This results in an offset to impact ratio of 10.7:1 for this community (Table 1.3).

The overall offset to impact ratio for native vegetation for the approved biodiversity offset strategy is 3:1 (including regeneration), with the total area of BOAs equating to 1.4 times the approved project area (Table 2.3).

Table 2.3 Approved project vegetation offset ratios

Vegetation community	Impact area (ha)	Offset area (ha) ¹	Offset to impact ratio
Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest (Central Hunter Ironbark–Spotted Gum–Grey Box Forest EEC)	87.3	203.8 ²	2.4:1
Swamp Oak Forest	5.0	53.4	10.7:1
Shrubland	0.7	0	0
Tussock grassland	9.1	0	0
Total native vegetation (includes communities not listed above)	102.1	292.2	3:1
Total area (includes native vegetation and exotic grassland/cleared areas)	413.7	575.3	1.4:1

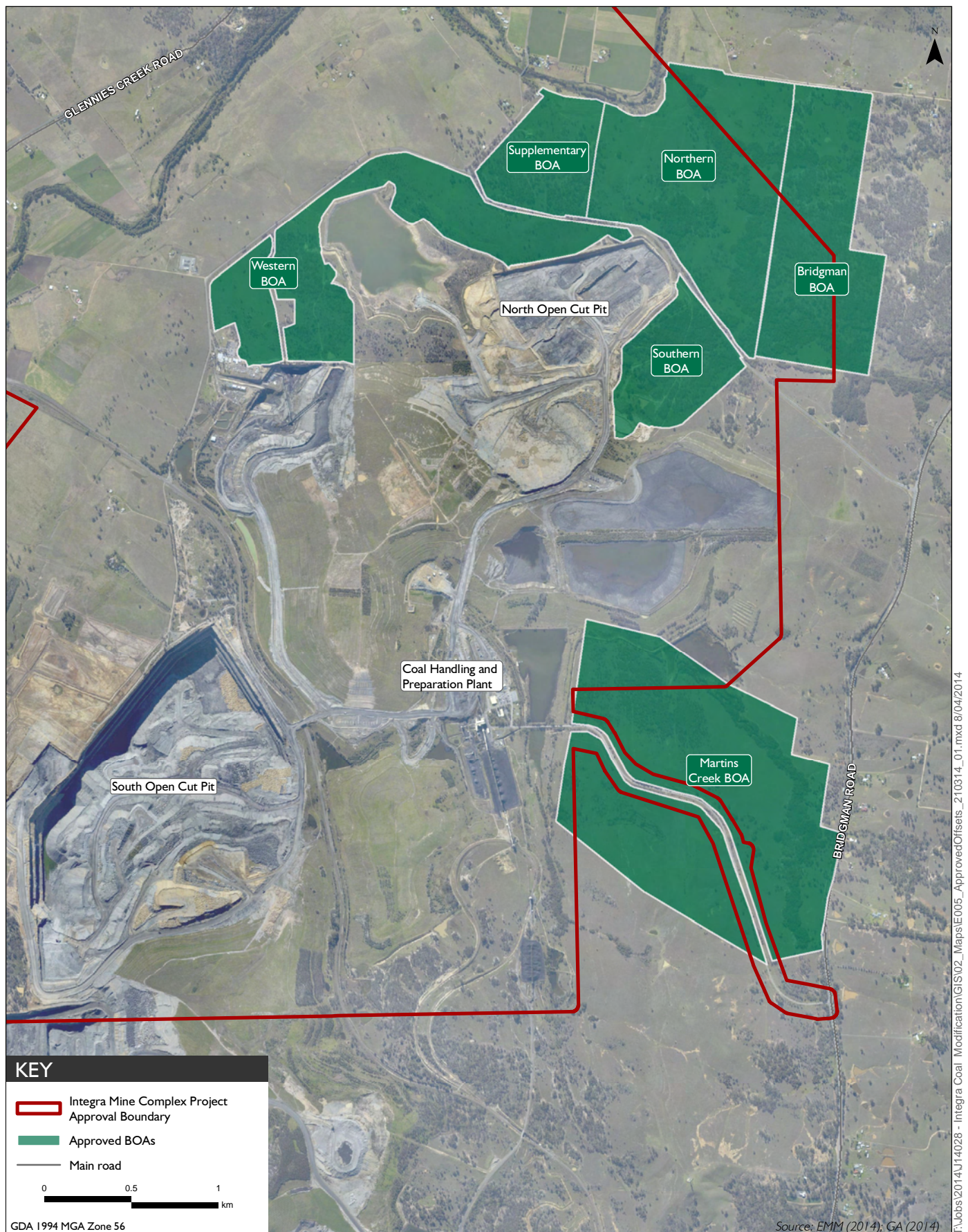
Notes: 1. Areas from Offset Audit Report (PB 2012).

2. Includes 10 ha of regeneration in native pasture within the BOAs (not mine rehabilitation).

The approved biodiversity offset strategy provides offset to impact ratios for threatened species identified in the approved project between 1.6:1 and 3.1:1 (Table 2.4).

Table 2.4 **Approved project threatened species offset ratios**

Threatened fauna	Impact area (ha)	Offset area (ha)	Offset to impact ratio (includes regeneration)
Squirrel Glider (woodland habitat)	87.3	203.8	2.3:1
Grey-crowned Babbler (woodland habitat)	88.0	203.8	2.3:1
Eastern Bent-wing Bat (woodland habitat)	93.0	292.2	3.1:1
Eastern Freetail Bat (woodland habitat)	93.0	292.2	3.1:1
Yellow-bellied Sheath-tail Bat (woodland and native grassland habitat)	362.0	575.3	1.6:1
Grey-headed Flying Fox (woodland habitat)	88.0	193.8	2.2:1
Speckled Warbler (woodland habitat)	88.0	193.8	2.2:1
Brown Treecreeper (woodland habitat)	88.0	193.8	2.2:1
Brush-tail Phascogale (woodland habitat)	88.0	193.8	2.2:1



3 Methods

3.1 Literature and data review

A review of ecological work completed within the Complex and the BOAs over the past seven years was completed. This included, but was not limited to:

- *Appletree Flat Biodiversity Offset Initial Inspection* (PB 2013b);
- *Audit of the Biodiversity Offset Areas for the Integra Complex* (PB 2012);
- *Glennies Creek Open Cut Coal Mine: Biodiversity Offset Assessment* (focusing on Vegetation Communities) (Cunningham 2007);
- *Glennies Creek Open Cut Coal Mine: Fauna Assessment* (Countrywide Ecological Service 2007a);
- *Glennies Creek Open Cut Coal Mine: Fauna Assessment, Annex E* (ERM 2006);
- *Glennies Creek Open Cut Coal Mine: Flora Assessment* (Countrywide Ecological Service 2007b);
- *Integra Coal Complex–Offset Option Investigation* (PB 2013a);
- *Integra Coal Operations Pty Ltd, Biodiversity Offset Assessment* (Forest Fauna Surveys 2011);
- *Integra Coal Operations: Environmental Management System, Biodiversity Management Plan* (Vale 2013);
- *Integra Open Cut Project: Biodiversity Assessment* (URS 2009a);
- *Integra Underground Coal Project: Flora and Fauna Assessment* (URS 2009b);
- *The vegetation and floristics of Wollemi National Park* (Bell 2005); and
- *Threatened Species Management Plan for the Glennies Creek Open Cut Coal Mine* (Kendall and Kendall Ecological Services 2009).

Existing information on the approved BOAs, including survey work undertaken over the last seven years, was reviewed to identify the ecological values present. The review identified any information gaps for the revised BOAs and if additional surveys were required.

3.1.1 Vegetation mapping review

The approved BOAs were first mapped according to the vegetation communities present in 2007 by Geoff Cunningham Natural Resource Consultants. Changes to the cadastral boundaries of the offset areas, minor clearing and reclassification of grassland, shrubland and vegetation community boundaries have been made since the original mapping and implementation of the BMP by Parsons Brinkerhoff (PB). This process was based on detailed work undertaken and documented as part of the BOA audit and as a result of management practices implemented in the BOAs (PB 2012).

The proposed strategy is based on vegetation mapping completed in 2012 and 2013, aerial photograph interpretation and field surveys conducted for the *Audit of the Biodiversity Offset Areas for the Integra Mining Complex* (PB 2012) and subsequent survey work completed by EMM.

3.2 Site surveys

3.2.1 Onsite BOAs

The condition of the grassland areas, mapped as cleared by PB (2012), were re-surveyed as part of the current assessment by EMM in March 2014 (Figure 2.1). Each of the grassland areas of the onsite BOAs was inspected by car and on foot by two ecologists. Rapid floristic assessments were completed to document the condition and composition of the grassland areas. The survey was completed to inform rehabilitation recommendations and offset calculations for the revised BOAs.

Small areas in the revised BOAs occur outside the approved BOAs surrounding the Complex. These were not included in previous mapping of the area, and were subsequently surveyed by EMM in March 2014. Rapid floristic assessments were completed to document the vegetation types present and condition of the areas (Figure 2.1).

The results of the surveys are presented for the onsite BOAs in Section 4.2.1.

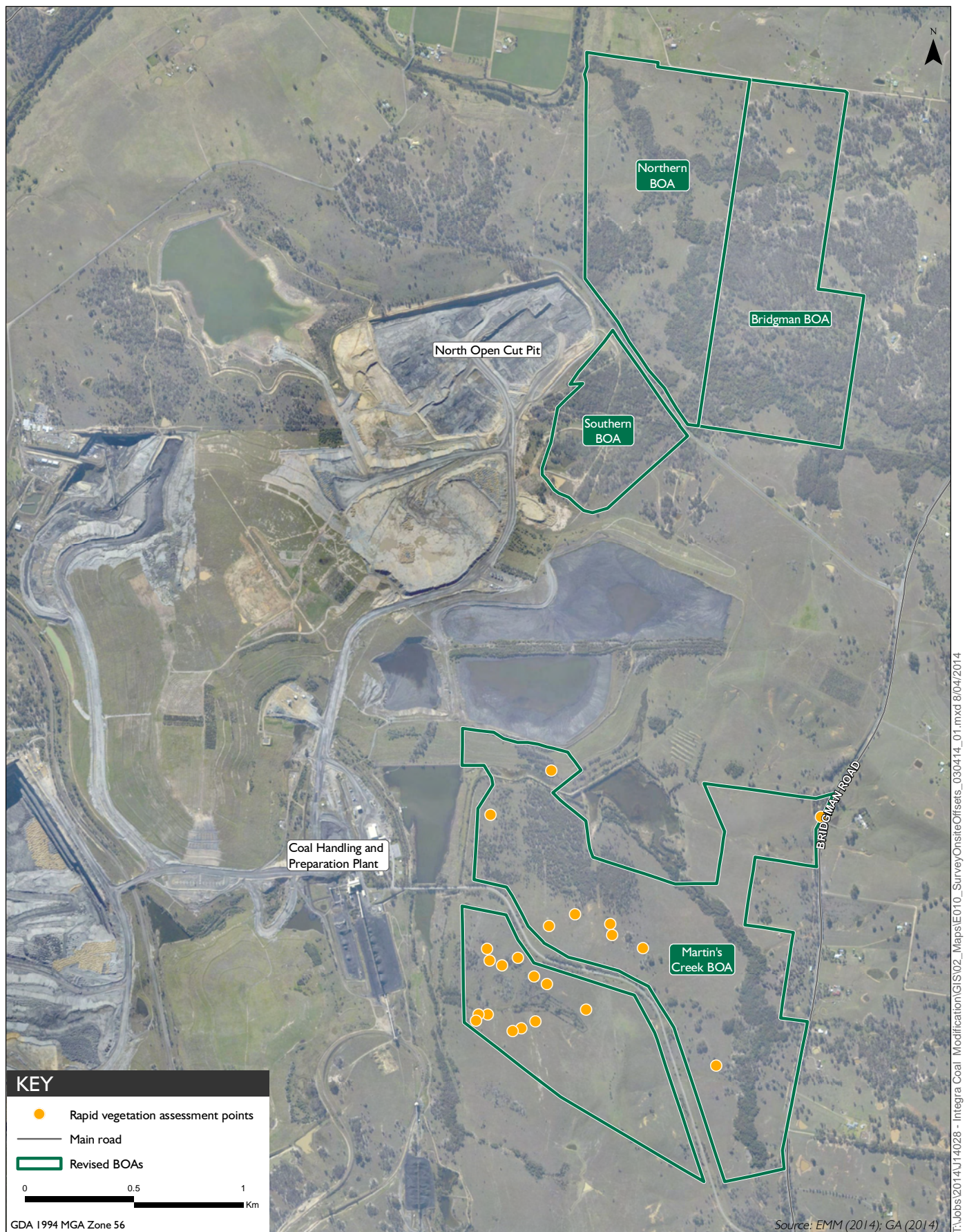
3.2.2 Offsite BOAs

Regional vegetation mapping has been completed for the Wollemi National Park which includes the Appletree Flat BOA. An initial site visit to the Appletree Flat BOA in November 2013 identified discrepancies between the regional vegetation mapping (Bell 2005) for the site and the communities identified onsite (PB 2013).

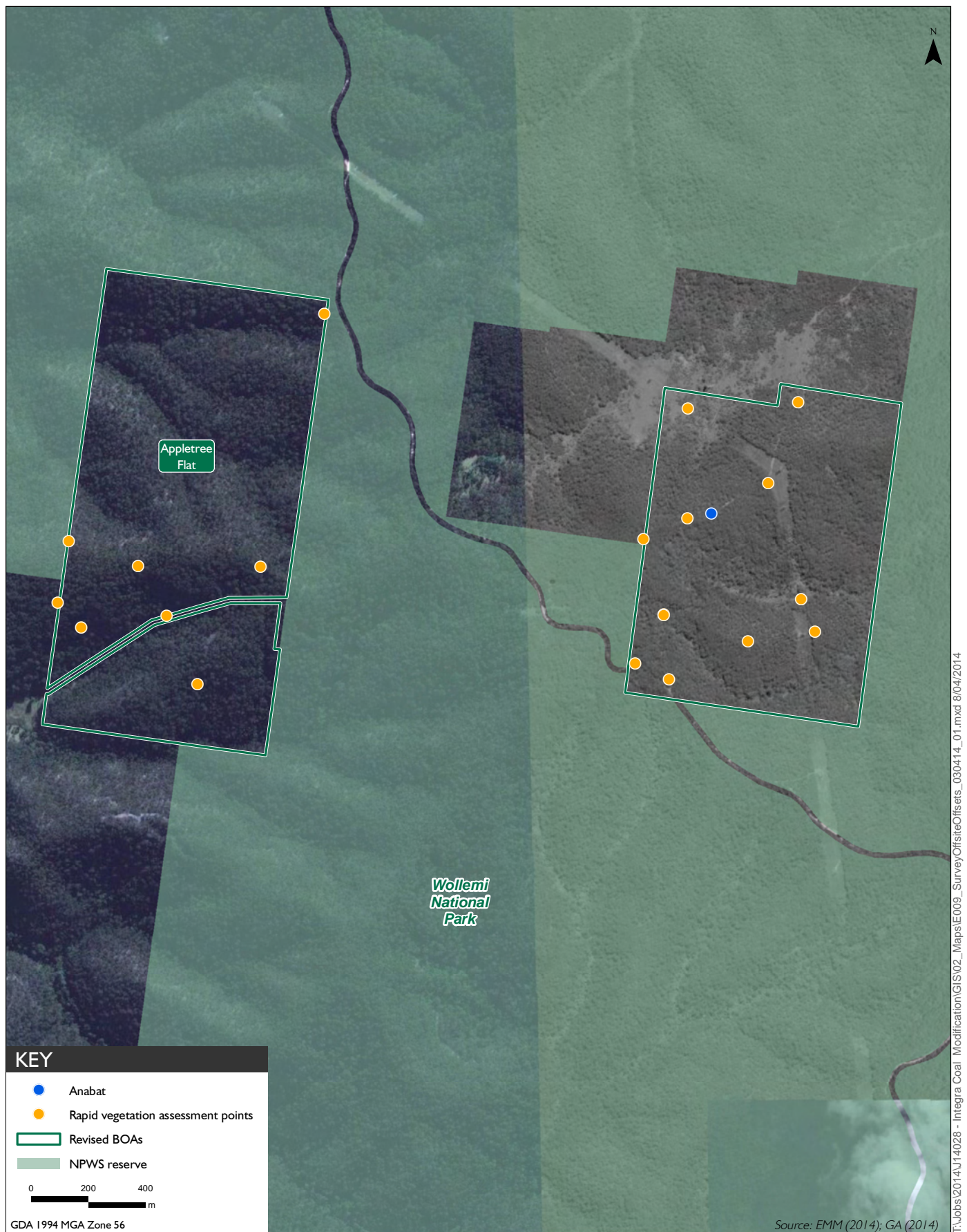
Regional vegetation mapping was ground-truthed by EMM in March 2014. Surveys were conducted on foot using rapid floristic assessments throughout the property (Figure 2.2). All vegetation types were assigned to the Bell (2005) mapping of the Wollemi National Park and classified to the Biometric Vegetation Types for consistency with the onsite BOA mapping.

The results of the surveys are presented for the onsite BOAs in Section 4.3.1.

Opportunistic fauna surveys were also completed and an anabat detector was placed in the eastern part of the Appletree Flat BOA for one night.



Survey locations for onsite biodiversity offset areas
 Integra Mine Complex Modification 4 Revised Biodiversity Offset Strategy



Survey locations for offsite biodiversity offset areas
 Integra Mine Complex Modification 4 Revised Biodiversity Offset Strategy

Figure 3.2

4 Revised biodiversity offset strategy

4.1 Overview

The revised biodiversity offset strategy proposed by Integra under Modification 4, incorporates onsite and offsite BOAs (Figure 3.1). The onsite BOAs are a modified version of the approved BOAs which surround the Complex, representing 399 ha (Table 4.1). The remaining BOA is a privately owned in-holding within the Wollemi National Park, representing over 215 ha (Table 4.1).

Table 4.1 Revised offset area

Offset area	Revised offset area (ha)
Onsite	
Northern BOA	88.5
Southern BOA	30.4
Bridgman BOA	86.5
Martin's Creek BOA	193.6
Offsite	
Appletree Flat BOA	215.9
Total area of revised BOAs	614.9

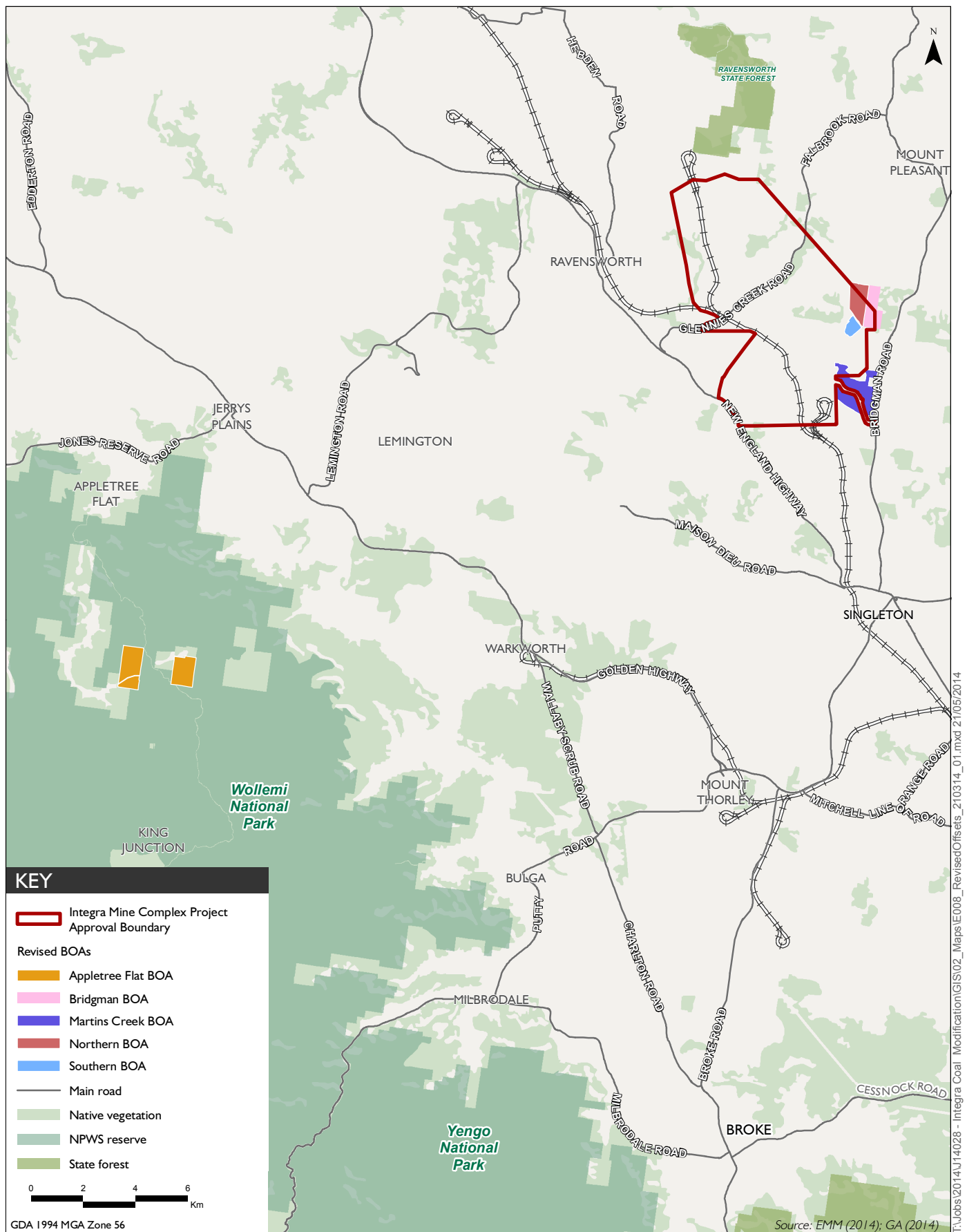
Note: 1. Native vegetation includes Derived Grassland/Native Pasture and Regenerating vegetation.

4.2 Onsite BOAs

The onsite BOAs identified surrounding the Complex on Integra-owned land, contain the same vegetation and habitat values as the approved biodiversity offset strategy.

Close to 400 ha of onsite BOAs are proposed in the revised biodiversity offset strategy comprising:

- Northern BOA: located to the north of the Complex, is bordered to the south by Stony Creek Road, to the north by Glennies Creek and Thomas Lane, and to the east by the Bridgman BOA;
- Bridgman BOA: located to the north of the Complex, is bordered to the north by Thomas Lane, to the south by Stony Creek Road, to the west by the Northern BOA and to the east by private land;
- Southern BOA: located within the Complex boundary, is bordered to the north by Stony Creek Road, and surrounded to the east, west and south by the open cut mine area; and
- Martin's Creek BOA: located on the eastern side of the Complex Open Cut access road (Figure 4.1).



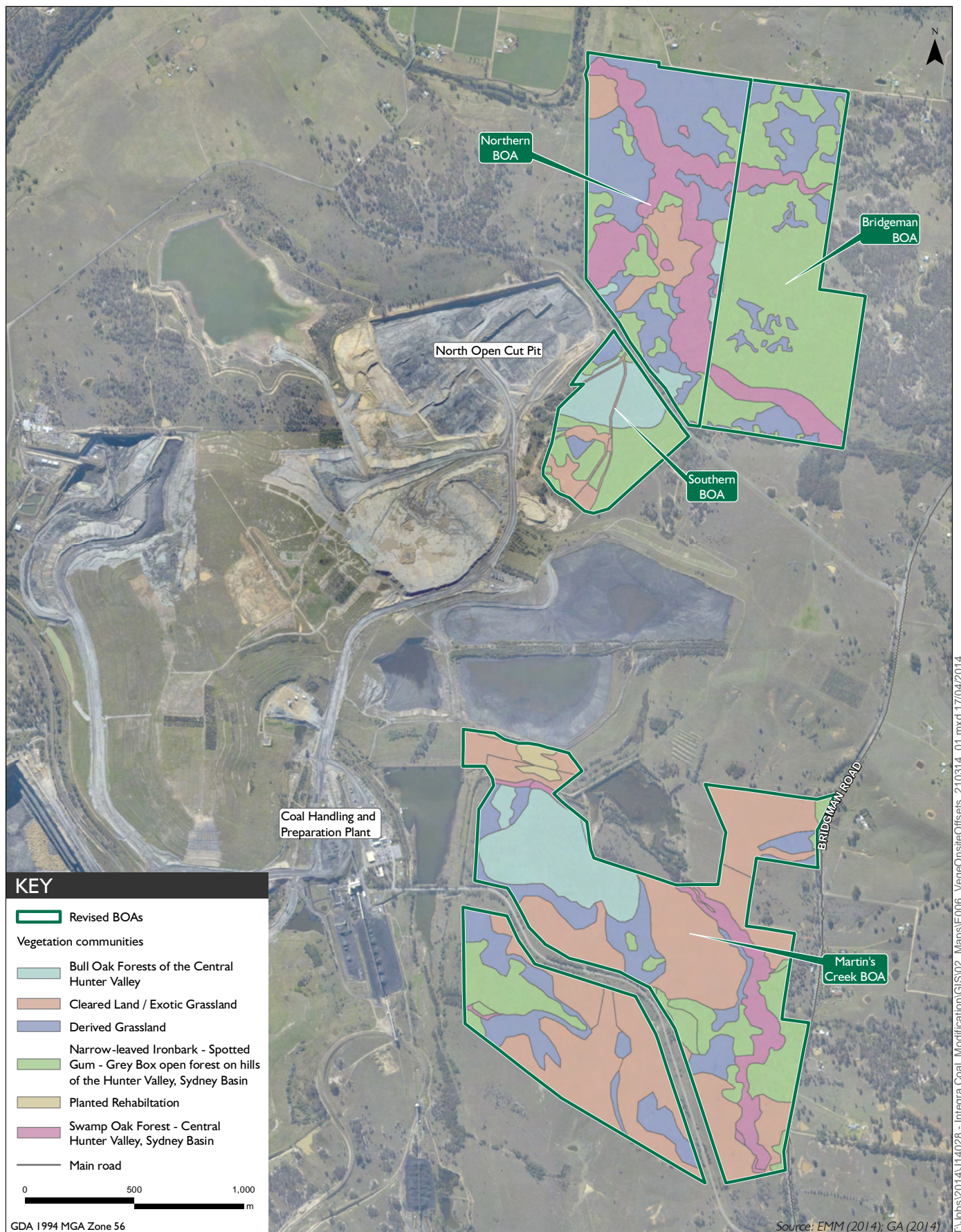
4.2.1 Vegetation communities

The vegetation communities recorded in the onsite BOAs are provided in Table 4.1 and described in the following section, with detailed descriptions of the vegetation communities provided in Table 4.3 to Table 4.7.

Of the 399 ha within the onsite BOAs, three woodland or forest communities were identified, totalling approximately 202 ha. Derived Grassland/Native Pasture, Planted Rehabilitation and Cleared Land/Exotic Grassland occur in the remaining 197 ha (Figure 4.2).

Table 4.2 Vegetation communities in the onsite BOAs

Vegetation community	Bridgman BOA	Martin's Creek BOA	Northern BOA	Southern BOA	Total
Remnant woodland and forest					
Bull Oak Forests	0.1	23.5	2.8	10.0	36.4
Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest	61.8	27.9	12.0	13.9	115.6
Swamp Oak Forest	8.9	12.4	28.4	0.0	49.7
Sub-total remnant woodland and forest	70.8	63.8	43.2	23.9	201.7
Remaining areas					
Planted Rehabilitation	0.0	2.4	0.0	0.0	2.4
Derived Grassland/Native Pasture	15.8	33.3	36.2	1.9	87.2
Cleared Land/Exotic Grassland	0.0	94.1	9.0	4.6	107.7
Sub-total remaining areas	15.8	129.8	45.2	6.5	197.3
Total	86.6	193.6	88.4	30.4	399.0



Vegetation communities in the revised onsite biodiversity offset areas
 Integra Mine Complex Modification 4 Revised Biodiversity Offset Strategy

Table 4.3 Narrow-leaved Ironbark—Spotted Gum—Grey Box Open Forest


Vegetation formation (Keith 2002)	Dry Sclerophyll Forests (Shrub/grass subformation)
Vegetation class (Keith 2002)	Hunter-Macleay Dry Sclerophyll Forests
Vegetation type (Peake 2006)	MU 27 Central Hunter Ironbark – Spotted Gum – Grey Box Gum
Biometric vegetation type (BVT) ID (DECC 2008a)	HU556 Grey Ironbark–Spotted Gum–Grey Box open forest on hills of the Hunter Valley, Sydney Basin
Threatened ecological community	Central Hunter Ironbark–Spotted Gum–Grey Box Forest in the NSW North Coast and Sydney Basin Bioregions endangered ecological community (EEC)
Dominant canopy species	The canopy is sparse, with a mixture of Forest Red Gum (<i>Eucalyptus tereticornis</i>), Grey Box (<i>E. molucana</i>), Spotted Gum (<i>Corymbia maculata</i>), Rough-barked Apple (<i>Angophora floribunda</i>), Narrow-leaved Ironbark (<i>E. crebra</i>) and Broad-leaved Ironbark (<i>E. fibrosa</i>) (PB 2012).
Dominant mid stratum species	The shrub layer includes Butterbush (<i>Pittosporum angustifolium</i>), Broom Bitter-pea (<i>Daviesia genistifolia</i>), <i>Pultenaea retusa</i> , <i>Cassinia aculeata</i> and Fan Wattle (<i>Acacia amblygona</i>) (PB 2012).
Dominant ground stratum species	The ground cover varies in density across this community and includes Slender Rats Tail Grass (<i>Sporobolus creber</i>), <i>Eragrostis cilianensis</i> , Narrawa Burr (<i>Solanum cinereum</i>), Native Bluebell (<i>Wahlenbergia gracilis</i>), <i>Lomandra longifolia</i> , Barbed Wire Grass (<i>Cymbopogon refractus</i>), <i>Stipa sp.</i> , Bristly Cloak Fern (<i>Cheilanthes distans</i>) and Kidney Weed (<i>Dichondra repens</i>) (Vale 2013).
Landscape position	Occurs on crests and ridges on undulating hills and rises of the central Hunter Valley.
Percent cleared in CMA area	60%
Condition class	Moderate-good
Description	The Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest in the BOAs was in moderate to good condition. It is largely restricted to isolated remnant patches, with the exception of the Bridgman BOA which contains a large continuous stand of the community, extending into the Northern BOA.
	

Table 4.4 Bull Oak Forest

Vegetation formation (Keith 2002)	Grassy Woodlands
Vegetation class (Keith 2002)	Coastal Valley Grassy Woodlands
Vegetation type (Peake 2006)	MU 32 Central Hunter Bulloak Forest Regeneration
Biometric vegetation type (BVT) ID (DECC 2008a)	HU668 Bull Oak Forests of the Central Hunter Valley
Threatened ecological community	None
Dominant canopy species	The canopy is 6-12 m in height and dominated by dense stands of Bull Oak (<i>Allocasuarina luehmannii</i>) with occasional Narrow-leaved Ironbark, Rough-barked Apple, Swamp Oak and Grey Box (PB 2012).
Dominant mid stratum species	The shrub layer is generally absent.
Dominant ground stratum species	A sparse ground cover of native grasses including Three-awn Speargrass (<i>Aristida ramosa</i>), Red Grass (<i>Bothriochloa macra</i>), Wallaby Grass (<i>Austrodanthonia bipartita</i>) and Shorthair Plumegrass (<i>Dichelachne micrantha</i>) (Vale 2013). The understorey has been invaded by exotic species, with <i>Melinis repens</i> , <i>Chloris gayana</i> , <i>Senecio madagascariensis</i> , and <i>Hypochaeris glabra</i> common (PB 2012).
Landscape position	On undulating Permian sediments of the central Hunter Valley.
Percent cleared in CMA area	70%
Condition class	Moderate-good
Description	The Bull Oak Forests of the BOAs are regenerating from previous clearing and are considered to be in moderate to good condition.



Table 4.5 Swamp Oak Forest

Vegetation formation (Keith 2002)	Forested Wetlands
Vegetation class (Keith 2002)	Coastal Swamp Forests
Vegetation type (Peake 2006)	MU 28 Central Hunter Swamp Oak Forest
Biometric vegetation type (BVT) ID (DECC 2008a)	HU634 Swamp Oak forest of the central Hunter Valley, Sydney Basin
Threatened ecological community	Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC
Dominant canopy species	Swamp Oak (<i>Casuarina glauca</i>) dominates the canopy, with the occasional Rough-barked Apple and Forest Red Gum.
Dominant mid stratum species	The shrub layer is sparse, with Eastern Cottonbush (<i>Maireana microphylla</i>) and Blackthorn (<i>Bursaria spinosa</i>) occurring where tree cover is sparse.
Dominant ground stratum species	Ground cover species include Three-awn Speargrass (<i>Aristida ramosa</i>) and the weed Tiger Pear (<i>Opuntia aurantiaca</i>) (Vale 2013).
Landscape position	Occurs mostly along alluvial flats and creek banks, although it may occur away from these areas in some places.
Percent cleared in CMA area	95%
Condition class	Moderate–good
Description	The Swamp Oak Floodplain Forest in the BOAs is in moderate to good condition. The canopy is generally regrowth with a dense understorey of exotic and native species in areas (PB 2012).



Table 4.6 **Derived Grassland/Native Pasture**

Vegetation formation (Keith 2002)	Dry Sclerophyll Forests (Shrub/grass subformation)–derived grassland
Vegetation class (Keith 2002)	Hunter-Macleay Dry Sclerophyll Forests–derived grassland
Vegetation type (Peake 2006)	MU 27 Central Hunter Ironbark – Spotted Gum – Grey Box Gum – derived grassland
Biometric vegetation type (BVT) ID (DECC 2008a)	HU556 Grey Ironbark–Spotted Gum–Grey Box open forest on hills of the Hunter Valley, Sydney Basin–derived grassland
Threatened ecological community	None
Dominant canopy species	Where present, the regenerating or remnant paddock trees are similar to those identified within the Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest or in some smaller areas, Bull Oak Forest.
Dominant mid stratum species	Shrubs were generally absent, however there was occasional Fan Wattle (<i>Acacia falcata</i>) and the exotic Eastern Cottonbush (<i>Gomphocarpus fruticosus</i>) in areas. Regenerating eucalypts and Bull Oak was also present in numerous locations.
Dominant ground stratum species	Groundcover is generally greater than 50% native species, with common pasture species such as <i>Paspalum dilatatum</i>) and naturalised and native grasses including Common Couch (<i>Cynodon dactylon</i>), Slender Rat’s Tail Grass, Barbed Wire Grass (<i>Cymbopogon refractus</i>), Three-awn Speargrass (<i>Aristida ramosa</i>), Bristly Cloak Fern (<i>Cheilanthes distans</i>), Common Fringe Sedge (<i>Fimbristylis dichotoma</i>), Common Everlasting (<i>Chrysocephalum apiculatum</i>), Hairy Panic (<i>Panicum effusum</i>), Speargrass (<i>Stipa sp.</i>), Shorthair Plumegrass (<i>Dichelachne micrantha</i>) and Native Bluebell (<i>Wahlenbergia gracilis</i>). Exotic species were also common in some areas and included Fireweed (<i>Senecio madagascariensis</i>), Purpletop (<i>Verbena bonariensis</i>), African Feather Grass (<i>Pennisetum macrourum</i>) and Rhodes Grass (<i>Chloris gayana</i>).
Landscape position	Occurs on crests and ridges on undulating hills and rises of the BOAs that have been previously cleared and grazed.
Percent cleared in CMA area	n/a
Condition class	Moderate (50% of the groundcover is native species)
Description	Derived Grassland/Native Pasture areas within the BOAs were observed in varying stages of natural regeneration as a result of the removal of cattle. In general, these areas contain similar species composition to the Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest, with the canopy absent or in some areas, present as occasional remnant paddock trees or regenerating as juvenile saplings.
	

Table 4.7 Planted Rehabilitation

Vegetation class (Keith 2002)	None
Vegetation type (Peake 2006)	None
Biometric vegetation type (BVT) ID (DECC 2008a)	None
Threatened ecological community	None
Dominant canopy species	Grey Box (<i>E. molucanna</i>) forms a monoculture from previous planting into the overburden (note trees were juvenile with no fruit available to confirm identification).
Dominant mid stratum species	None
Dominant ground stratum species	Native and exotic groundcovers have encroached in some areas, including African Feather Grass, Rhodes Grass Slender Rat's Tail Grass and Three-awn Speargrass.
Landscape position	On an overburden slope in the Martin's Creek BOA.
Percent cleared in CMA area	n/a
Condition class	Moderate (over storey cover is greater than 25% of benchmark and 50% of the groundcover is native species)
Description	The Planted Rehabilitation area occurs in the northern part of the Martin's Creek BOA. Tree species indicative of the Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest community have been directly sown into the overburden in this location and occur with groundcover that is very sparse to absent. Grey Box is the dominant species planted, with the trees up to 15m in height, however the area lacks diversity in the understorey, most likely as a result of the lack of topsoil.



4.2.2 Regeneration of native grassland

The BMP details the methods to rehabilitate and manage land for biodiversity in the BOAs and the mine site during and post mining. The BMP will be updated in accordance with the draft guideline issued by P&I in 2014, *Hunter Valley Coal Mines – Best Practice Guidelines for Biodiversity Offset Management Plans* (Department of Planning and Infrastructure 2013), incorporating the revised BOAs and best practice regeneration methods.

Integra is committed to regenerating the Derived Grassland/Native Pasture throughout the onsite BOAs to form representative patches of Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest. A total of 87.2 ha of Derived Grassland/Native Pasture will be regenerated. The BMP will be updated to reflect this commitment.

The aim of regeneration will be to re-establish functioning ecosystems with diverse vegetation structure, and to maximise fauna habitat and ecosystem processes in the BOAs. A range of methods will be investigated to fulfil this aim, ranging from enhancing existing vegetation structure or function through source planting, to reconstructing Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest using plant species from a range of vegetation strata.

The University of Newcastle’s Centre for Sustainable Ecosystem Restoration has been researching methods for the restoration of native vegetation in the Hunter Valley, particularly areas that have been subjected to clearing, grazing and topsoil loss in the past. This research has resulted in the establishment of interim guidelines for the re-establishment of diverse and functional native vegetation communities, including EECs. These methods have proven successful at various mine sites throughout the Hunter Valley.

Recruitment of canopy species is evident in the BOAs where stock has been removed and weed competition is relatively low given the historical uses of the BOAs for grazing. It is likely that native species are still present in the soil seed bank, particularly adjacent to existing patches of remnant vegetation.

Regeneration outcomes will be closely monitored against performance indicators and completion criteria set out in the BMP.

An additional 108 ha of Cleared Land/Exotic Grassland would also be managed in the BOAs under the BMP. These areas will be managed as a buffer to reduce the introduction and spread of weeds and pests into native vegetation areas. In time, management may result in regeneration of native vegetation, as threats to regeneration are reduced and native vegetation becomes established in adjacent areas.

4.2.3 Threatened species habitat

A number of threatened fauna species have been recorded in the Complex and BOAs over the past seven years. Based on these records, the revised BOAs are likely to provide suitable habitat for the following:

- microbats: Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*), Eastern Freetail Bat (*Mormopterus norfolkensis*) and Yellow-bellied Sheathtail Bat (*Saccolaimus flaviventris*);
- Grey-headed Flying Fox (*Pteropus poliocephalus*);
- Brush-tail Phascogale (*Phascogale tapoatafa*);
- Squirrel Glider (*Petaurus norfolkensis*);
- Spotted-tailed Quoll (*Dasyurus maculatus*) (K.Brickhill *pers comm*); and

- woodland birds: Grey-crowned Babbler (*Pomatostomus temporalis temporalis*), Speckled Warbler (*Pyrrholaemus saggitatus*) and Brown Treecreeper (*Climacteris picumnus victoriae*).

The onsite BOAs include important habitat resources for fauna including hollow-bearing trees, flowering eucalypts, riparian corridors and ecotonal areas. Such features will be managed under the BMP to improve habitat quality in the BOAs into the future.

4.2.4 Long-term conservation and management

Integra is investigating appropriate mechanisms to protect the onsite BOAs. It is likely that the onsite BOAs will be protected by a combination of options. Integra is committed to providing long-term security in accordance with condition 43 of the Project Approvals. The appropriate mechanisms for this will be determined in consultation with OEH and P&I.

As discussed in Section 4.2.2, the BMP for the onsite BOAs will be updated to reflect the changes in the revised biodiversity offset strategy.

4.3 Offsite BOA

The Appletree Flat BOA comprises two lots, approximately 30 km to the south-west of the Complex. The Appletree Flat BOA is surrounded by the Wollemi National Park (Figure 2.1).

While the Appletree Flat BOA does not contain any areas of Central Hunter Ironbark-Spotted Gum–Grey Box Forest EEC, it forms a vital part of regional remnant vegetation that links the habitats located between the Upper Hunter Valley and the coast. The conservation of the site would also assist with regional conservation aims, and will improve the quality and management of remnant vegetation at the site.

The Appletree Flat BOA occurs on the Narrabeen Sandstones common in the Wollemi National Park. Some vegetation on richer soils (shale caps and lenses) has been influenced by previous wood collection and grazing activities, with regenerating areas evident in the northern section of the eastern lot.

A transmission line easement also traverses the eastern lot. However, given the topography, dense vegetation is still present along most of the valley areas, providing connectivity for fauna species throughout the site and into the adjacent national park (see Photograph 4.1).



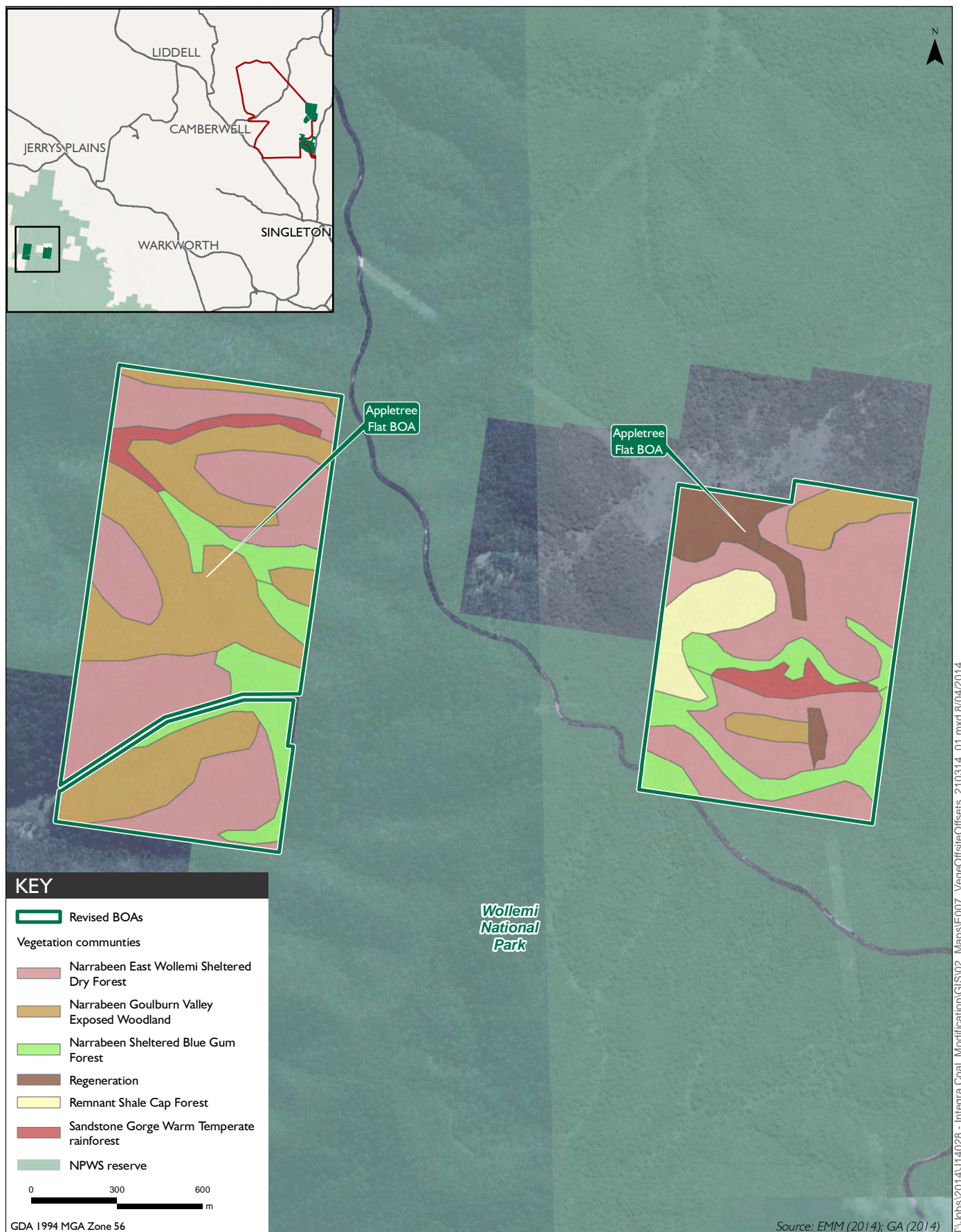
Photograph 4.1 Cleared areas around the transmission towers (mapped as Regenerating vegetation) on the eastern Appletree Flat lot, showing habitat connectivity between tower locations

4.3.1 Vegetation communities

The Appletree Flat property contains 215.9 ha of native vegetation comprising five native vegetation communities and a regenerating community (Table 4.8). The vegetation communities recorded are summarised in Table 4.1 and described in Table 4.9 to 4.13.

Table 4.8 Vegetation communities at Appletree Flat

Vegetation community	Area (ha)
Narrabeen Goulburn Valley Exposed Woodland	60.0
Narrabeen Sheltered Blue Gum Forest	32.9
Narrabeen East Wollemi Sheltered Dry Forest	96.4
Sandstone Gorge Warm Temperate Rainforest	7.8
Remnant Shale Cap Forest	9.2
Regeneration	9.6
Total	215.9



Vegetation communities in the offsite biodiversity offset area
 Integra Mine Complex Modification 4 Revised Biodiversity Offset Strategy

Table 4.9 **Narrabeen Goulburn Valley Exposed Woodland**

Vegetation formation (Keith 2002)	Dry Sclerophyll Forests (Shrubby subformation)
Vegetation class (Keith 2002)	Sydney Hinterland Dry Sclerophyll Forests
Vegetation type (Bell 2005)	Narrabeen Goulburn Valley Exposed Woodland
Biometric vegetation type (BVT) ID (DECC 2008a)	HU553 Grey Gum–Narrow-leaved Stringybark heathy open forest on the hinterland ranges of the Central Coast, Sydney Basin
Threatened ecological community	None
Dominant canopy species	Narrow-leaved Stringybark (<i>Eucalyptus sparsifolia</i>), Grey Gum (<i>Eucalyptus punctata</i>) and Smooth-barked Apple (<i>Angophora costata</i>) dominate with occasional Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>) in areas.
Dominant mid stratum species	Prickly Shaggy Pea (<i>Podolobium ilicifolium</i>), <i>Persoonia linearis</i> , Cycad (<i>Macrozamia sp.</i>) and Forest Oak (<i>Allocasuarina torulosa</i>).
Dominant ground stratum species	Flax-lily (<i>Dianella revoluta</i>), <i>Lepidosperma laterale</i> , <i>Poa sp.</i> , Wiry Panic (<i>Entolasia stricta</i>), Spiny-headed Mat-rush (<i>Lomandra longifolia</i>) and Blunt Beard-heath (<i>Leucopogon muticus</i>).
Landscape position	Crests, ridges exposed slopes over Narrabeen Sandstones in the Watagan and Yengo Areas.
Percent cleared in CMA area	5%
Condition class	Moderate–good
Description	Usually on the crests and northern and western slopes on Narrabeen sandstone with sandstone outcropping evident. Hollow bearing trees are common in this vegetation type, particularly in rocky areas where wood collection has been limited by the topography.



Table 4.10 **Narrabeen Sheltered Blue Gum Forest**


Vegetation formation (Keith 2002)	Wet Sclerophyll Forests (Shrubby subformation)
Vegetation class (Keith 2002)	North Coast Wet Sclerophyll Forests
Vegetation type (Bell 2005)	Narrabeen Sheltered Blue Gum Forest
Biometric vegetation type (BVT) ID (DECC 2008a)	HU571 Mountain Blue Gum–Turpentine moist shrubby open forest of the coastal ranges of the Central Coast, Sydney Basin
Threatened ecological community	None
Dominant canopy species	Sydney Blue Gum (<i>Eucalyptus saligna</i>) dominates with Rough-barked Apple (<i>Angophora floribunda</i>), occasional Grey Gum and stringybarks.
Dominant mid stratum species	Forest Oak (<i>Allocasuarina torulosa</i>) forms a sub-canopy with <i>Pittosporum undulatum</i> , and occasional <i>Acacia parramattensis</i> and Grey Myrtle (<i>Backhousia myrtifolia</i>).
Dominant ground stratum species	Groundcovers included <i>Poa sp.</i> , Blue Flax-lily (<i>Dianella caerulea</i>), <i>Hydrocotyle peduncularis</i> , Common Silkpod (<i>Personsia straminea</i>), Dusky Coral Pea (<i>Kennedia rubicunda</i>), Climbing Guinea Flower (<i>Hibbertia scandens</i>) and Whiteroot (<i>Pratia purpurescens</i>).
Landscape position	Occurs in sheltered locations including slopes and gullies on Narrabeen Sandstones and on shale influenced soils on ridges of the central Watagan Range. Found in gullies of Yengo National Park and western Watagan Ranges.
Percent cleared in CMA area	10%
Condition class	Moderate–good
Description	Occurs in sheltered gullies and slopes above rainforest as a tall community, but with few over-mature trees present.
	

Table 4.11 **Narrabeen East Wollemi Sheltered Dry Forest**

Vegetation formation (Keith 2002)	Dry Sclerophyll Forests (Shrubby subformation)
Vegetation class (Keith 2002)	Sydney Hinterland Dry Sclerophyll Forests
Vegetation type (Bell 2005)	Narrabeen East Wollemi Sheltered Dry Forest
Biometric vegetation type (BVT) ID (DECC 2008a)	HU554 Grey Gum–Smooth-barked Apple open forest of the dry hinterland of the Central Coast, Sydney Basin
Threatened ecological community	None
Dominant canopy species	Grey Gum and Narrow-leaved Stringybark (<i>Eucalyptus sparsifolia</i>) dominate this community, with occasional Smooth-barked Apple and Rough-barked Apple (<i>Angophora floribunda</i>)
Dominant mid stratum species	Sub-canopy and shrubs consisted of Forest Oak (<i>Allocasuarina torulosa</i>), <i>Acacia fulva</i> , Blackthorn (<i>Bursaria spinosa</i>) and Lance-leaf Geebung (<i>Persoonia lanceolata</i>).
Dominant ground stratum species	Blue Flax-lily Wiry Panic (<i>Entolasia stricta</i>), Purple Coral Pea (<i>Hardenbergia violacea</i>), Many flowered Mat-rush (<i>Lomandra multiflora</i>), <i>Poa</i> sp. and Rough Bush-pea (<i>Pultenaea scabra</i>) were common throughout this community.
Landscape position	Occurs on mid to upper slopes in protected locations on Narrabeen Sandstones.
Percent cleared in CMA area	5%
Condition class	Moderate -good
Description	Usually on southern steeper slopes, but also on other sloping areas in sheltered locations.



Table 4.12 Sandstone Gorge Warm Temperate Rainforest

Vegetation formation (Keith 2002)	Rainforests
Vegetation class (Keith 2002)	Northern Warm Temperate Rainforests
Vegetation type (Peake 2006)	Sandstone Gorge Warm Temperate Rainforest
Biometric vegetation type (BVT) ID (DECC 2008a)	HU529 Coachwood–Crabapple warm temperate rainforest of the North Coast and northern Sydney Basin
Threatened ecological community	None
Dominant canopy species	Sassafras (<i>Doryphora sassafras</i>) with Coachwood (<i>Ceratopetalum apetalum</i>), Grey Myrtle, <i>Ficus rubiginosa</i> , Crabapple (<i>Schizomeria ovata</i>) and Sandpaper Fig (<i>Ficus coronata</i>) dominate the canopy, with emergent Sydney Blue Gum in areas.
Dominant mid stratum species	The mid-stratum was dominated by typical canopy species, Pittosporum and vines including Water Vine (<i>Cissus hypoglauca</i>) and White Supplejack (<i>Ripogonum album</i>).
Dominant ground stratum species	Ground vegetation is sparse but diverse, often with ferns including Black Stem (<i>Adiantum formosum</i>), Eared Swamp Fern (<i>Blechnum camfieldii</i>), Gristle Fern (<i>Blechnum cartilagineum</i>), Rainbow Fern (<i>Calochlaena dubia</i>), Prickly Rasp Fern (<i>Doodia aspera</i>), Sickie Fern (<i>Pellaea falcata</i>) and Stingling Nettle (<i>Urtica incisa</i>).
Landscape position	In sheltered moist situations at low to intermediate altitudes.
Percent cleared in CMA area	30%
Condition class	Moderate–good
Description	Occurs in protected gullies on alluvial and colluvial soils.



Table 4.13 Remnant Shale Cap Forest

Vegetation formation (Keith 2002)	Wet Sclerophyll Forests (Grassy subformation)
Vegetation class (Keith 2002)	Northern Hinterland Wet Sclerophyll Forests
Vegetation type (Bell 2005)	Remnant Shale Cap Forest
Biometric vegetation type (BVT) ID (DECC 2008a)	HU601 Rough-barked Apple–Grey Gum grassy open forest of the hinterland hills of the Central Coast, Sydney Basin
Threatened ecological community	None
Dominant canopy species	Narrow-leaved Stringybark, Rough-barked Apple, Grey Gum (<i>Eucalyptus punctata</i>), with occasional White Stringybark (<i>Eucalyptus globoidea</i>) and Grey Ironbark (<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>).
Dominant mid stratum species	Shrub and sub-canopy species included Parramatta Wattle, <i>Acacia fulva</i> , Forest Oak, Blackthorn, Gorse Bitter Pea and <i>Exocarpus</i> sp..
Dominant ground stratum species	Groundcovers and climbers included Wombat Berry (<i>Eustrephus latifolius</i>), Purple Coral Pea, Wiry Panic, Shrub Violet (<i>Hybanthus floribundus</i>), Many flowered Mat-rush (<i>Lomandra multiflora</i>), Lance-leaf Geebung and Whiteroot.
Landscape position	Occurs on slopes and ridges with deeper shale lenses on Narrabeen Sandstones.
Percent cleared in CMA area	5%
Condition class	Moderate–good
Description	Occurs as a tall open forest which has been subject to grazing and firewood collection in the past.



Table 4.14 Regeneration

Vegetation formation (Keith 2002)	Wet Sclerophyll Forests (Grassy subformation)—regenerating
Vegetation class (Keith 2002)	Northern Hinterland Wet Sclerophyll Forests—regenerating
Vegetation type (Bell 2005)	Remnant Shale Cap Forest—regenerating
Biometric vegetation type (BVT) ID (DECC 2008a)	HU601 Rough-barked Apple–Grey Gum grassy open forest of the hinterland hills of the Central Coast, Sydney Basin—regenerating
Threatened ecological community	None
Dominant canopy species	None
Dominant mid stratum species	<i>Acacia fulva</i> dominates the shrub and small-tree layer.
Dominant ground stratum species	Ground covers include Wiry Panic (<i>Entolasia stricta</i>), <i>Pratia purpurascens</i> , Blue Flax-lily, <i>Billardiera scandens</i> , Bracken Fern (<i>Pteridium esculentum</i>), Kikuyu, Paspalum and occasional Kangaroo Grass (<i>Themeda australis</i>).
Landscape position	Occurs on slopes with deeper shale lenses on Narrabeen Sandstones that have been previously cleared or within the transmission line easements on ridges (where it is more representative of Narrabeen East Wollemi Sheltered Dry Forest).
Percent cleared in CMA area	5%
Condition class	Low-moderate
Description	Subject to grazing and firewood collection in the past on the productive soils of the valley floor. Areas adjacent to the transmission towers are subject to ongoing maintenance activities and the subsequent introduction of weeds.



4.3.2 Threatened species habitat

No flora species listed as threatened under the TSC AC or EPBC Act were identified during the survey of the Appletree Flat property. However, potential habitat is likely for the following:

- White-flowered Wax Plant (*Cynanchum elegans*);
- *Olearia cordata*;
- *Dillwynia tenuifolia*;
- Capertee Stringybark (*Eucalyptus cannonii*);
- *Cymbidium canaliculatum* (endangered population); and
- Hairy Geebung (*Persoonia hirsuta*).

The Rare and Threatened Australian Plant (ROTAP) *Acacia fulva* (2RC-) was identified in the regeneration area in large numbers and also throughout the Remnant Shale Cap Forest and into areas of the Narrabeen East Wollemi Sheltered Dry Forest.

The Appletree Flat property contains a range of fauna habitat. This includes areas with hollow-bearing trees, rock outcrops and cave structure, fruiting trees and flowering eucalypts, and dense shrubby understorey. Three threatened fauna species were identified at the Appletree Flat property by PB (2013b):

- Speckled Warbler (*Pyrrholaemus sagittatus*);
- Varied Sittella (*Daphoenositta chrysoptera*); and
- Turquoise Parrot (*Neophema pulchella*).

Other fauna species considered likely to occur, given the habitat present and recent nearby records, include:

- Glossy Black-cockatoo (*Calyptorhynchus lathami*);
- microbats: Large-eared Pied Bat (*Chalinolobus dwyeri*), Eastern False Pipistrelle (*Falsistrellus tasmaniensis*), Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis*) (recorded by EMM using an Anabat detector), Eastern Cave Bat (*Vespadelus troughtoni*);
- mammals: Koala (*Phascolarctos cinereus*), Yellow-bellied Glider (*Petaurus australis*), Spotted-tailed Quoll and Squirrel Glider (*Petaurus norfolcensis*); and
- Sooty Owl (*Tyto tenebricosa*).

4.3.3 Long-term conservation and management

The Appletree Flat BOA is proposed for dedication as a conservation reserve under the *National Parks and Wildlife Act 1974* (NPW Act). OEH has already provided in-principle agreement to the current landowners for the addition of this property to the reserve system and advised that the formal reserve referral process is not required as it is an in-holding within the Wollemi National Park.

Integra will consult with OEH and P&I regarding the long term security of the Appletree Flat BOA, which is likely to involve protection in perpetuity under the control and management of OEH and the NSW National Parks and Wildlife Service (NPWS).

5 Adequacy of revised biodiversity offset strategy

5.1 Overview

The revised biodiversity offset strategy has been compared against the Project Approval, approved project impacts and the approved BOAs to ensure that the ecological requirements have been provided in revised BOAs. The strategy has also been assessed according to relevant OEH offset policies.

The revised biodiversity offset strategy aims to provide like for like or similar vegetation and threatened species habitat when compared to the approved biodiversity offset strategy in the long-term, while also meeting the Project Approval conditions.

5.2 Comparison against approved project and approved BOAs

5.2.1 Vegetation

Offset ratios, based on the area (quantity) of each vegetation community in the BOAs compared to the area impacted by the approved project, were used to compare the outcomes of the revised biodiversity offset strategy with the approved biodiversity offset strategy.

The revised biodiversity offset strategy would result in an equivalent offset to impact ratio as the approved biodiversity offset strategy for Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest conserved in the medium to long-term (Table 5.1). A total of 202.8 ha of this community is included in the revised biodiversity offset strategy, which includes approximately 87 ha of regeneration from areas identified as containing Derived Grassland/Native Pasture. It is important to note that regeneration of this community is not mine rehabilitation, and will only occur in areas which have not been previously disturbed for mining.

The revised BOAs would result in an improved outcome for the area of native vegetation conserved and improved when compared to the approved offset areas (Table 5.1). An additional 212.6 ha of native vegetation is included in the revised biodiversity offset strategy when compared to the approved BOAs, resulting in an offset to impact ratio of 4.9:1. Some of this is a result of the reclassification of some of the 'cleared' areas to Derived Grassland/Native Pasture (up to 87 ha), but it is largely a result of the amount of native vegetation at the Appletree Flat BOA.

The revised offsets provide an improved offset outcome overall. When compared with the approved BOAs, the revised biodiversity offset strategy:

- provides similar offset to impact ratios for the vegetation communities impacted by the approved project;
- increases the percentage of native vegetation in the offsets (31% more); and
- provides an additional approximately 40 ha of offset area.

Table 5.1 Revised offset ratios for native vegetation

Vegetation community	Approved project (ha)	Approved BOAs		Revised offset strategy	
		Offset (ha) (includes regeneration) ¹	Offset to impact ratio	Offset (ha) (includes regeneration) ¹	Offset to impact ratio (includes regeneration) ¹
Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest (Central Hunter Ironbark-Spotted Gum–Grey Box Forest EEC)	87.3	213.8	2.4:1	202.8	2.3:1
Swamp Oak Forest	5.0	53.4	10.7:1	49.7	9.9:1
Shrubland	0.7	0	n/a	0	n/a
Tussock Grassland	9.1	0	n/a	0	n/a
Other woodland and forest (includes regeneration/shrubland)	0	45.0	n/a	252.3	n/a
Total native vegetation	102.1	292.2	2.9:1	504.8	4.9:1
Total area (ha)	413.7	575.3	1.4:1	614.9	1.5:1
Percent of the offset containing native vegetation	25.0%	50.8%		82.1%	

Note: 1. This is regeneration in the derived native grassland and native pasture within the BOAs (not mine rehabilitation).

Although the revised BOAs remove some of the approved offset areas from the package, these areas will remain under the management of Integra. The removed offset areas will not be lost as a result of this modification. These areas will still provide important habitat for threatened species in the locality into the future.

5.2.2 Fauna habitat

The revised BOAs provide offset to impact ratios for threatened species between 1.7:1 and 5.7:1, which is an equivalent or in most cases, improved outcome for all species when compared with the approved BOAs (Table 5.2). This has resulted from the increase in native vegetation and potential habitat provided in the revised biodiversity offset strategy.

Table 5.2 Revised biodiversity offset strategy threatened species offset ratios

Threatened fauna	Impact area (ha)	Offset area (ha)	Offset to impact ratio (includes regeneration) ¹	Biodiversity outcome of revised BOAs
Squirrel Glider (woodland habitat)	87.3	202.8	2.3:1	Equivalent
Grey-crowned Babbler (woodland habitat)	88.0	202.8	2.3:1	Equivalent
Eastern Bent-wing Bat (woodland habitat)	93.0	504.8	5.4:1	Improved
Eastern Freetail Bat (woodland habitat)	93.0	504.8	5.4:1	Improved
Yellow-bellied Sheath-tail Bat (woodland and native grassland habitat)	362.0	614.9	1.7:1	Improved
Grey-headed Flying Fox (woodland habitat)	88.0	504.8	5.7:1	Improved

Table 5.2 Revised biodiversity offset strategy threatened species offset ratios

Threatened fauna habitat)	Impact area (ha)	Offset area (ha)	Offset to impact ratio (includes regeneration) ¹	Biodiversity outcome of revised BOAs
Speckled Warbler (woodland habitat)	88.0	202.8	2.3:1	Improved
Brown Treecreeper (woodland habitat)	88.0	202.8	2.3:1	Improved
Brush-tail Phascogale (woodland habitat)	88.0	202.8	2.3:1	Improved

Note: 1. This is regeneration in the derived native grassland and native pasture within the BOAs (not mine rehabilitation).

5.3 Conditions of approval

As discussed in Section 1.1, the biodiversity offset requirements are prescribed in the Project Approvals. The revised biodiversity offset strategy meets all the conditions of the Project Approvals related to biodiversity offsets. A discussion of these is provided in Table 5.3.

Table 5.3 Comparison against conditions of approval

Condition	Discussion
41. A minimum of 373 ha of offsets	<p>This condition has been met.</p> <p>The revised BOS provides a total of 614.9 ha of offset areas, which is 241.9 ha more than the approval requires.</p> <p>The revised BOAs also add an additional approximately 40 ha of offset area when compared with the approved BOAs, and 212.6 ha of native vegetation.</p> <p>Therefore the revised BOAs provide an improved outcome for native vegetation than what is required under the Project Approval.</p>
42 (a). A minimum of 140 ha of Narrow-leaved Ironbark-Spotted Gum-Forest Red Gum Forest (or a suitable equivalent)	<p>This condition has been met.</p> <p>The revised BOS provides 202.8 ha of Narrow-leaved Ironbark-Spotted Gum-Forest Red Gum Forest, comprising 115.5 ha of woodland and 87.3 ha of Derived Grassland/Native Pasture that Integra is committed to regenerated to a woodland form of this community. This is 62.8 ha more than the approval requires and will result in an increase in the amount of this community in the local area.</p>
42 (b). An additional 6 hectares of Central Hunter Swamp Oak Forest (outside the Northern, Southern, Western, Bridgman and Supplementary BOAs which contained 31 ha of this community)	<p>This condition has been met.</p> <p>The revised BOS provides 49.7 ha of this community in total, which is 12.7 ha more than the 37 ha required (31 ha in the approved BOAs plus the additional 6 ha) by the Project Approvals.</p>

5.4 OEH offset policy

At the time of Project Approval, the *Principles for the Use of Biodiversity Offsets in NSW* would have been used by OEH to determine the adequacy of offset strategies. The policy consisted of 13 principles to be considered. For consistency these have been discussed for the revised BOAs in Table 5.4. As the project will not generate any additional disturbance or impacts as a result of the current proposal, the revised BOAs have been compared against the approved project and the approved BOAs.

Table 5.4 **Assessment against OEH 2011 policy**

Principle	Discussion
1. Impacts must be avoided first by using prevention and mitigation measures.	The avoidance and mitigation of impacts on biodiversity has been addressed in the approved environmental assessments for the underground and open cut projects and subsequent modifications. As this modification only seeks to alter the approved BOAs and does not propose any disturbance or additional impacts compared to the approved project, this principle is not applicable for the modification.
2. All regulatory requirements must be met.	The revised biodiversity offset strategy is not being used to satisfy any other assessment or approval requirements under any other legislation.
3. Offsets must never reward ongoing poor performance.	Integra is committed to the improvement of the BOAs. A BMP is in place to ensure this, with various management activities including weed and feral animal management and planting strategies being completed in the BOAs under the BMP. The revision of the BMP will include a detailed monitoring program to evaluate the performance of the management actions under the BMP.
4. Offsets will complement other government programs.	The revised biodiversity offset strategy will protect and enhance vegetation communities of conservation significance in the Hunter CMA. It will also add to current knowledge on the regeneration success for the EECs in the region. It will also assist in the conservation and management of the in-holdings of the Wollemi National Park, by adding these areas to the reserve estate.
5. Offsets must be underpinned by sound ecological principles.	<p>Proposed offsets have been selected to ensure that the ecological requirements of the Project Approval are met and that like for like or similar equivalent vegetation and threatened species habitat have been provided when comparing the revised biodiversity offset strategy with the approved biodiversity offset strategy.</p> <p>As such, offset to impact ratios for threatened communities impacted by the approved project and allocated under the approved biodiversity offset strategy, have been used as a guide to ensure that the offset requirements have been met. In addition, the minimum offset requirements outlined in the Project Approval have been met and exceeded in the revised biodiversity offset strategy.</p> <p>As the modification will not require impacts to any native vegetation, this approach is considered to be appropriate to determine the quantum and ecological values required to replace the approved offset strategy in accordance with the Project Approval and offset requirements at the time of approval, which would have been determined using appropriate ecological principles.</p>
6. Offsets should aim to result in a net improvement in biodiversity over time.	<p>The revised BOAs provide a substantial commitment to the improvement of threatened ecological communities in the local area through the regeneration, management and protection of these areas. The Appletree Flat BOA will assist in meeting regional conservation and management aims for the Wollemi National Park, and significantly increase the amount of native vegetation and threatened species habitat included in the revised biodiversity offset strategy, when compared with the approved BOAs.</p> <p>Excised areas are not proposed to be impacted under this modification, and will remain under the management of Integra as the landowner, managed in the same manner as Integra's other land holdings at the Complex in accordance with Integra's suite of environmental management plans.</p>
7. Offsets must be enduring – they must offset the impact of the development for the period that the impact occurs.	<p>Integra is investigating appropriate mechanisms to protect the onsite BOAs. Integra is committed to providing long-term security in accordance with condition 43 of the Project Approvals. The appropriate mechanisms for this will be determined in consultation with OEH and P&I.</p> <p>The Appletree Flat BOA is proposed to be protected in perpetuity under the control and management of the NSW NPWS.</p>
8. Offsets should be agreed prior to the impact occurring.	The current offset package was determined prior to the approved impacts occurring at the Complex.

Table 5.4 Assessment against OEH 2011 policy

Principle	Discussion
9. Offsets must be quantifiable – the impacts and benefits must be reliably estimated.	As the modification does not propose any impacts to any native vegetation, this approach is considered to be appropriate to determine the quantum and ecological values required to replace the approved offset strategy in accordance with the Project Approval and offset requirements at the time of approval, which would have been determined using appropriate ecological principles and would have been reliably estimated.
10. Offsets must be targeted.	As discussed above, the revised biodiversity offset strategy aims to provide similar or better values than those provided in the approved offsets. It also provides similar offset to impact ratios as the approved biodiversity offset strategy. The revised onsite BOA areas contain communities that are representative of the Integra Open Cut and Underground projects (the approved project). The Appletree Flat BOA comprises a property with high conservation significance as an addition to the reserve network and important threatened fauna habitat.
11. Offsets must be located appropriately.	The onsite BOAs occur surrounding the approved project and incorporate similar vegetation communities to those impacted. The Appletree Flat BOA has been located to provide regional biodiversity outcomes, in an in-holding that when added to the reserve network, will assist in the management and conservation of threatened species habitat in the region.
12. Offsets must be supplementary.	There are no current legal requirements for conservation management on the revised BOAs, however Integra is managing these areas for conservation under the approved biodiversity offset strategy and BMP.
13. Offsets and their actions must be enforceable through development consent conditions, licence conditions, conservation agreements or a contract.	Through the project approval as proposed to be modified, the revised biodiversity offset strategy will be enforceable. The management actions in the revised BOAs will be detailed under the revised BMP which will form part of the Integra Environmental Management System for the Complex.

The *Draft NSW Biodiversity Offsets Policy for Major Projects* (OEH 2014) has been recently released to determine the adequacy of offset strategies for major projects. This draft policy is not yet in force, nevertheless, the revised BOAs have been assessed against this policy (Table 5.5).

The principles have been developed for assessing impacts on biodiversity and determining acceptable offsets for state significant development and state significant infrastructure projects. As the project will not generate any additional disturbance or impacts as a result of the current proposal, the comparison against the approved project and the approved BOAs has been included in the discussion of adequacy.

Table 5.5 Assessment against OEH 2014 policy

Principle	Discussion
1. Before offsets are considered, impacts must first be avoided and unavoidable impacts minimised through mitigation measures. Only then should offsets be considered for the remaining impacts.	The avoidance and mitigation of impacts on biodiversity has been addressed in the approved environmental assessments for the underground and open cut projects and subsequent modifications. As this modification only seeks to alter the approved BOAs and does not propose any disturbance or additional impacts compared to the approved project, this principle is not applicable for the modification.

Table 5.5 **Assessment against OEH 2014 policy**

Principle	Discussion
2. Offset requirements should be based on a reliable and transparent assessment of losses and gains.	<p>Losses and gains are not applicable, as the modification will not result in any impacts. The modification is only seeking to replace the approved biodiversity offset strategy by providing an equivalent or improved package.</p> <p>As the consolidated approvals date from 2007 to 2012, a range of techniques has been employed previously to determine the suitability of offsets for each stage of the project. As the area and vegetation types required to compensate for the project's impacts has been approved, it is assumed that an adequate assessment of the losses and gains was completed.</p> <p>The revised biodiversity offset strategy aims to provide similar or better values than those provided in the approved BOAs. An equivalent or better outcome for EEC, native vegetation and threatened species habitat has been provided in the revised biodiversity offset strategy.</p> <p>As the modification will not generate any impacts to any native vegetation, this approach is considered to be appropriate to determine the quantum and ecological values required to replace the approved offset strategy in accordance with the Project Approval and offset requirements at the time of approval, which would have been determined using appropriate ecological principles.</p>
3. Offsets must be targeted to the biodiversity values being lost or to higher conservation priorities.	<p>As discussed above, the revised biodiversity offset strategy aims to provide similar or better values than those provided in the approved offsets. It also provides similar offset to impact ratios as the approved biodiversity offset strategy. The revised onsite BOA areas contain communities that are representative of the Integra Open Cut and Underground projects (the approved project). The Appletree Flat BOA comprises a property with high conservation significance as an addition to the reserve network and important threatened fauna habitat.</p>
4. Offsets must be additional to other legal requirements.	<p>There are no current legal requirements for conservation management on the revised BOAs, however Integra is managing these areas for conservation under the approved biodiversity offset strategy and BMP. The revised biodiversity offset strategy includes the regeneration of a significant area of Narrow-leaved Ironbark–Spotted Gum–Grey Box Open Forest, part of the Central Hunter Ironbark–Spotted Gum–Grey Box Forest EEC. It also includes the active management of the onsite BOA areas to improve the conservation values present.</p>
5. Offsets must be enduring, enforceable and auditable.	<p>Integra is investigating appropriate mechanisms to protect the onsite BOAs. Integra is committed to providing long-term security in accordance with condition 43 of the Project Approvals. The appropriate mechanisms for this will be determined in consultation with OEH and P&I.</p> <p>The Appletree Flat BOA will be protected in perpetuity under the control and management of OEH and the NSW NPWS.</p>
6. Supplementary measures can be used in lieu of offsets.	<p>The revised offset strategy comprises entirely of land-based offsets, with no supplementary measures.</p>
7. Offsets can be discounted where significant social and economic benefits accrue to NSW as a consequence of the proposal.	<p>Economic and social benefits will be realised as a result of the modification, as the approved biodiversity offset strategy would sterilise potential future coal resources. Despite this, the revised biodiversity offset strategy has not been discounted. The changes to the offset strategy have assessed for adequacy against the approved project impacts and approved biodiversity offset strategy and are justified in the absence of discounting.</p>

6 Conclusion

Integra intends to request the Minister for Planning and Infrastructure to modify its Project Approvals under section 75W of the EP&A Act for the Complex. The proposed modification relates exclusively to alterations to the approved biodiversity offset strategy for the Complex. It is important to note that no additional mining, disturbance, physical changes, vegetation clearing or any other changes are proposed as part of the modification.

The revised biodiversity offset strategy incorporates onsite and offsite BOAs. The onsite BOAs are a modified version of the approved BOAs which surround the Complex and contain the same vegetation and habitat values as the approved biodiversity offset strategy. The Appletree Flat BOA represents an offsite property surrounded by the Wollemi National Park, which provides important habitat and connectivity for threatened fauna species and the reserve network.

The revised biodiversity offset strategy has been developed to ensure an improved biodiversity outcome. The adequacy of the revised biodiversity offset strategy has been assessed against the Project Approval, the impacts of the approved project, the approved biodiversity offset strategy, the *Principles for the Use of Biodiversity Offsets in NSW* (OEH 2011) and the seven principles in the *Draft NSW Biodiversity Offsets Policy for Major Projects* (OEH 2014).

The revised biodiversity offset strategy contains vegetation and habitat values similar to those in the approved offset areas and in the approved project areas. This includes an equivalent amount of Central Hunter Ironbark–Spotted Gum–Grey Box Forest EEC with the inclusion of specific regeneration activities in the offset areas, and an equivalent amount of Swamp Oak Floodplain Forest EEC. It also provides a similar, or in some cases improved, outcome for threatened species habitat.

The revised offsets provide an improved offset outcome overall. When compared with the approved BOAs, the revised biodiversity offset strategy:

- provides similar offset to impact ratios for the vegetation communities impacted by the approved project;
- increases the percentage of native vegetation in the offsets (31% more); and
- provides an additional approximately 40 ha of offset area.

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Appendix A

Flora and fauna recorded by EMM

Table A.1 **Flora species recorded by EMM**

Common name	Scientific name	Onsite BOAs					Appletree Flat BOA			
		Derived Grassland	Derived Grassland	Derived Grassland	Derived Grassland	Additional species recorded	Narrabeen East Wollemi Sheltered Dry Forest	Remnant Shale Cap Forest	Sandstone Gorge Warm Temperate Rainforest	Additional species recorded
		RA1	RA2	RA3	RA4		RA1	RA2	RA3	
Fan Wattle	<i>Acacia ambygona</i>									X
-	<i>Acacia falcata</i>	X								
Velvet Wattle	<i>Acacia fulva</i>						X	X		X
Parramatta Wattle	<i>Acacia parramattensis</i>							X		X
Black Stem	<i>Adiantum formosum</i>								X	
Bull Oak	<i>Allocasuarina luehmannii</i>					X				
Forest Oak	<i>Allocasuarina torulosa</i>						X	X		X
Sydney Red Gum	<i>Angophora costata</i>						X			X
Rough-barked Apple	<i>Angophora floribunda</i>						X	X		X
Three-awn Speargrass	<i>Aristida ramosa</i>		X	X	X					
Wallaby Grass	<i>Austrodanthonia bipartita</i>	X								
Grey Myrtle	<i>Backhousia myrtifolia</i>								X	X
Hairy Apple Berry	<i>Billardiera scandens</i>									X
Eared Swamp Fern	<i>Blechnum camfieldii</i>								X	
Gristle Fern	<i>Blechnum cartilagineum</i>								X	
Red-leg Grass	<i>Bothriochloa macra</i>	X	X							
Blackthorn	<i>Bursaria spinosa</i>						X	X		
Rainbow Fern	<i>Calochlaena dubia</i>								X	
-	<i>Cassinia aculeata</i>									X

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		RA1	RA2	RA3	RA4		RA1	RA2	RA3	
Swamp Oak	<i>Casuarina glauca</i>					X				
Coachwood	<i>Ceratopetalum apetalum</i>								X	
Bristly Cloak Fern	<i>Cheilanthes distans</i>		X	X						
Mulga Fern	<i>Cheilanthes sieberi</i>									X
Rhodes Grass	<i>Chloris gayana*</i>	X								
Common Everlasting	<i>Chrysocephalum apiculatum</i>			X	X					
Water Vine	<i>Cissus hypoglauca</i>								X	
Fleabane	<i>Conyza sp*</i>		X							
Spotted Gum	<i>Corymbia maculata</i>					X				
Barbed Wire Grass	<i>Cymbopogon refractus</i>	X	X	X	X					
Couch	<i>Cynodon dactylon</i>					X				
Broom Bitter Pea	<i>Daviesia genistifolia</i>									X
Gorse Bitter Pea	<i>Daviesia ulicifolia</i>							X		
Slender Tick Trefoil	<i>Desmodium gunnii</i>			X						
Slender Tick-trefoil	<i>Desmodium varians</i>									X
Blue Flax-lily	<i>Dianella caerulea</i>						X			X
Blueberry Lily	<i>Dianella revoluta</i>									X
Shorthair Plumegrass	<i>Dichelachne micrantha</i>									X
Kidney Weed	<i>Dichondra repens</i>									X

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		RA1	RA2	RA3	RA4		RA1	RA2	RA3	
Prickly Rasp Fern	<i>Doodia aspera</i>								X	
Sassafras	<i>Doryphora sassafras</i>								X	
Hedgehog grass	<i>Echinipogon sp.</i>					X				X
Wiry Panic	<i>Entolasia stricta</i>						X	X		X
-	<i>Eragrostis cillianensis</i>									X
Narrow-leaved Ironbark	<i>Eucalyptus crebra</i>					X				X
Broad-leaved Ironbark	<i>Eucalyptus fibrosa</i>									X
White Stringybark	<i>Eucalyptus globoidea</i>							X		
Grey Box	<i>Eucalyptus microcarpa</i>					X				
Grey Ironbark	<i>Eucalyptus paniculata subsp. Paniculata</i>							X		
Grey Gum	<i>Eucalyptus punctata</i>						X	X		X
Sydney Blue Gum	<i>Eucalyptus saligna</i>								X	X
Narrow-leaved Stringybark	<i>Eucalyptus sparsifolia</i>						X	X		X
Forest Red Gum	<i>Eucalyptus tereticornis</i>									X
Wombat Berry	<i>Eustrephus latifolius</i>							X		
	<i>Exocarpus sp.</i>							X		X
Sandpaper Fig	<i>Ficus coronata</i>								X	
Port Jackson Fig	<i>Ficus rubiginosa</i>								X	
Fig	<i>Ficus sp.</i>									X

Table A.1 **Flora species recorded by EMM**

Common name	Scientific name	Onsite BOAs					Appletree Flat BOA			
		Derived Grassland	Derived Grassland	Derived Grassland	Derived Grassland	Additional species recorded	Narrabeen East Wollemi Sheltered Dry Forest	Remnant Shale Cap Forest	Sandstone Gorge Warm Temperate Rainforest	Additional species recorded
		RA1	RA2	RA3	RA4		RA1	RA2	RA3	
Common Fringe Sedge	<i>Fimbristylis dichotoma</i>	X	X							
Eastern Cottonbush	<i>Gomphocarpus fruticosus</i>					X				
-	<i>Hakea decurrens</i>					X				
Purple Coral Pea	<i>Hardenbergia violacea</i>						X	X		
Climbing Guinea Flower	<i>Hibbertia scandens</i>									X
Yorkshire Fog	<i>Holcus lanatus*</i>					X				
Shrub Violet	<i>Hybanthus floribundus</i>							X		
-	<i>Hydrocotyle peduncularis</i>									X
Small St John's Wort	<i>Hypericum gramineum</i>					X				
-	<i>Hypochaeris glabra</i>									X
Blady Grass	<i>Imperata cylindrica</i>									X
Australian Indigo	<i>Indigofera australis</i>									
Sharp Rush	<i>Juncus acutus</i>					X				
Dusky Coral Pea	<i>Kennedia rubicunda</i>									X
	<i>Kennedia sp.</i>									X
-	<i>Lepidosperma laterale</i>									X
Tantoon	<i>Leptospermum polygalifolium</i>						X			
Blunt Beard-heath	<i>Leucopogon muticus</i>									X
Spiny-headed Mat-rush	<i>Lomandra longifolia</i>									X

Table A.1 **Flora species recorded by EMM**

Common name	Scientific name	Onsite BOAs					Appletree Flat BOA			
		Derived Grassland	Derived Grassland	Derived Grassland	Derived Grassland	Additional species recorded	Narrabeen East Wollemi Sheltered Dry Forest	Remnant Shale Cap Forest	Sandstone Gorge Warm Temperate Rainforest	Additional species recorded
		RA1	RA2	RA3	RA4		RA1	RA2	RA3	
Many flowered Mat-rush	<i>Lomandra multiflora</i>						X	X		
Holly Lomatia	<i>Lomatia ilicifolia</i>						X			
Cycad	<i>Macrozamia sp.</i>									X
Small-leaf Bluebush	<i>Maireana microphylla</i>					X				
-	<i>Melinis repens</i>					X				
Tree Broom-heath	<i>Monotoca elliptica</i>							X		
Western Boobialla	<i>Myoporum montanum</i>					X				
Tiger Pear	<i>Opuntia aurantiaca*</i>					X				
Common Prickly Pear	<i>Opuntia stricta*</i>		X	X						
Hairy Panic	<i>Panicum effusum</i>	X	X							
Common Silkpod	<i>Parsonsia straminea</i>									X
Paspalum	<i>Paspalum dilatatum*</i>		X							X
Sickle Fern	<i>Pellaea falcata</i>								X	
Kikuyu Grass	<i>Pennisetum clandestinum*</i>					X				X
African Feather Grass	<i>Pennisetum macrourum*</i>	X	X			X				
Lance-leaf Geebung	<i>Persoonia lanceolata</i>						X	X		
Narrow-leaved Geebung	<i>Persoonia linearis</i>									X
Butterbush	<i>Pittosporum angustifolium</i>					X				
Pittosporum	<i>Pittosporum undulatum</i>								X	X

Table A.1 **Flora species recorded by EMM**

Common name	Scientific name	Onsite BOAs					Appletree Flat BOA			
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		RA1	RA2	RA3	RA4		RA1	RA2	RA3	
Lambs Tongue	<i>Plantago lanceolata*</i>	X				X				
	<i>Poa sp.</i>					X	X			X
Prickly Shaggy Pea	<i>Podolobium illcifolium</i>									X
Netted Shaggy Pea	<i>Podolobium scandens</i>							X		
Whiteroot	<i>Pratia purpurascens</i>							X		X
Common Bracken	<i>Pteridium esculentum</i>									X
Tender Brakefern	<i>Pteris tremula</i>								X	
Large Bronze Bush-pea	<i>Pultenaea ferruginea</i>							X		
-	<i>Pultenaea retusa</i>					X				
Rough Bush-pea	<i>Pultenaea scabra</i>						X			
White Supplejack	<i>Ripogonum album</i>								X	
Crabapple	<i>Schizomeria ovata</i>								X	
Fireweed	<i>Senecio madagascariensis*</i>	X								
Sprawling Cassia	<i>Senna aciphylla</i>									X
Narrawa Burr	<i>Solanum cinereum</i>					X				
	<i>Solanum sp.</i>									X
Slender Rat's Tail Grass	<i>Sporobolus creber</i>		X		X					
Creamy Candles	<i>Stackhousia monogyna</i>	X	X					X		
Speargrass	<i>Stipa sp.</i>					X				

Table A.1 **Flora species recorded by EMM**

Common name	Scientific name	Onsite BOAs					Appletree Flat BOA			
		Derived Grassland	Derived Grassland	Derived Grassland	Derived Grassland	Additional species recorded	Narrabeen East Wollemi Sheltered Dry Forest	Remnant Shale Cap Forest	Sandstone Gorge Warm Temperate Rainforest	Additional species recorded
		RA1	RA2	RA3	RA4		RA1	RA2	RA3	
Dandelion	<i>Taraxacum officinale</i>	X	X							X
Kangaroo Grass	<i>Themeda australis</i>									X
Austral Sunray	<i>Triptilodiscus pygmaeus</i>			X						
Stingling Nettle	<i>Urtica incisa</i>								X	
Purpletop	<i>Verbena bonariensis</i> *		X	X						
Narrow-leaved New Holland Daisy	<i>Vittadinia muelleri</i>	X								
	<i>Vittadinia sp.</i>		X							
Native Bluebell	<i>Wahlenbergia gracilis</i>			X				X		
-	<i>Woollsia pungens</i>							X		

Notes: * denotes an exotic species.

Table A.2 Fauna species recorded by EMM

Common Name	Scientific Name	Appletree Flat BOA	Onsite BOAs
Birds			
Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>	X	
Yellow Thornbill	<i>Acanthiza nana</i>	X	
Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>	X	
Australian King-Parrot	<i>Alisterus scapularis</i>	X	
Red Wattlebird	<i>Anthochaera carunculata</i>	X	
Wedge-tailed eagle	<i>Aquila audax</i>		X
Grey Heron	<i>Ardea cinerea</i>		X
Rufous Fieldwren	<i>Calamanthus campestris</i>	X	
Yellow-tailed Black-Cockatoo	<i>Calyptorhynchus funereus</i>	X	
Grey Shrike-thrush	<i>Colluricincla harmonica</i>	X	
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>		X
White-throated Treecreeper	<i>Cormobates leucophaea</i>	X	
Australian Raven	<i>Corvus coronoides</i>	X	
Quail	<i>Coturnix spp.</i>		X
Pied Butcherbird	<i>Cracticus nigrogularis</i>	X	
Australian Magpie	<i>Cracticus tibicen</i>	X	X
Laughing Kookaburra	<i>Dacelo novaeguineae</i>	X	
Galah	<i>Elophus roseicapilla</i>		X
Eastern Yellow Robin	<i>Eopsaltria australis</i>	X	
Eurasian Coot	<i>Fulica atra</i>		X
Welcome Swallow	<i>Hirundo neoxena</i>		X
Wonga Pigeon	<i>Leucosarcia picata</i>	X	
Wonga Pigeon	<i>Leucosarcia picata</i>	X	
Yellow-faced Honeyeater	<i>Lichenostomus chrysops</i>	X	
Yellow-tufted Honeyeater	<i>Lichenostomus melanops</i>	X	
Superb Fairy-wren	<i>Malurus cyaneus</i>	X	
Noisy Miner	<i>Manorina melanocephala</i>		X
Bell Miner	<i>Manorina melanophrys</i>	X	
Lewin's Honeyeater	<i>Meliphaga lewinii</i>	X	
Superb Lyrebird	<i>Menura novaehollandiae</i>	X	
Rufous Whistler	<i>Pachycephala rufiventris</i>	X	
Spotted Pardalote	<i>Pardalotus punctatus</i>	X	X
Striated Pardalote	<i>Pardalotus striatus</i>	X	
Australian Pelican	<i>Pelicanus conspicillatus</i>		X
Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>		X
Crimson Rosella	<i>Platycercus elegans</i>	X	
Eastern Rosella	<i>Platycercus eximius</i>	X	X
Eastern Whipbird	<i>Psophodes olivaceus</i>	X	
Satin Bowerbird	<i>Ptilonorhynchus violaceus</i>	X	

Table A.2 Fauna species recorded by EMM

Common Name	Scientific Name	Appletree Flat BOA	Onsite BOAs
Grey Fantail	<i>Rhipidura albiscapa</i>	X	
Pied Currawong	<i>Strepera graculina</i>	X	X
Masked Lapwing	<i>Vanellus miles</i>		X
Silvereye	<i>Zosterops lateralis</i>	X	
Mammals			
Brown Antechinus	<i>Antechinus stuartii</i>	X	
Brown Hare	<i>Lepus capensis</i>	X	
Eastern Grey Kangaroo	<i>Macropus giganteus</i>	X	X
Common Wallaroo	<i>Macropus robustus</i>	X	
Red-necked Wallaby	<i>Macropus rufogriseus</i>	X	
Common Wombat	<i>Vombatus ursinus</i>	X	
Microbats			
Chocolate Wattled Bat	<i>Chalinolobus morio</i>	X	
Little Bentwing Bat	<i>Miniopterus australis</i>	X	
Eastern Bentwing Bat	<i>Miniopterus schreibersii oceanensis</i> ¹	X	
Long-eared Bat	<i>Nyctophilus spp.</i>	X	
White-striped Freetail Bat	<i>Tadarida australis</i>	X	
Large Forest Bat	<i>Vespadelus darlingtoni</i>	X	
Reptiles			
Lace monitor	<i>Varanus varius</i>	X	

Notes: 1. Listed as a threatened species under the TSC Act.

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