Centennial Coal

Environmental Assessment

Proposed Modification of DA 162/91
For the Construction of a 66kV Powerline
And Associated Infrastructure

Airly Coal Mine

July 2009

FUTURE POWER | Centennial Coal

Submission of Environmental Assessment

Prepared under Part 3A Section 75W of the Environmental Planning and Assessment Act 1979

EA Prepared by

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Development Application

Applicant Name: Airly Coal Pty Limited

Applicant Address: Glen Davis Road
Capertee NSW 2846

Land to be developed: Lot 22 DP 755758, Lot 44 DP 755758, Lot 45 DP 755758, Part Lot 46 DP 755758, and Crown road (EP 50283)

Proposed Development: Modification to existing Development Consent No. 162/91 to enable the construction of a 66kV powerline and associated infrastructure.

Certificate

I certify that I have prepared the contents of this Statement and to the best of my knowledge:

- *The statement contains all available information that is relevant to the environmental assessment of the development to which the Statement relates; and*
- *The information contained in the Statement is neither false nor misleading.*

Signature: N. Armit

Name: NICOLE ARMIT

Date: 6/7/09

EXECUTIVE SUMMARY

Background and Purpose of the Development

This Environmental Assessment has been prepared to accompany a Project Application to modify Development Consent No. 162/91 (as modified) under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Airly Coal Pty Ltd (Centennial Airly) seeks a modification to Development Consent No. 162/91 to allow for the construction of a new 66kV powerline and associated infrastructure connecting the Airly Coal Mine (Airly) to the existing Integral Energy 66kV line. Airly is situated on the northern fringe of the Western Coalfields, approximately 40 km north-northwest of Lithgow and around 4 km northeast of Capertee.

Construction of the powerline and associated infrastructure is required to enable the re-commencement of mining operations at Airly. The EIS which accompanied the original Development Consent application included the establishment of a 66kV powerline for Airly Mine when at full capacity, however did not specify the route or land to be traversed by the powerline once off the proposed mining lease boundary. This modification therefore seeks to define the route of a 66kV powerline from the Integral Energy take-off point to Airly. As such, the modification of this existing Development Consent to include the powerline route will not radically alter the nature of the development already approved.

Proposed Modification

Six powerline route options were investigated at the feasibility stage of the Project, the proposed route being selected due to it representing the least potential impact upon local flora and fauna and heritage. The proposed powerline will be owned and maintained by Centennial Airly and will include the following:

- Establishment of an easement 15 m wide for the full length (approximately 3.85 km) of the proposed powerline route;
- Construction of 66kV powerline within the easement including:
    - Installation of poles in timber, steel or concrete and stays, insulators and fittings;
    - Installation of overhead conductors (involving minor lopping of overhanging branches and removal of saplings directly in line with overhead lines);
    - Construction of barriers at road crossings (involving ground disturbance for excavation of concrete footings);
    - Circuit metering yard; and
    - Connection to the Integral Energy take-off point.
- Construction of a basic 'farm style' maintenance track within the easement with a typical track width of 4 m and 6.8 m of clearance (involving only minimal ground disturbance for track formation), utilising existing farm tracks where practical. Where the route crosses Airly Creek construction of a vehicle crossing is not required as an existing creek crossing will be used located immediately downstream of the powerline crossing; and
- Ground disturbance (for excavation for concrete footings and construction and maintenance track) and clearing of approximately 16 mature trees and one immature tree (for installation of poles and overhead lines). In addition, some limited clearance of regrowth saplings in the vicinity of Airly Creek will be required.

The proposed powerline route is to be constructed almost entirely within the land holdings of Centennial Airly, with the exception of an unformed Crown road which is under Enclosure Permit 50283 held by Centennial Airly. Centennial Airly has obtained approval from the Department of Lands to allow for construction of the powerline across this road. Construction of the powerline and associated infrastructure is expected to take approximately 16 weeks.

Potential Impacts

As required by the Director-General's Requirements (DGR's), a risk assessment was conducted to identify those issues relating to the proposed construction of the 66kV powerline and associated infrastructure which possibly present a risk to the environment and surrounding community. The key aspects of this modification requiring detailed environmental assessment were determined on the basis of this risk assessment, in conjunction with the DGR's. The key areas that have been assessed in detail are listed below. The associated technical reports are listed in brackets:

- Flora and Fauna (RPS Harper Somers O'Sullivan, June 2009, *Flora and Fauna Assessment for a proposed powerline at Centennial Airly Coal Mine, Capertee);* and
- Archaeology (RPS Harper Somers O'Sullivan, June 2009, *Archaeology Assessment for Proposed Powerline at Airly Coal Mine Near Capertee, NSW).*

Other key issues addressed in the EA by GSSE include:

- Soils (addressing Erosion and Sediment Control);
- Surface Water;
- Traffic and Transport;
- Visual Amenity;
- Air Quality;
- Noise;
- Electric and Magnetic Fields;
- Waste Management; and
- Disused Landing Ground.

The technical studies conclude that adverse environmental impacts will be either negligible or very minimal and primarily temporary during the construction phase of the powerline.

Flora and Fauna

The proposed powerline route was selected to avoid removal of mature trees as much as possible, with only sixteen mature trees and one immature tree requiring removal on the western extremity of the southwest ridge. The removal of these trees is not expected to represent a break in vegetation sufficient to hinder the movements of native fauna. The remaining vegetation clearance will be limited to regrowth saplings in the vicinity of Airly Creek. To further minimise vegetation clearing, existing farm tracks will be used wherever possible for construction and maintenance access along the powerline route.

No EEC's or threatened flora species were recorded within the proposed powerline route.

Three threatened fauna species were recorded in the vicinity of the powerline route; however no suitable habitat exists for one of these species, the Brown Treecreeper, and no significant habitat exists for another, the Gang-Gang Cockatoo, within the powerline easement. Whilst potential habitat does exist for the third recorded threatened species; the Diamond Firetail, it is considered unlikely that construction activities will degrade this habitat. In addition, due to the relative abundance of similar

habitat in the vicinity of the powerline, and the relatively small area to be disturbed during construction, it is unlikely that any significant impact will occur on locally occurring individuals of this species. The proposed modification would therefore not have any significant impact on any threatened flora or fauna species.

Archaeology

No Aboriginal or European heritage sites have been found within the proposed powerline route, and therefore no impact is expected.

Soils (addressing Erosion and Sediment Control)

Given the small area to be disturbed, and that existing tracks will be used wherever possible, no significant impacts on soils or the resulting impacts of erosion and sedimentation are anticipated.

In areas to be disturbed, erosion and sediment control measures in design and construction compliance with the recommendations of the Blue Book Volumes 1 and 2 will be implemented. All design details will be contained in a Construction Environmental Management Plan (CEMP) to be prepared by the successful contractor and approved by Centennial Airly prior to the commencement of construction.

Surface Water

The proposed powerline route crosses Airly Creek, which is in the larger catchment of the Capertee River. No construction works will be undertaken within 40 m of the top bank of Airly Creek. Construction of a vehicle access across the creek will not be required, with an existing creek crossing to be used, located immediately downstream of the powerline crossing. In addition limited vegetation is to be removed in construction of the powerline. The risk of any significant impacts on Airly Creek as a result of erosion and sedimentation are therefore considered to be very low.

Traffic and Transport

Access for construction of the powerline will be via existing access points; the Airly Mine access road, and a farm access track off Glen Davis Road. Construction will occur over approximately 16 weeks, and so the slight increase in traffic movements in the area associated with construction of the powerline will be short term. In addition, the majority of heavy vehicle movements, including deliveries of equipment required for the construction works, will be via the Airly Mine, not off Glen Davis Road. Traffic control measures will be implemented as necessary prior to the commencement of construction.

Visual Amenity

The Wallerawang-Gwebegar rail line is located adjacent to the southern end of the proposed powerline, along with an existing Integral Energy 66kV Powerline. Given the location, minor nature of the works and the limited plant and equipment proposed to be used for the project, no significant visual impacts are anticipated. In addition, the development is occurring predominately on Centennial Airly owned land, with the exception of one Crown unformed road (permission has been obtained to cross this road from the Department of Lands).

No change to the existing land use will occur, with the land to continue to be used for grazing purposes following completion of construction.

Air Quality

The activities associated with the proposed powerline construction and associated infrastructure that have the potential to be a source of dust generation include clearing of vegetation (e.g. bulldozer), heavy vehicles for pole and overhead wire installation, and general vehicle movement around the site. However, given the minimal vegetation to be removed and the short term nature of the project, the potential for adverse air quality impacts is considered to be low.

Noise

The potential for noise impacts from the proposed modification will be temporary, primarily associated with the construction of the powerline and associated infrastructure. To ensure that noise impacts are minimised, construction activities will be restricted to daytime work hours (7 am until 5 pm) only, with no work on weekends. Given that there are very few nearby receptors, with the only neighbouring property only periodically occupied on weekends, the potential for significant noise impacts is considered to be very low.

It is not expected that there will be any significant noise impacts during the operational phase; however the occasional use of machinery may be required for maintenance purposes.

Electric and Magnetic Fields

The Electric and Magnetic Fields generated by the proposed 66kV line is expected to be well within exposure limits. In addition, given there are no commercial properties, schools or childcare centres within the immediate area with only one nearby resident, the extent, nature and the level of adverse EMF impacts likely to be caused by the proposed powerline within the location, are considered low.

Waste Management

Construction of the powerline and associated infrastructure will generate waste that will require disposal. Waste generated during construction will be managed via designated rubbish bins for general and recyclable waste located at the Airly Mine site. Suitably qualified and licenced waste contractors will be hired for appropriate waste disposal. Portable toilet facilities will also be provided.

Disused Landing Ground

An old disused landing ground exists in the vicinity of the proposed powerline route. Discussions were held with CASA regarding the steps to be taken to formally close this landing ground. CASA advised the following steps were to be undertaken:

- Crosses will be placed every 200 m along the landing ground.
- The Department of Lands (Bathurst) will be contacted to request the landing ground be removed from future 1:25,000 topographic maps.
- Air Services Australia (Aeronautical Information Services) will be contacted to request they remove the Aerodrome symbol from the World Aeronautical Chart at that location.

Conclusion

The proposed modification to Development Consent DA 162/91 will enable the re-commencement of underground mining operations at Airly in accordance with the existing Development Consent, allowing the development of mineral resources in the area through the recovery of coal reserves and bringing positive socio-economic benefits through employment of staff, royalties, charges and taxes. Establishment of a 66kV powerline for Airly Mine was included in the original development consent, however did not specify the route of the powerline once off the proposed mining lease boundary. As such, the modification of this existing Development Consent to include the powerline route will not radically alter the nature of the development already approved.

Potential environmental impacts have been predicted, as identified in a Project risk assessment and in accordance with the DGR's. Recognised specialists in the relevant technical fields have been selected to undertake key investigations. The Environmental Assessment concludes that adverse environmental impacts will be either negligible or very minimal and primarily temporary during the construction phase of the powerline. There is expected to be no significant environmental impacts resulting from the modification.

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1.0 INTRODUCTION

1.1 Purpose of this Document

Airly Coal Pty Ltd (Centennial Airly) seeks a modification to Development Consent No. 162/91 as modified, to allow for the construction of a new 66kV powerline connecting the Airly Coal Mine (Airly) to the existing Integral Energy 66kV line. The works are required to enable the re-commencement of mining operations at Airly.

This Environmental Assessment (EA) has been prepared to accompany a Project Application to modify Development Consent No. 162/91 under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Project Application is attached as Appendix 1. This EA assesses the matters relevant to the proposed modification and seeks to demonstrate that the proposed modification does not radically alter the development or the impacts approved in Development Consent No. 162/91, which is attached as Appendix 2.

1.2 The Applicant

Centennial Airly (the applicant), a fully owned subsidiary of Centennial Coal Company Limited, purchased the Airly Coal Mine from Novacoal Australia Pty Limited on 30 December 1997. Airly was purchased with the benefit of Development Consent No. 162/91. Centennial Airly is also the holder of:

- Environmental Protection Licence (EPL) 12374, which permits the mining of coal as part of the Airly Coal Project; and
- Mining Lease (ML) 1331 granted on 12/10/1993.

GSS Environmental (GSSE) has prepared this EA on behalf of Centennial Airly.

1.3 Background

Development Consent No. 162/91 was granted by the then Minister for Planning on 14 April 1993, for the construction and operation of an underground coal mine for a period of 21 years. The Environmental Impact Statement (EIS) (Novacoal, 1991) and Supplementary Information (1991) for the Airly Coal Project outlined the proposed facilities and services required as part of the project. This included establishing a 66kV powerline to Airly to serve the operation at full scale capacity, but did not specify the powerline route or land subject to the route once off the proposed mining lease boundary.

In January 1997 some initial site drainage works and water management structures were constructed for Airly.

Centennial Airly purchased the Airly Coal Project from Novacoal Australia Pty Limited on 30 December 1997 and shortly after commenced further works at the Airly Coal Project in preparation for the trial mine phase as outlined in the Development Consent. Following the delivery of a bulk sample to Mount Piper Power Station in June 1998, the trial mine phase continued with regular transport of product coal to Mount Piper Power Station until 2001.

In 1999 the Development Consent No. 162/91 was modified to allow up to 500,000 tonnes per annum (tpa) to be transported by road for a period of two years. This period lapsed on 30 June 2002.

Since 2001 Airly has not been operational and has been on a care and maintenance program. The care and maintenance program has included regular statutory inspections, maintenance of the pollution control system, environmental monitoring and erosion control works.

Centennial Airly are planning to re-commence underground coal mining at Airly in 2010 in accordance with the Development Consent. To re-commence underground mining, Centennial Airly will require the installation of electrical supply for mining operations at Airly. It has been determined that the Development Consent No. 162/91 does not provide the necessary approvals to construct the proposed new 66kV powerline from the take-off point to the mining lease boundary, which is over land parcels that were not subject to Development Consent No. 162/91. As a result:

- Centennial Airly is currently in the process of applying to Integral Energy (as the determining authority under Part 5 of the EP&A Act) for approval to construct the take-off point for the 66kV powerline from Integral Energy infrastructure. This application is being dealt with separately and does not form part of this application under Section 75W; and
- Centennial Airly is submitting an application, which is supported by this EA, to modify the existing Development Consent to allow for the installation of the proposed new 66kV powerline and associated infrastructure under Section 75W of the EP&A Act to cover the proposed powerline route from the take-off point to the mining lease boundary.

At the feasibility stage of the proposed new 66kV powerline project, six potential powerline routes were subject to field investigations and preliminary assessment to identify the powerline and maintenance track alignment with the least environmental impact. Based on these investigations the preferred route was selected due to minimal clearing required and the ability to use existing farm tracks. The various powerline route options assessed are discussed in greater detail in Section 2.3.

1.4 Approval Process

Development Consent No. 162/91 was granted for Airly by the then Minister for Planning on 14 April 1993 under Part 4 of the EP&A Act, for the construction and operation of an underground coal mine for a period of 21 years. As discussed above, whilst the original application stated that a 66kV powerline would be built, the application did not identify the parcels of land that would be traversed by the powerline between the existing 66kV line (near Wallerawang-Gwabegar rail line) and the proposed Airly mining lease boundary.

Through preliminary discussions with the Department of Planning (DoP) it has been determined that the Development Consent No. 162/91 for Airly does not provide the necessary approvals to construct the 66kV powerline, and that a modification to the Development Consent should be sought under Section 75W of the EP&A Act.

Clause 8J(8) of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) provides a mechanism whereby major projects approved under Part 4 of the EP&A Act can be modified under Section 75W, stating that:

> *(8) A development consent in force immediately before the commencement of Part 3A of the Act may be modified under Section 75W of the Act as if the consent were an approval under that Part, but only if:*
>
> *(a) the consent was granted with respect to development that would be a project to which Part 3A of the Act applies but for the operation of clause 6 (2) (a) of State Environmental Planning Policy (Major Projects) 2005, and*
>
> *(b) the Minister approves of the development consent being treated as an approval for the purposes of Section 75W of the Act.*

Development for the purpose of coal mining is a class of development listed in Schedule 1 of the State Environmental Planning Policy (Major Projects) 2005, to which Part 3A applies. Accordingly, this modification is sought under Section 75W, and the proposal will be subject to assessment by the Director General of the DoP and determination by the Minister for Planning in accordance with Part 3A of the EP&A Act.

Further details regarding the approval process are provided in Section 3.0.

1.5 Environmental Assessment Requirements

The Director-General's Requirements (DGR's) were issued for the proposed Section 75W modification by the DoP on 15 June 2009 (attached as Appendix 3). These DGR's, and where they are addressed in this report, are detailed in Table 1.

Table 1 – Director General's Requirements

Aspect	Requirement Description	Where addressed in this report
General Requirements	The Environmental Assessment of the modification must include:	
	• An executive summary;	Page ii
	• A detailed description of existing and approved operations and infrastructure on site;	Section 1.3
	• A detailed description of the modification, including the:	
	- Need for the modification;	Section 2.2
	- Alternatives considered;	Section 2.3
	- Likely staging of the modification; and	Section 2.1
	- Plans of any proposed building works;	Section 2.1
	• A risk assessment of the potential environmental impacts of the modification, identifying the key issues for further assessment;	Section 5.1
	• A detailed assessment of the key issues specified below, and any other significant issues identified in the risk assessment (see above), which includes:	Section 5.0
	- A description of the existing environment, using sufficient baseline data;	
	- An assessment of the potential impacts of all stages of the modification, including any cumulative impacts in the region and taking into consideration any relevant policies, guidelines, plans and statutory provisions (see below); and	
	- A description of the measures that would be implemented to avoid, minimise, mitigate and/or offset the potential impacts of the modification, including detailed contingency plans for managing any significant risks to the environment;	
	• A statement of commitments, outlining all the proposed environmental management and monitoring measures;	Section 7.0
	• A conclusion justifying the modification on economic, social and environmental grounds, taking into consideration whether the modification is consistent with the objects of the *Environmental Planning & Assessment Act 1979*;	Section 8.0
	• A signed statement from the author of the Environmental Assessment, certifying that the information contained within the document is neither false nor misleading.	Page i
Key Issues	• **Flora & Fauna** – including impacts on critical habitats (including any riparian habitat), threatened species, populations, ecological communities and native vegetation;	Section 5.2
	• **Heritage** – both Aboriginal and non-Aboriginal;	Section 5.3

Aspect	Requirement Description	Where addressed in this report
	• **Soil & Water** – including but not limited to the impact the proposal would have on erosion of soils, water quality and function of waterways; • **Traffic & Transport** – including but not limited to proposed transport routes and traffic volumes created by construction works; and • **Visual**.	Sections 5.4 & 5.5 Section 5.6 Section 5.7
References	The environmental assessment of the key issues listed above must take into account relevant guidelines, policies, and plans. While not exhaustive, the following attachment contains a list of guidelines, policies and plans that may be relevant to the environmental assessment of this modification.	Section 3.0 & Section 5.0
Consultation	During the preparation of the EA, you should consult with the relevant local, State or Commonwealth government authorities, service providers, community groups or affected landowners. The consultation process and the issues raised must be described in the Environmental Assessment. In particular you must consult with: • Department of Lands; • Department of Environment and Climate Change; • Department of Water and Energy; and • Lithgow City Council.	Section 4.0

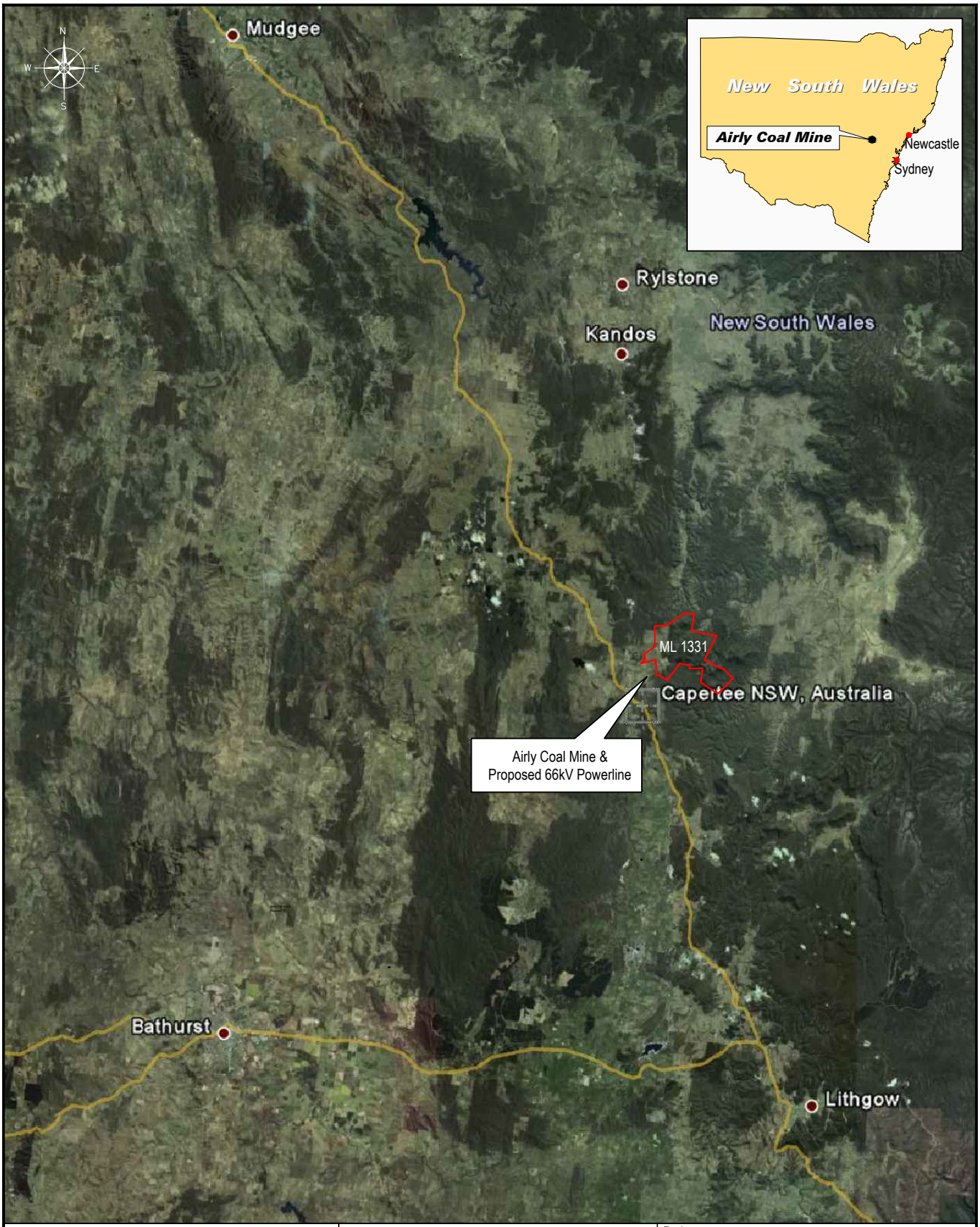
1.6 Location and Study Area

Airly is situated on the northern fringe of the Western Coalfields, approximately 40 km north-northwest of Lithgow and around 4 km northeast of Capertee (see Figure 1). Road access to Airly is off the Glen Davis Road.

The Study Area for the modification encompasses the proposed powerline easement (approximately 15 m wide) incorporating the associated maintenance track, as well as a circuit metering yard. The proposed powerline route and location of the circuit metering yard is illustrated in Figure 2.

At the feasibility stage of the project, six potential powerline routes were considered. Field investigations were undertaken by archaeological and ecological specialists to identify the powerline alignment and construction and maintenance track with the least archaeological and ecological impact to the area. The various powerline route options are discussed in greater detail in Section 2.3. The proposed powerline route, illustrated in Figure 2, represents the route assessed as having the least environmental impact due to the minimal clearing required and the ability to use existing farm tracks. It is this option on which this EA is based.

The proposed powerline route will run from Airly Pit Top to a take-off point that will connect to Integral Energy's existing 66kV powerline, running near the Wallerawang-Gwebegar rail line, approximately 1.5 km north of the township of Capertee. The proposed powerline route will be approximately 3.85 km long, and will utilise existing cleared land and existing farm tracks to limit native vegetation clearing, with a disturbance width of approximately 15 m wide. The 15 m disturbance width will allow for construction of the powerline and a maintenance track. This maintenance track may however go beyond



Base Map Aerial Source: Google Earth Pro

0 5 10 15km

Scale: 1 : 500 000 (A4)

FIGURE 1

Location Plan

Version	Date:	Author:	Checked:	Approved:
1	25/6/09	LF	NA	NA

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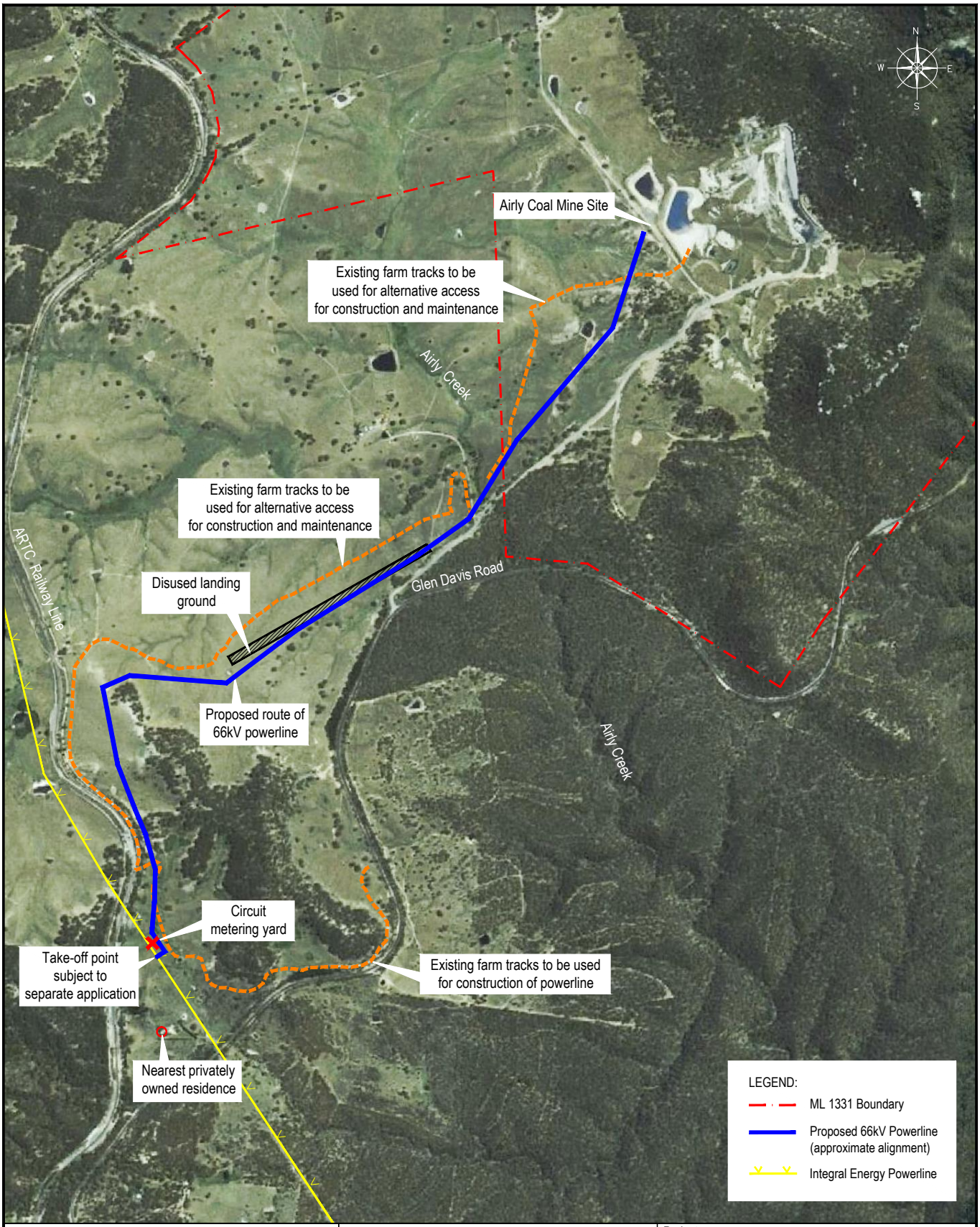
Project: Airly 66kV Powerline

Client: Centennial Coal Company Limited

File: Fg1_CCC16-002_LocPlan_090625_V1

Projection: MGA94 Zone 55



Base Aerial Photo Source: Google Earth Pro

0 200 400 600m

Scale: 1 : 20 000 (A4)

FIGURE 2

66kV Powerline Route

Project: Airly 66kV Powerline

Client: Centennial Coal Company Limited

Version	Date:	Author:	Checked:	Approved:
1	25/6/09	LF	NR	NR
2	30/6/09	LF	NR	NR

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Environmental, Land and Project Management Consultants

File: Fg2_CCC16-002_66kV_090625_V2

Projection: MGA94 Zone 56

the 15m disturbance width in some locations where it adjoins existing farm tracks, as illustrated in Figure 2.

The land subject to this modification is mostly open pasture with isolated trees or small patches of woodland vegetation. Most of the land to be traversed by the powerline is currently actively grazed pasture land, although the proposed powerline route passes through some areas where stock has been temporarily removed to allow construction activities to occur.

The proposed powerline route crosses Airly Creek; however no disturbance of the creek will occur, with the power poles to be constructed greater than 40 m from the top bank of the creek. In addition, the maintenance track will be connected to an existing crossing over the creek, so that no disturbance of the creek will be required.

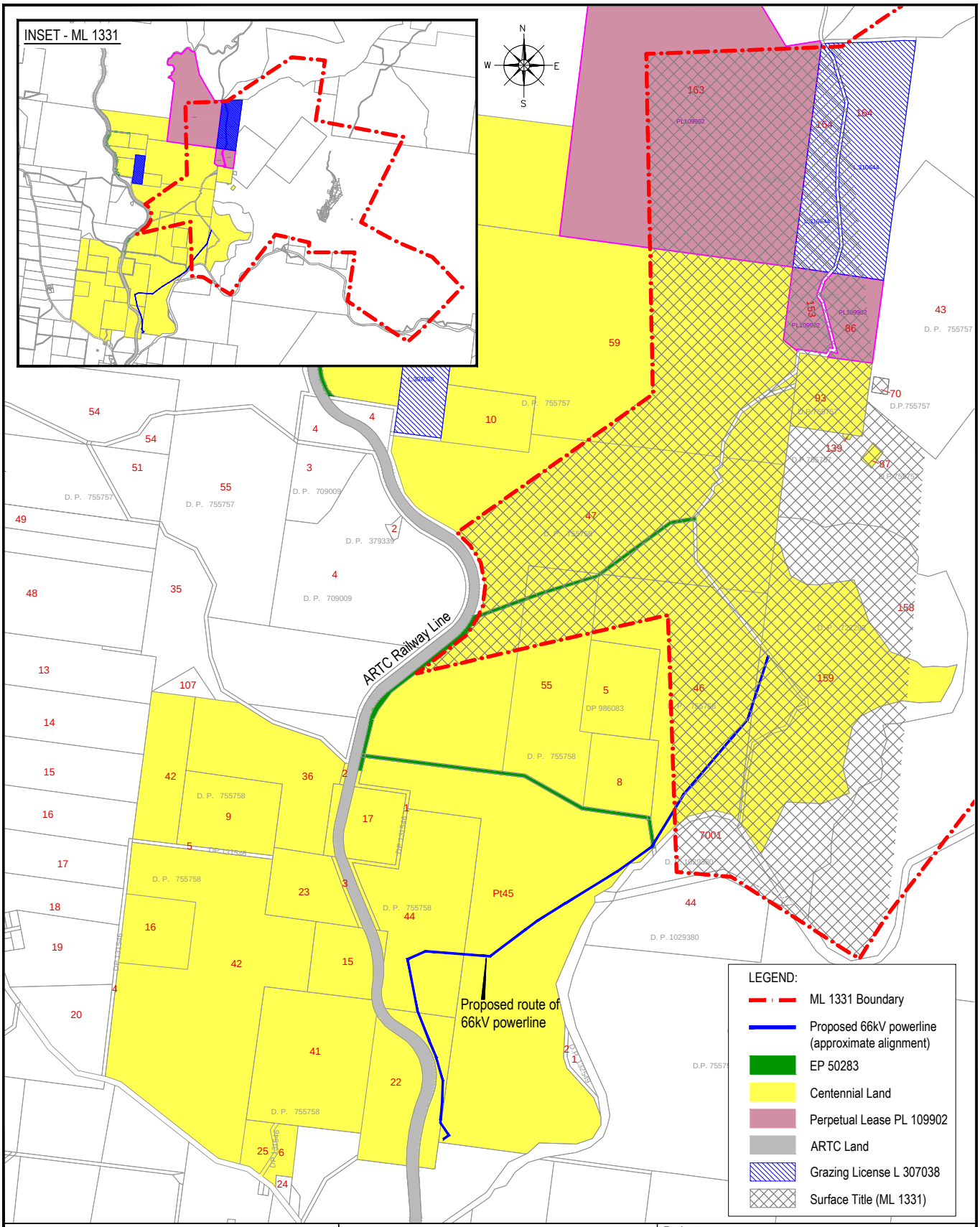
1.7 Land Ownership

The proposed powerline route is to be constructed almost entirely within the land holdings of Centennial Airly (see Figure 3). The one exception to this is where the powerline route traverses an unformed Crown Road which is under Enclosure Permit 50283 held by Centennial Airly. Centennial Airly has been in consultation with the Department of Lands (DoL) to obtain the necessary approvals to access the land, and is in the process of applying for Closure and Acquisition of the Crown road. A letter from the DoL granting approval for the construction of the powerline over the Crown Road is included in Appendix 4.

The land subject to the application, as illustrated in Figure 3, is:

- Lot 22 DP 755758, Centennial Airly;
- Lot 44 DP 755758, Centennial Airly;
- Lot 45 DP 755758, Centennial Airly;
- Part of Lot 46 DP 755758, Centennial Airly; and
- Crown Road, Department of Lands (EP 50283, Centennial Airly).

The northern section of the powerline route is within the colliery holding boundary and approved development consent boundary for the Airly Coal Project.



0 300 600 900m

Scale: 1 : 30 000 (A4)

FIGURE 3

Land Ownership

Project: Airly 66kV Powerline

Client: Centennial Coal Company Limited

Version	Date:	Author:	Checked:	Approved:
1	26/6/09	LF	NR	NR

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File: Fg3_CCC16-002_Land Own_090626_V1

Projection: MGA94 Zone 56

2.0 DESCRIPTION OF THE PROPOSED MODIFICATION

2.1 Overview

Centennial Airly seeks to construct a powerline and associated infrastructure connecting Airly to an existing Integral 66kV line, running near the Wallerawang-Gwebegar rail line, approximately 1.5 km north from the township of Capertee (see Figure 2). The proposed powerline will predominantly utilise existing cleared land and farm tracks to limit native vegetation clearing.

The proposed powerline will be owned and maintained by Centennial Airly and will include the following:

- Establishment of an easement 15 m wide for the full length (approximately 3.85 km) of the proposed powerline route;
- Construction of 66kV powerline within the easement including:
    - Installation of poles in timber, steel or concrete and stays, insulators and fittings;
    - Installation of overhead conductors (involving minor lopping of overhanging branches and removal of saplings directly in line with overhead lines);
    - Construction of barriers at road crossings (involving ground disturbance for excavation of concrete footings);
    - Circuit metering yard; and
    - Connection to the Integral take-off point.
- Construction of a basic 'farm style' maintenance track within the easement with a typical track width of 4 m and 6.8 m of clearance (involving only minimal ground disturbance for track formation), utilising existing farm tracks where practical. Where the route crosses Airly Creek, construction of a vehicle crossing is not required as an existing creek crossing will be used, located immediately downstream of the powerline crossing; and
- Ground disturbance (for excavation for concrete footings and construction and maintenance track) and clearing of approximately 16 mature trees and one immature tree (for installation of poles and overhead lines). In addition, some limited clearance of regrowth saplings in the vicinity of Airly Creek will be required.

It is noted that:

- The air break switches at the take-off point are subject to a separate application to Integral Energy (as they will be owned by Integral) and do not form part of this Section 75W application;
- Integral Energy require an access track for accessing their infrastructure (i.e. the take-off point). This does not form part of this application and is part of a separate application to Integral Energy (as the determining authority under Part 5 of the EP&A Act) for approval to construct the take-off point; and
- No other aspects of the Airly Coal Mine form part of the Section 75W application as these are approved under the existing Development Consent No. 162/91 and subsequent modification.

The proposed powerline easement will head north from the take-off point for approximately 1 km, following a permanent fence line along Australian Rail Track Corporation's (ARTC) rail track and across existing cleared land. The powerline will then head east for approximately 500 m before turning north east for approximately 2 km, utilising existing cleared land and internal farm tracks to terminate at the Airly Pit Top. Plate 1 shows the location of the powerline easement, looking along the proposed powerline route from Airly Mine end.

Plate 1 – Looking along the proposed powerline easement from the Airly Mine end

The construction of the powerline will be undertaken by a contractor who will operate in accordance with Centennial's own Environmental Standards, and the requirements identified in this report. In addition, the successful contractor will be required to prepare a Construction Environmental Management Plan (CEMP) for the construction of the powerline and associated infrastructure. All construction activities will be undertaken in accordance with this CEMP.

2.1.1 Plant & Equipment

The plant and equipment required to construct the 66kV powerline is summarised in Table 2. Note that whilst the construction of the take-off point from the existing Integral Energy powerline forms part of a separate approval and is not part of this modification, the plant and equipment required for connection to the take-off point is included in the table below to assist in assessing the overall impact on traffic movements (see Section 5.6 for more details on traffic and transport).

Table 2 – Construction Plant and Equipment

Construction of:	Plant requirements
Connection to the Integral take-off point	4 poles and isolators delivered by semi trailer post hole borer pole installation rig and cherry picker conductors 1 to 4 light vehicles, depending on the number of construction personnel on site.
Circuit metering yard	2 poles and isolators delivered by semi trailer steel switch yard frames and platforms delivered by semi trailer post hole borer pole installation rig and cherry picker conductors approximately 5 concrete trucks split over 2 x 2 day periods 1 to 5 light vehicles, depending on the number of construction personnel on site.
66kV powerline	poles and isolators delivered by semi trailer post hole borer pole installation rigs and cherry pickers conductors approximately 2 to 4 concrete trucks over 2 x 2 day periods 1 to 3 light vehicles, depending on the number of construction personnel on site.
Maintenance track	Minor use of a bulldozer Gravel fill in unstable areas to protect from erosion Any remaining exposed soil following construction will be sown to pasture

2.1.2 Construction Workforce

The construction workforce is summarised in Table 3. Note again that whilst the construction of the take-off point from the existing Integral Energy powerline is not part of this modification, the construction workforce required for connection to the take-off point is included in the table below to assist in assessing the overall construction impact relating to traffic movements.

Table 3 – Construction Workforce

Construction of:	Workforce
Connection to the Integral take-off point	2 to 8 people on site over a 4 to 6 week period.
Circuit metering yard	Between 2 and 10 people on site over a 12 to 16 week period.
66kV powerline	Between 2 and 6 people on site over a 12 to 16 week period.

2.1.3 Construction Hours

The electrical construction works will be 7 am to 5 pm Monday to Friday, with no work on weekends.

2.1.4 Construction Program

Vegetation clearing works and construction of maintenance track

The proposed works will require the further development of existing farm tracks to install and then maintain the powerline, and minor clearing of an easement on the western portion of the main section, adjacent to the rail line. 16 mature trees and one immature tree will be cleared here in the vicinity of the rail line. The area to be cleared is shown in Plate 2. There will be additional minor tree clearing of saplings along the eastern portion of the easement, in proximity to Airly Creek. The easement clearing is a requirement to minimise potential damage to the powerlines from tree throw and bushfires.

Plate 2 – Vicinity of proposed powerline easement adjacent to the rail line

So as to minimise the disturbance, the easement, including the construction and maintenance track, will remain grassed and available for normal grazing uses. In general the track will be unformed, that is, vehicles driving over the existing paddock, with minor protection and stabilisation works to be undertaken in wet areas such as below farm dams. To assist in these stabilisation works should they be required, aggregate may be imported from a local quarry.

Construction of the powerline

The powerline construction phase will commence immediately after the vegetation has been cleared. An existing farm track will be used to gain access off Glen Davis Road for construction vehicles at the southern end for construction of the circuit metering yard and initial power poles. The majority of construction vehicles will then gain access from the Airly end for construction of the powerline. Construction access and the maintenance track are illustrated in Figure 2.

The construction works will be undertaken in accordance with this assessment report. In addition, the contractor will be required to prepare a CEMP for both the construction of the powerline and associated infrastructure. All construction activities will be undertaken in accordance with this CEMP. The works will also consider the requirements of Integral, such as the Environmental Management Standard (EMS 0003).

It is expected that construction of the powerline will take approximately 16 weeks.

Construction of associated infrastructure

A 66kV metering and circuit breaker yard is also to be constructed at the southern end of the powerline (refer Figure 2), on the lower north eastern side of the Integral Energy take-off point isolators. The yard will affect an area approximately 60 m long and 12 m wide and will comprise the following:

1. A fenced area of 12 m x 20 m with 2 power poles/isolators positioned 20 m outside the fenced enclosure.
2. The fenced module will include a Circuit Breaker, an Incoming Landing Structure and an Outgoing Landing Structure. This module also includes:
    - Voltage transformers (VTs) for revenue metering and private metering;
    - VTs for 240V auxiliary supply;
    - Current transformers (CTs) with multiple windings – revenue metering, private metering and protection; and
    - Protection and control panel located away from the breaker with a separate panel section for tariff meters.

As described above, access for construction of the circuit metering yard will be via an existing farm track off Glen Davis Road.

2.1.5 Operation & Management

The proposed powerline and associated infrastructure will be owned and maintained by Centennial Airly.

2.2 Need for the Project

Centennial Airly require the construction of a 66kV powerline and easement to connect and interface with Integral's existing powerline to provide essential electrical services required to recommence underground mining operations at the Airly Coal Mine.

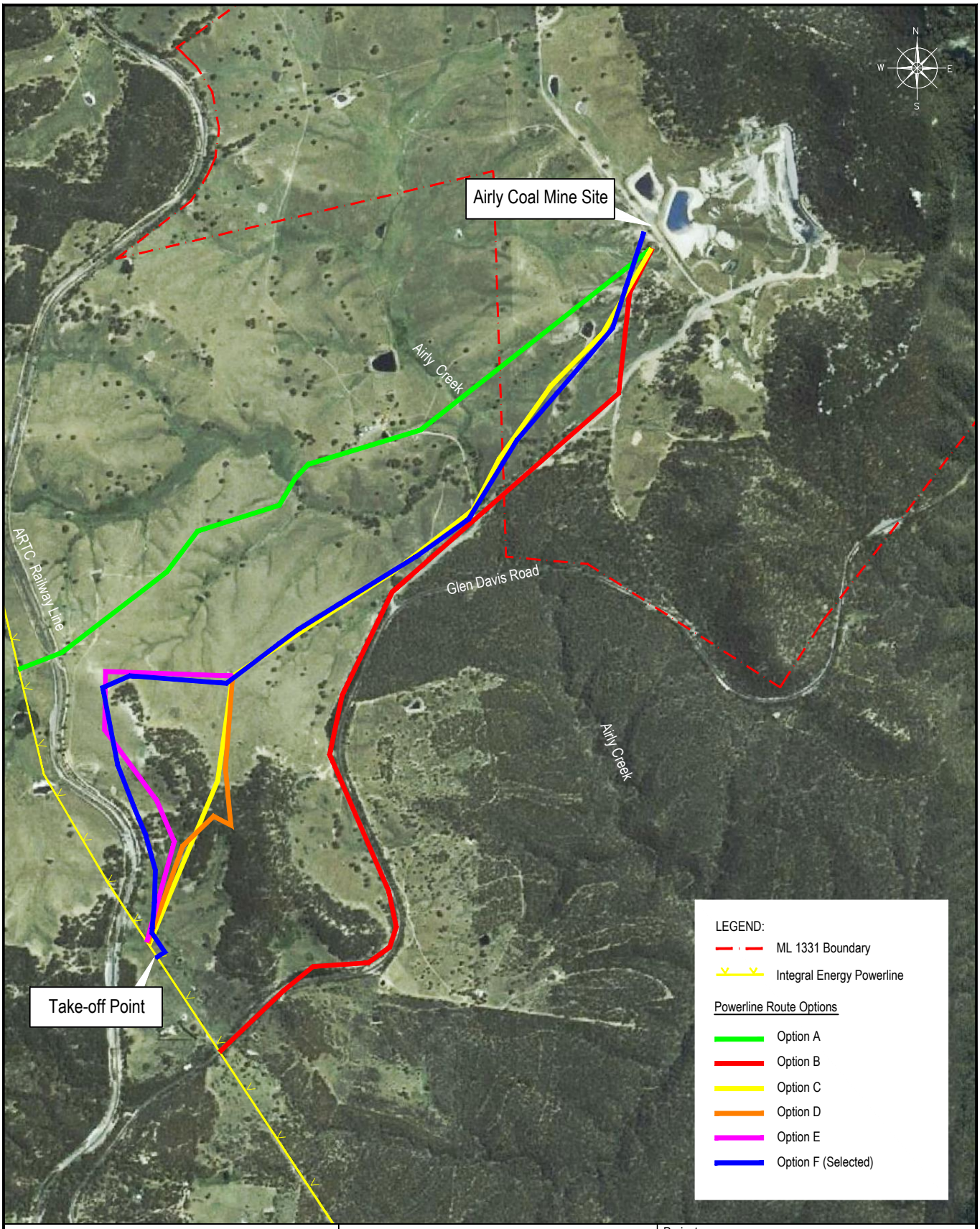
The proposed recommencement of underground mining operations at Airly will have positive socio-economic effects through the employment of staff, royalties, charges, and taxes. The ongoing provision of energy through the proposed 66kV powerline installation will allow Airly to recommence underground coal mining operations in accordance with the existing development consent.

2.3 Alternatives

2.3.1 Alternative Route Options

At the feasibility stage of the project, six potential powerline routes were considered for the powerline route in development of this modification application. The potential routes considered as alternative options are illustrated in Figure 4, and are described below.

- Option A – 66kV take-off point from the Bernina property.
    - This proposed powerline route crosses the Wallerawang-Gwebegar rail line and proceeds to follow the existing 11kV powerline towards Airly House. From Airly House the proposed powerline crosses cleared paddocks to the proposed approved 66kV transformer location at the Airly mine. *Note: This option was discounted by ARTC during consultation. ARTC requested the 66kV did not cross the Wallerawang-Gwebegar rail line easement.*
- Option B – 66kV take-off point from Glen Davis Road.



Source: Google Earth Pro

0 200 400 600m

Scale: 1 : 20 000 (A4)

FIGURE 4

Powerline Route Options

Project: Airly 66kV Powerline

Client: Centennial Coal Company Limited

Version	Date:	Author:	Checked:	Approved:
1	25/6/09	LF	NA	NA

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File: Fg4_CCC16-002_Route_090625_V1

Projection: MGA94 Zone 56

- This proposed powerline route follows the Glen Davis Road in a North Easterly direction; back towards the Airly mine access road. The proposed powerline then follows the existing mine access road to the approved 66kV transformer location at the Airly mine. *Note: This option was discounted by Centennial due to distance, land ownership, significant tree clearing required and potential to reduce the visual amenity along Glen Davis Road.*

- Option C – 66 kV take-off point adjacent from the Wallerawang-Gwebegar rail line.
  - This proposed powerline route was the shortest and the most direct route. The proposed powerline route crosses a heavily vegetated ridgeline immediately to the north east of the take-off point, then proceeds to the mine utilising existing cleared land and internal access farms tracks. *Note: This option was discounted by Centennial due to extensive tree clearing required (approximately 300-400 trees), a Wedge Tail Eagle's nest located within the vicinity of the proposed powerline route, an Aboriginal Heritage site consisting of an artefact scatter identified in this particular area, and the steep terrain on the eastern side of the ridge line.*

- Option D - 66 kV take-off point adjacent from the Wallerawang-Gwebegar rail line.
  - This proposed powerline was the shortest and the most direct route, primarily following Option C, however this alternate route avoided the Wedge Tail Eagle nest site. *Note: This option was discounted by Centennial due to extensive tree clearing required (approximately 300-400 trees), an Aboriginal Heritage site consisting of an artefact scatter identified in this particular area, and the steep terrain on the eastern side of the ridge line.*

- Option E - 66 kV take-off point adjacent from the Wallerawang-Gwebegar rail line.
  - This proposed powerline route crosses the lesser vegetated ridgeline, west of Option C and D, heading north. Option E eventually links up and follows the Option C route (i.e. then proceeds to the mine utilising existing cleared land and internal farm tracks). *Note: This option was discounted by Centennial due to significant tree clearing required (approximately 50 trees), and the presence of Busaria sp, host plant for TSC listed Bathurst Copperwing Butterfly.*

- Option F - 66 kV take-off point adjacent from the Wallerawang-Gwebegar rail line (the selected route).
  - This proposed powerline route heads immediately north for approximately 1 km from the take-off point, following a permanent fence line along ARTC's rail track, across existing cleared land. Option F then heads east, to follow Option C (i.e. then proceeds to the mine utilising existing cleared land and internal farms tracks). *Note: This option is the preferred option proposed by Centennial due to minimal clearing required (approximately 16 mature trees and 1 immature tree) and utilising existing farm tracks. This option increases the length of the proposed powerline route by approximately 500 m over Options C, D and E.*

2.3.2 "Do Nothing" Alternative

If the "do nothing" alternative were selected, the socio-economic benefits resulting from the construction of the powerline, being the supply of electricity to enable recommencement of underground coal mining operations at Airly, would not be achieved.

2.3.3 Underground Cables

An alternative method to overhead cables would be to install the cables underground. This would require trenching along the route including across Airly Creek in order to install a concrete lined box trench to house the three conductors within oil filled pipes. The oil filled pipes are necessary to dissipate heat generated by the conductors, and the concrete lined trench would require access plugs every 10 m. While trenching has lower visual impacts, there are similar surface impacts due to the need to keep the

trench accessible to heavy vehicles for maintenance. Tree clearing is still required but for only 8 to 10m width. Underground cabling would be considerably more expensive than overhead power line installation in this instance.

3.0 STATUTORY REQUIREMENTS AND APPROVALS PROCESS

This section describes the statutory planning instruments relevant to the proposed modification, and assesses their implications in relation to the required approval process.

3.1 Commonwealth Legislation

3.1.1 Environment Protection and Biodiversity Conservation Act 1999

The purpose of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is to ensure that actions likely to cause an impact on a matter of National Environmental Significance (NES) undergo a rigorous assessment and approval process. Under the EPBC Act, an action includes a project, undertaking, development or activity.

An action that "*has, will have or is likely to have a significant impact on a matter of National Environmental Significance*" may not be undertaken without prior approval from the Commonwealth Minister for the Environment, as provided under Part 9 of the EPBC Act.

The EPBC Act identifies matters of NES as:

- World Heritage properties;
- Wetlands of international significance (including Ramsar wetlands);
- Listed threatened species and ecological communities;
- Listed migratory species protected under international agreements;
- Commonwealth marine areas;
- Nuclear actions; and
- Actions prescribed by the regulations.

The Administrative Guidelines for the EPBC Act set out criteria intended to assist in determining whether an action requires approval. In particular, the Guidelines contain criteria for determining whether a proposed action is likely to have a "significant impact" on a matter of NES. These Guidelines were consulted in determining the level of impact of the proposed development.

A flora and fauna assessment carried out in accordance with the EPBC Act for the modification, (attached as Appendix 5, refer Section 5.2) concluded the proposed modification was not considered to require the preparation and assessment of a referral to the Department of Environment, Water, Heritage and the Arts (DEWHA) due to the absence of matters of NES associated with the proposed powerline route. Approval from the Commonwealth Minister for the Environment is therefore not required for this modification.

3.2 State Legislation

3.2.1 Environmental Planning and Assessment Act 1979 and Environmental Planning and Assessment Regulation 2000

The EP&A Act provides a framework for environmental planning in NSW, providing the basis for both the making of environmental planning instruments and the assessment of development.

Development Consent No. 162/91 was granted for Airly by the then Minister for Planning on 14 April 1993 under Part 4 of the EP&A Act, for the construction and operation of an underground coal mine for a period of 21 years.

Pursuant to State Environmental Planning Policy (Major Projects) 2005, development referred to as a *'major project'* requires assessment and approval from the Minister for Planning in accordance with Part 3A of the EP&A Act. The SEPP classifies certain types of development comprising a major project. Pursuant to Schedule 1, Clause 5 (1) (a) *Mining*, development for the purpose of mining that is coal or mineral sands mining is defined at a major project.

Accordingly, an approval granted by the Minister under Part 3A of the EP&A Act to carry out a project may be modified under Section 75W. In addition, Clause 8J(8) of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) provides a mechanism whereby projects approved under Part 4 of the EP&A Act can be modified under Section 75W, stating that:

> *(8) A development consent in force immediately before the commencement of Part 3A of the Act may be modified under Section 75W of the Act as if the consent were an approval under that Part, but only if:*
>
> *(a) the consent was granted with respect to development that would be a project to which Part 3A of the Act applies but for the operation of clause 6 (2) (a) of State Environmental Planning Policy (Major Projects) 2005, and*
>
> *(b) the Minister approves of the development consent being treated as an approval for the purposes of Section 75W of the Act.*

Coal mining is a class of development listed in Schedule 1 of the State Environmental Planning Policy (Major Projects) 2005, and as such would be a Project to which Part 3A applies.

In addition, the EIS in support of the original development application included the establishment of a 66kV powerline to Airly Mine, however did not specify the route once off the proposed mining lease boundary. Therefore, modification of the Development Consent to include the specified powerline route will not radically alter the development as originally approved.

Accordingly, and under advice from the DoP, the modification is sought under Section 75W of the EP&A Act, and the proposal will be subject to assessment by the Director General of the DoP and determination by the Minister for Planning in accordance with Part 3A of the EP&A Act.

3.3 Other State legislation relevant to the Modification

Section 75U of the EP&A Act removes the need to gain approval under certain pieces of legislation for an approved project. However, for completeness a summary of potentially relevant Acts is included in Table 4.

Table 4 – Summary of NSW Legislation in Relation to the Modification

Act	Relevance to the Modification
Environmental Planning and Assessment Act 1979	Airly was granted Development Consent on 14 April 1993 under Part 4 of the EP&A Act. Consent from the Minister of Planning under Part 3A of the Act is required for modification of the 1993 consent for the construction of a 66kV powerline and associated infrastructure, to allow for the re-commencement of mining at Airly.
Mining Act 1992	Airly holds Mining Lease (ML) 1331. The proposed powerline is not within the mining lease and is therefore outside of the DPI-MR jurisdiction. No approvals are required.
Protection of the Environment Operations Act 1997	Airly currently holds EPL (No. 12374).
Water Management Act 2000	The proposed powerline route crosses Airly Creek; however an existing creek crossing will be used to gain construction and maintenance access. No construction activity will be undertaken within 40m from the top bank of either side of Airly Creek, and no

Act	Relevance to the Modification
	approvals will be required under the *Water Management Act 2000*.
National Parks and Wildlife Act 1974	No sites were identified during the archaeological survey along the proposed powerline easement. No sites will be impacted by the modification and no further approvals are required. If Aboriginal artefacts are discovered, work must stop in the vicinity of the discovery so that further disturbance is prevented. Centennial Airly would notify the DECC and follow their requirements.
Heritage Act 1977	No items of heritage significance have been identified within the proposed powerline easement.
Crown Lands Act 1989	The proposed powerline easement traverses an unformed Crown road, which is under Enclosure Permit 50283 held by Centennial Airly. Centennial Airly have been in consultation with the DoL to obtain the necessary approvals to access the land, and are in the process of applying for closure and acquisition of the Crown road. A letter from the DoL regarding construction of the powerline over the Crown road is attached in **Appendix 4.** An existing farm track off Glen Davis Road and access from the Airly Mine end will be used to gain access for construction of the powerline. No other approvals are required.

3.4 State, Regional and Local Environmental Planning Policies

Pursuant to Section 75R(3) of the EP&A Act, environmental planning instruments, other than State Environmental Planning Policies (SEPP), do not apply to a project approved under Part 3A of the Act. However, Section 75I(2)(e) states that environmental planning instruments that would otherwise substantially govern the carrying out of the project must be referenced by the Director General in the EA. This section therefore considers the provisions of such environmental planning instruments in relation to the project.

3.4.1 SEPP (Major Projects) 2005

The primary aims of this SEPP are to identify development to which development assessment and approval processes under Part 3A of the Act applies, and to identify any such development that is a critical infrastructure project for the purpose of Part 3A of the EP&A Act. Specific types of development or development within particular areas are listed in the various schedules attached to the SEPP. Any development referred to in the schedules requires assessment under Part 3A of the Act, with the Minister being the consent authority.

As described above, development for the purpose that is coal mining is defined as a major project in Schedule 1 of the SEPP. Clause 8J(8) of the EP&A Regulation provides a mechanism whereby projects approved under Part 4 of the EP&A Act before the commencement of Part 3A, but which would be a Project to which Part 3A applies, can be modified under Section 75W. Therefore, modification of the existing approval can be sought under Part 3A of the EP&A Act.

3.4.2 SEPP (Mining, Petroleum and Extractive Industries) 2007

The aims of the policy are, in recognition of the importance to NSW 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;

b) to facilitate the orderly and economic use of development of the land containing mineral, petroleum and extractive material 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 resources.

The construction of the 66kV powerline will enable the recommencement of underground mining at Airly, allowing the development of land containing mineral resources. It is considered that this proposed modification is consistent with the aims and objectives of the SEPP.

3.4.3 SEPP 44 – Koala Habitat Protection

SEPP 44 - Koala Habitat Protection applies to the extent that a consent authority is restricted from granting development consent from proposals on land identified as core koala habitat without the preparation of a Plan of Management. The flora and fauna assessment conducted for this modification found that the area does not form core Koala Habitat and therefore a Koala Plan of Management is not required.

3.4.4 SEPP 33 – Hazardous and Offensive Development

SEPP 33 - Hazardous and Offensive Development requires the consent authority to consider whether an industrial proposal is a potentially hazardous industry or potentially offensive industry. The aim of this policy is to link the permissibility of a proposal to its safety and pollution control performance. The assessment process establishes whether the proposal is potentially hazardous and if this is not the case, SEPP 33 is not applicable.

The proposed modification will not be adding any additional hazards to the current approved development, and therefore SEPP 33 is not applicable.

3.4.5 Drinking Water Catchments Regional Environmental Plan (REP) No 1

A review of the Sydney Catchment Authority (SCA) Water Catchment Water Regional Plan (WCWRP) was undertaken. After a review of the WCWRP, the proposed works were found not to be within a water plan, or within the SCA Area, and therefore notification to the SCA is not required.

3.4.6 Lithgow City Local Environmental Plan 1994

The land subject to the modification is zoned 1(a) – Rural (General) under Lithgow Council's LEP, with the land use of the surrounding area consisting primarily of agricultural activities, mainly grazing pursuits. Construction of the powerline within this zone is permissible with consent from the relevant authority.

4.0 CONSULTATION

Centennial Airly have undertaken consultation with Integral Energy, neighbouring land holders, local and state government authorities and other relevant stakeholders in preparation of this EA. A stakeholder consultation log was kept during the preparation of the EA as a record of the consultation undertaken by Centennial Airly. A summary of the consultation undertaken is included in Table 5. The sections below further outline the consultation that has been undertaken.

Table 5 – Summary of Stakeholder Consultation

Stakeholder	Method of engagement	Date	Issues raised/Comments
Integral Energy	Meeting, telephone, emails	March 2008-June 2009	Ongoing correspondence regarding development of powerline design.
Department of Planning	Meeting, telephone, letter, emails	30/01/09 –26/06/09	Environmental Assessment Requirements received 15 June 2009.
Department of Environment and Climate Change	Meeting	28/04/09	No issues raised.
Lithgow City Council	Meeting	28/04/09	No issues raised.
Department of Primary Industries – Mineral Resources	Telephone, Meeting	30/04/09; 13/05/09	No issues raised. Powerline is not on mining lease therefore outside of DPI-MR jurisdiction.
Department of Lands	Telephone, letter, emails	January-June 2009	Ongoing correspondence regarding closure and purchase of unformed Crown road. Land owner approval for construction.
Department of Water and Energy	Telephone, letter, email	18/06/09 - 19/06/09	Discussions on construction activities being greater than 40m from creek.
Neighbouring Landholder	Meeting, letter	December 2008 – June 2009	Discussions on potential impacts from powerline construction.
Hawkesbury Nepean Catchment Management Authority	Telephone, email	19/05/09 – 03/06/09	Discussions regarding rehabilitation works along Airly Creek.
Capertee Progress Association	Meeting	9/03/09	No issues raised.
Civil Aviation Safety Authority	Telephone	19/02/09 – 4/03/09	Discussions regarding formal closure of the landing ground in the vicinity of the powerline route.

4.1 Government Department Consultation

4.1.1 NSW Department of Planning

The government consultation program for this modification comprised a meeting with the DoP on the 30th January 2009 regarding the proposed installation of the 66kV powerline and associated infrastructure, followed by a letter and Project Application sent on 20 March 2009. The DoP subsequently responded, issuing EAR's and confirming Section 75W as the most appropriate means of assessing the proposal.

4.1.2 Other Relevant Government Departments

Centennial Airly consulted with the DECC, DPI-MR, LCC and DWE in preparation of the EA. No specific issues were raised.

4.2 Consultation with Neighbouring Landholder

Discussions have been held with the closest neighbour to the take-off point location from the existing 66kV powerline. The dwelling is utilised as a weekender only on occasion throughout the year. Discussions have covered potential impacts of noise, dust, access, hours of operation, security and visual amenity. Commitment to inform the neighbours of any pending construction timetable has been made.

There are no other neighbours that will be affected by the construction of the proposed powerline as the construction will be occurring on Centennial Airly owned property with a sufficient buffer land around the route.

4.3 Consultation with the Civil Aviation Safety Authority

Discussions have been held with the Civil Aviation Safety Authority (CASA) regarding formal closure of the landing ground in the vicinity of the proposed powerline route. CASA advised on the steps to be taken to close the ground, and these are discussed in detail in Section 5.12.1.

5.0 ENVIRONMENTAL IMPACT ASSESSMENT AND MITIGATION MEASURES

5.1 Project Risk Assessment

As required by the DGR's, a risk assessment was conducted by GSSE on behalf of Centennial Airly to identify those issues relating to the proposed construction of the 66kV powerline and associated infrastructure which possibly present a risk to the environment and surrounding community. The key aspects of this modification requiring detailed environmental assessment were determined on the basis of this risk assessment, in conjunction with the DGR's.

A qualitative risk assessment methodology was used, which was developed in accordance with the requirements of the Australian Standard *AS/NZS 4360:2004 – Risk Management* to provide a consistent approach. In addition the *Centennial Risk Management Standard 004* was also consulted to ensure consistency with the site based risk assessment procedures.

The purpose of the risk assessment was to identify those issues relating to the modification that present the greatest risk to the environment and surrounding community. Once they were identified, the various project risks were assessed while considering the existing management controls already in place. Where the risks were considered unacceptable, or there was a knowledge gap in the information available, specialist consultants were engaged to undertake further assessments and to present additional mitigation measures that would be required.

A Risk Register (attached as Appendix 6*)* was prepared to document the outcomes for all aspects of the project identified throughout the risk assessment process.

The following aspects of the project were assessed as requiring specific consideration in the EA. Specialist technical consultants were engaged to undertake the assessments relating to these aspects, as listed below.

- Flora and Fauna Assessment to examine the likelihood of the proposal to have a significant effect on any threatened species, populations or ecological communities listed within the *Threatened Species Conservation Act 1995* (TSC Act 1995), as well as those threatened entities listed federally under the EPBC Act; and
- Archaeological Assessment to examine the likelihood of the proposal to have a significant effect on any archaeological sites.

In addition to these aspects, this section details an assessment of the following:

- Soils (addressing Erosion and Sediment Control);
- Surface Water;
- Traffic and Transport;
- Visual Amenity;
- Air Quality;
- Noise;
- Electric and Magnetic Fields;
- Waste Management;
- Site Security;
- Bushfire; and

- Disused Landing Ground.

The following sections discuss all of the aspects listed above. The structure of the following section is as follows:

- Existing environment;
- Potential impact from proposed changes;
- Mitigation measures to be adopted; and
- Conclusion.

As discussed above, six powerline route options were investigated at the feasibility stage of the Project, the proposed route being selected due to it representing the least potential impact upon local flora and fauna and heritage. The sections below present the environmental impacts and proposed mitigation measures associated with the chosen powerline route, as illustrated in Figure 2.

5.2 Flora and Fauna

An Ecological Assessment of the powerline easement was undertaken by RPS Harper Somers O'Sullivan (RPS HSO), and included a flora survey, habitat survey and fauna survey. A full copy of the report is attached as Appendix 5. The following is a summary of the findings of this report.

5.2.1 Existing Environment - Flora

Regional mapping of vegetation communities in the area, '*The vegetation of the Western Blue Mountains*' (DEC 2006), maps four vegetation communities within the vicinity of the proposed powerline route. These are illustrated in Figure 5, and are as follows:

- MU 20 Capertee Rough-Barked Apple Redgum Yellow Box Grassy Box Woodland;
- MU 21 Capertee-Wolgan Slopes Red Box-Grey Gum-Stringybark Grassy Woodland;
- MU 38 Capertee Grey-Gum-Narrow-Leaved Stringybark-Scribbly Gum-Callitris- Ironbark Shrubby Forest; and
- MU 62 Cleared and Severely Disturbed vegetation.

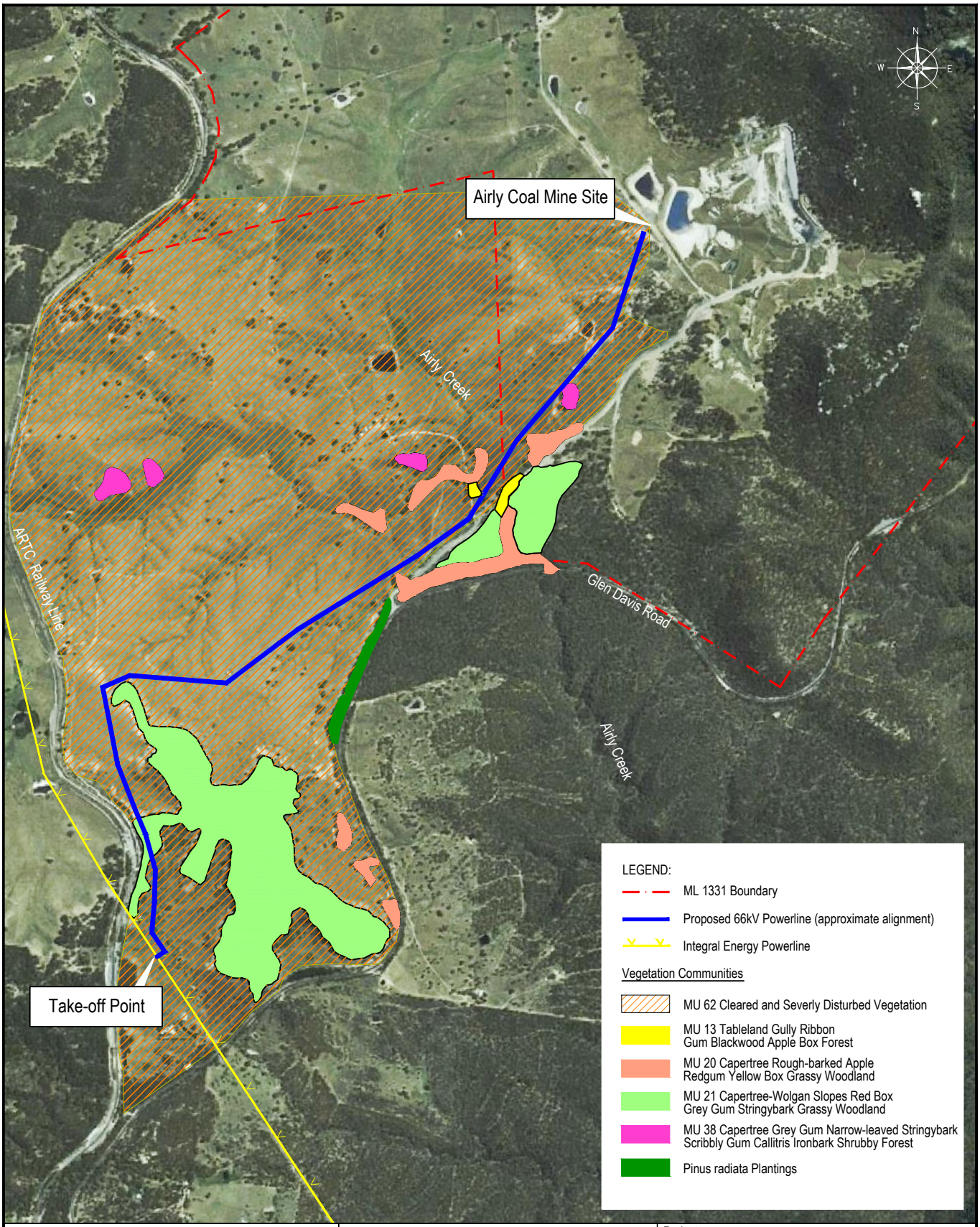
An area of MU 13 Tableland Gully Ribbon Gum Blackwood Apple Box Forest was also observed near the creek crossing via ground-truthing.

The proposed powerline route largely traverses MU 62 Cleared and Severely Disturbed vegetation, avoiding small stands of woodland vegetation and isolated trees. No vegetation which might be considered to represent an Endangered Ecological Community (EEC) or remnant elements of an EEC were observed to occur within the proposed powerline route, despite targeted searches due to the occurrence of such vegetation in the wider locality. In addition, no threatened flora species were recorded within the proposed powerline route.

5.2.2 Existing Environment - Fauna

The powerline route generally traverses open grassy habitat, which has limited potential to support native fauna species, apart from common native open country birds and mammals.

Three threatened fauna species were recorded within the vicinity of the proposed powerline route, being the Diamond Firetail, Brown Treecreeper and Gang-Gang Cockatoo. No suitable habitat for the treecreeper or significant habitat for the cockatoo occurs within the proposed powerline route. Potential habitat for the Diamond Firetail does however occur within the powerline route, although this habitat will not be diminished during construction and commissioning phases of the powerline and associated infrastructure.



Source: Google Earth Pro

0 200 400 600m

Scale: 1 : 20 000 (A4)

FIGURE 5

Vegetation Communities

Project: Airly 66kV Powerline

Client: Centennial Coal Company Limited

Version	Date:	Author:	Checked:	Approved:
1	25/6/09	LF	NA	NA

GSS ENVIRONMENTAL
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File: Fg5_CCC16-002_Vege_090625_V1

Projection: MGA94 Zone 56

The site is not considered to constitute 'Potential Koala Habitat' as defined by SEPP No. 44.

5.2.3 Potential Impacts

The powerline route was selected to avoid removal of mature trees as much as possible, with only sixteen mature trees, one of which being a hollow-bearing tree, and one immature tree requiring removal on the western extremity of the southwest ridge. The removal of these trees is not expected to represent a break in vegetation sufficient to hinder the movements of native fauna, as a much greater break in vegetation is represented by the ARTC easement immediately to the west of the proposed ridge line crossing. The remaining vegetation clearance will be limited to regrowth saplings in the vicinity of Airly Creek. To further minimise vegetation clearing, construction vehicles will utilise an existing farm track off Glen Davis Road, as well as existing access from the Airly Mine end. In addition, existing farm tracks will be used wherever possible for maintenance access along the powerline route.

No EEC's or threatened flora species were recorded within the proposed powerline route.

Three threatened fauna species were recorded in the vicinity of the powerline route; however no suitable habitat exists for one of these species, the Brown Treecreeper, and no significant habitat exists for another, the Gang-Gang Cockatoo, within the powerline easement. Whilst potential habitat does exist for the third recorded threatened species within the powerline route; the Diamond Firetail, it is considered unlikely that construction activities will degrade this habitat. In addition, due to the relative abundance of similar habitat in the vicinity of the powerline, and the relatively small area to be disturbed during construction, it is unlikely that any significant impact will occur on locally occurring individuals of this species.

Construction of the powerline is therefore not likely to reduce those opportunities that currently exist in the area for the threatened bird species identified in the vicinity of the powerline route. It is considered unlikely that any fauna species potentially occurring within the site will be adversely affected, nor will any habitat within the site become fragmented or isolated.

5.2.4 Proposed Flora and Fauna Mitigation Measures

The proposed route was selected due to it representing the least potential impact upon local flora and fauna. To further minimise the potential for impacts on flora and fauna the following mitigation measures will be implemented.

- Precautions to avoid impacts upon waterways and associated vegetation will be implemented to prevent the movement of sediments or contaminated waters into onsite drainage lines, particularly Airly Creek. These measures are described below in Sections 5.4 and 5.5.
- Appropriate measures will be employed to ensure that machinery working within the site does not bring materials (soils etc.) onto the sites that may infect onsite vegetation with *Phytophthora cinnamomi*;
- Ongoing weed management will be instituted and potential weed infestations be appropriately treated to ensure surrounding communities are protected from invasive species particularly where the proposed powerline route crosses the southwest ridge line;
- Measures to prevent the erosion of soil on the southwest ridgeline particularly where vegetation will be removed will be employed;
- At the completion of the powerline construction, all non-operational areas will be suitably rehabilitated;
- During the construction phase, for any tree removal, in particular where a hollow-bearing tree may be removed, all works should be supervised by an appropriately qualified person to recover any native fauna that are potentially displaced; and
- Only small sections of the permanent maintenance tracks will remain un-rehabilitated. These include areas where rock fill stabilisation or similar has been required.

In addition to those measures listed above, Centennial Airly has commenced discussions with the Hawkesbury Nepean CMA to undertake voluntary revegetation works within Airly Creek in the vicinity of the creek crossing. These works will include staged revegetation works to remove weeds such as Weeping Willows to ensure bank stabilisation, and planting of native vegetation.

5.2.5 Conclusion

The minimal removal of vegetation associated with construction of the powerline and associated infrastructure is considered highly unlikely to result in any adverse impacts upon flora and fauna, including locally occurring threatened species or communities.

5.3 Archaeology and Cultural Heritage

RPS HSO was engaged to undertake an archaeological assessment over the proposed powerline route. A full copy of the report is attached as Appendix 7. The following is a summary of the findings of this report.

5.3.1 Existing Aboriginal Heritage

An Aboriginal Heritage Information Management System (AHIMS) search identified a total of six archaeological sites as being registered within a 10 km radius of the proposed powerline easement. Of these sites two were duplicated, and one site was listed as 'deleted', with none of the sites occurring within the proposed powerline easement. All potential routes for the powerline were inspected, with the preferred route encountering no archaeological constraints.

Heavily vegetated areas are avoided by the powerline route, and it extends through an area of pastoral activity. The soil was very shallow in this area, and there were no raw materials contained in the soil and no evidence of Aboriginal artefacts. The powerline route also extends along an unformed air strip. This area was denuded of soil and had no potential for retaining any Aboriginal artefacts. Beyond the air strip were areas of high visibility which had been created from rill erosion. There was 90% visibility across an area approximately 100 m x 100 m, and no raw material or Aboriginal artefacts were visible.

The soil depth where the proposed powerline crosses the creek was shallow, and the steep banks that led to the creek featured exposed bedrock. There was no suitable raw material for tool manufacture at this location, and it was assessed as having very low to nil probability for retaining cultural heritage materials.

One artefact scatter was identified during the field survey; however this site is not within the proposed powerline easement.

5.3.2 Existing non-Aboriginal Heritage

No items of non-Aboriginal heritage significance were recorded during the archaeological survey within the proposed powerline easement.

5.3.3 Potential Impacts

No Aboriginal resources were identified within the proposed powerline easement, and there is no potential to impact Aboriginal sites either by the construction of the powerline or the use of the tracks for maintenance. Whilst one artefact scatter was found in the vicinity of the proposed powerline route, this site is not within the proposed easement. The route was specifically selected by Centennial Airly to avoid impact to all cultural heritage items.

5.3.4 Proposed Mitigation Measures

The newly recorded artefact scatter, located outside the powerline easement, identified in this assessment will be placed on the AHIMS register, and a site card lodged with the DECC.

If suspected Aboriginal cultural heritage material is encountered during the course of construction, work will cease immediately. The DECC and relevant Local Aboriginal Land Council will be notified, with works only recommencing when an appropriate and approved management strategy has been agreed by all relevant stakeholders.

No other mitigation measures will be required.

5.3.5 Conclusion

Construction of the powerline and associated infrastructure can commence without any archaeological constraints.

5.4 Soils and Geology

5.4.1 Existing Environment

Airly lies within the Western Coalfields of NSW. Airly is located on the western edge of the coal bearing strata of the Sydney Basin where the high sandstone terrain breaks up into separate mesas and sandstone ridges in the vicinity of Capertee (Novacoal, 1991).

The soil landscapes within the proposed powerline easement are typical of the Capertee region, and according to the Bathurst Soil Landscape Series Sheet 1:100,000 (Matthei, 1995), predominately consist of Capertee landscapes. A description of the soil landscapes present in the area is shown in Table 6.

Table 6 – General Description of the Capertee Soil Landscape along the Powerline Easement

Landform	Geology	General Soil Description
Undulating low hills ranging in elevation from 730-940m with most slope lengths ranging from 1000-2000m, but up to 3000m. Slopes angles are gentle, from 3-8%. Local relief is low, mainly from 60-80m, but with a full range between 40-100m. Drainage lines have variable spacings from 400-1000m	Permian geological unit, with Parent Rock consisting of shale, siltstone, sandstone, conglomerate, some coal chert and torbinate seams. Parent Material: In situ and alluvial-colluvial materials derived from above parent rock.	The dominant Yellow Podzolic soils of the midslope landform element consist of: Topsoil: 10-15cm deep Dark brown to brown loam with weak structure; pH 6.0. Clear change to 35-40cm deep bleached yellowish brown A2 of massive structured clay loam; pH 5.5-7.0. Subsoil: Yellowish brown or yellow orange medium to heavy clay with moderate to strong structure; rough faced peds; pH5.5-6.0. The lower slopes and depressions typically form Yellow Solodic soils consisting of: Topsoil: Hardsetting dark brown light sandy clay loan with weak structure; pH 6.5; clear change to subsoil. Subsoil: Yellowish brown sandy clay with moderate structure; pH 7.0; red mottles (10%); gradually becomes lighter in colour with depth; to medium clay with strong structure; distinct red and grey mottles (30%); ph 7.5.

Source: Matthei, 1995.

These soils have a moderate erodibility, moderate erosion hazard and a high structural degradation hazard. Therefore prior to any surface disturbance, soil erosion and sedimentation management structures should be constructed.

Visible signs of disturbance in the area include existing farm tracks, and along the Wallerawang-Gwebegar rail line. The preferred powerline route was chosen primarily due to the area previously being cleared for agricultural purposes.

The potential for acid generation from regolith material (topsoil and subsoil) within the powerline easement is low. Acid Sulphate Soils (ASS), which are the main cause of acid generation within the soil

mantle, are commonly found less than 5 m above sea level, particularly in low-lying coastal areas such as mangroves, salt marshes, floodplains, swamps, wetlands, estuaries, and brackish or tidal lakes. There has been little history of acid generation from regolith material in the Capertee area (which is located approximately 80 km from the coast, with the powerline to be constructed and between 720 m and 800 m RL) however, general vigilance of the soil condition during disturbance is recommended.

The majority of the existing environment consists of pasture improved or native grazing paddocks displaying adequate ground cover for minimal surface erosion. The topography is flat to gently undulating at the lower slopes for the majority of the area. A small section of the proposed powerline route is located on steep ground of timbered vegetative cover. This area is void of adequate protective ground cover and includes an existing rail cutting which is exposed to the west. This area has previously exhibited a high soil disturbance due to the steep slope of the natural landform and rail cutting, and poor groundcover.

5.4.2 Potential Impacts

Disturbance activities that pose a risk of accelerating natural erosion processes include vegetation clearance, track construction, and pole installation. Areas that may be disturbed include the final maintenance track footprint, park-up areas, pole installation sites and pole/cable storage and layout footprint areas.

During the required vegetation clearance activities, the land surface may be disturbed down to the lower root zone of the larger trees marked for removal. This mechanical disturbance of the topsoil and underlying subsoil may temporarily reduce the abilities of the soil to resist the dislodgement of particles from raindrop impact and surface water flow during rainfall events, and also more susceptible to wind erosion. It is noted however that the majority of the powerline route has already been cleared for agricultural purposes, with only 16 mature trees and one immature tree requiring removal for the installation of poles and overhead lines. The pole installation process will involve holes of no greater than 3 m depth and 600 mm diameter.

During the construction phase, the natural topsoil will be retained insitu. No soil will be removed from the construction and maintenance tracks but the soil surface may be disturbed in some locations. Soil material brought up during pole driving will be spread over the immediate area. Areas of subsoil may also be disturbed during construction, particularly during the construction of the metering yard and a moderate erosion risk may be created, and therefore sufficient controls are required (refer to Section 5.4.3 below).

Given the small area to be disturbed, that existing tracks will be used wherever possible, and that a permanent all weather access track will not be constructed but rather soils retained insitu, with the mitigation measures implemented as described below no significant impacts on soils or the resulting impacts of erosion and sedimentation are anticipated.

5.4.3 Proposed Mitigation Measures

Permanent Design Measures

Erosion and sediment control measures will be implemented within disturbed areas associated with the construction of the powerline easement, to prevent soil erosion from, and to trap any sediment prior to discharging from the site. All erosion and sediment control works will generally be undertaken in accordance with *Managing Urban Stormwater: Soils and Construction*, *4th Edition Volume 1 Soils and Construction* (Landcom, 2004) *and Volume 2c Unsealed Roads* (NSW Department of Environment and Climate Change 2008) (referred to as the *Blue Book*).

As discussed above in Section 2.1, the contractor will be required to prepare a CEMP for construction of the powerline and associated infrastructure. All construction activities will be undertaken in accordance with this CEMP, which will include erosion and sediment control measures to be implemented during construction.

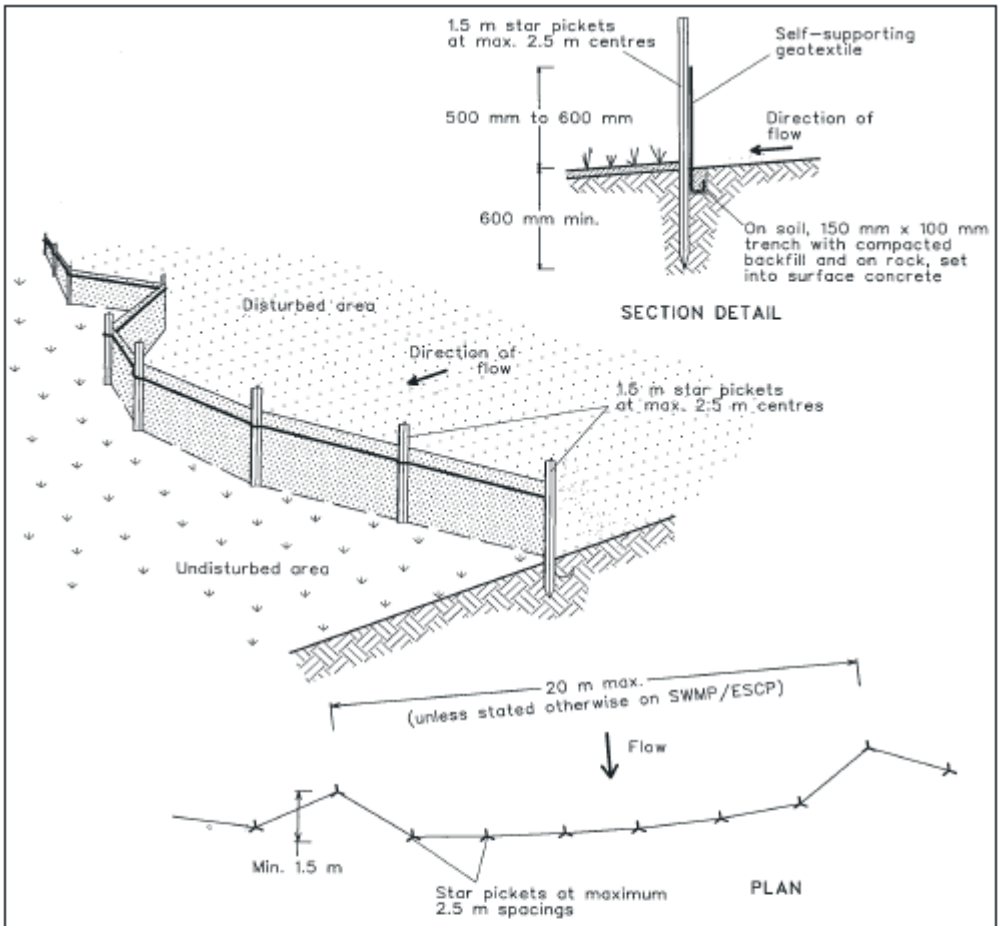
The erosion and sediment control measures to be included in the CEMP will include, but not be limited to the following:

- To control the amount of soil disturbance along the proposed powerline easement, only specified areas required for the proposed development will be disturbed. The powerline easement will utilise existing cleared land and existing farm tracks where possible to limit vegetation clearing.
- The maintenance track will be constructed using low impact methods to help prevent soil disturbance on site. The track will be located near established vegetation to further reduce erosion and will be designed to complement the low volume of traffic as well as the type of vehicles that will be utilising the track.
- For areas with road grades steeper than 18 degrees, the maintenance track will be designed with cross banks, spoon and mitre drains. Cross banks will be constructed across the proposed track to intercept and direct the runoff across the track surface. Recommended outlets of these cross banks are the well vegetated areas of the easement. Where farm tracks have already been established, cross banks are recommended to be constructed wherever rilling (small gullies) start to appear.
- The disturbed area around each pole site will be sown with a pasture seed mix as soon as possible following completion of construction.
- Post construction audit by the Environmental Coordinator of rehabilitated areas.

Temporary Construction Measures

During the construction phase, temporary erosion and sedimentation control measures will be implemented to reduce the likelihood and severity of erosion and sedimentation within and around the construction site. These measures may include the use of sediment fences (refer to Figure 6 for construction plan) for non-channelised flow over disturbed areas, and small check dams on channelised flow made from straw bales (refer to Figure 7 for construction plan), sand bags, rip rap etc or any combination of those materials. Other sediment trapping techniques may be applied throughout the project, including temporary cover crops, holding ponds, grass filter strips etc. The design life of these measures will be 6 months for a 2 year ARI, which is the standard design as per the *Blue Book.*

Consideration will be given to erosion and sediment control in the procedures for activities undertaken during the construction phase of the powerline. These procedures may include restricted access during wet weather or to areas under rehabilitation, reporting of erosion and sediment hazards or incidents and regular checking and maintenance of structures. Furthermore, following the commissioning of the powerline and maintenance track, there will be regular inspections of all erosion and sediment control structures.



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE **SD 6-8**

Figure 6 – Sediment fence construction plan (Blue Book Vol 1)

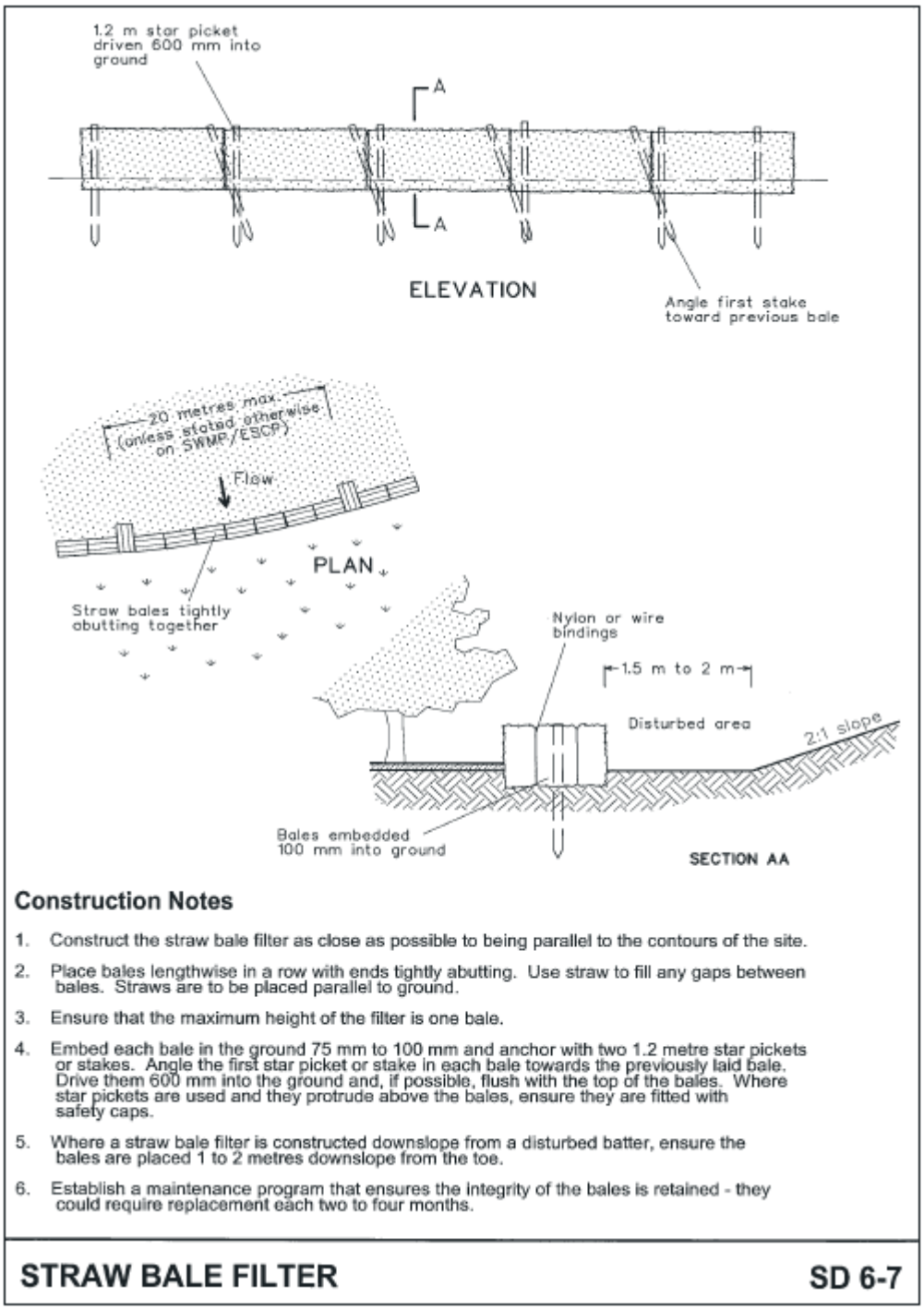


Figure 7 – Straw bale filter construction plan (Blue Book, Vol 1)

Rehabilitation Measures

Revegetation works will be established as soon as possible following disturbance to control soil erosion and sedimentation. The areas outside the maintenance track footprint will be rehabilitated with appropriate surface water management structures and suitable vegetation. Following completion of construction, the track will be trimmed to remove tyre ruts and sown with improved pasture compatible with the surrounding pasture.

Steep batters, particularly in the vicinity of the ARTC rail easement, will be stabilised as soon as practical following removal of the trees to allow construction of the overhead lines and rehabilitated.

5.4.4 Conclusion

Given the mitigation measures to be implemented, it is not anticipated that there will be significant or uncontrolled erosion and sediment control issues associated with the works. All erosion and sediment control measures will be in design and construction compliance with the recommendations of the Blue Book Volumes 1 and 2. All design details will be contained in the CEMP to be prepared by the successful contractor and approved by Centennial Airly prior to the commencement of construction, which will include erosion and sediment control measures to be employed.

5.5 Hydrology and Water Quality

5.5.1 Existing Environment

Groundwater

The maximum estimated depth of excavation is expected to be no greater than 3 m for pole installation (minor excavation). Therefore construction of the powerline and associated infrastructure is very unlikely to intersect groundwater aquifers or impact on groundwater levels or quality.

Regional Surface Hydrology

The proposed powerline easement is located within the larger catchment of the Capertee River. The river flows in a south easterly direction and is a tributary of the Colo River, which ultimately flows into the Hawkesbury River and Broken Bay. The Capertee River catchment area is adjoined to the west by the Turon-Macquarie catchment area, to the south by the Cox's River catchment, and to the north by the Hunter-Goulburn catchment area.

Local Hydrology

The proposed powerline route crosses Airly Creek, which is well grassed and contains a sparse and scattered arrangement of mature trees with saplings regrowth approximately 3–5 years old, as displayed in Plates 3 and 4.

Plate 3 – Airly Creek in the vicinity of the powerline route

Plate 4 – Airly Creek in the vicinity of the powerline route

Background water quality

Airly operates under Environment Protection Licence No. 12374. This licence allows for two licenced discharge points; one adjacent to the Settling Dam at the Discharge Dam (LDP1) at the Airly Pit Top, and the other for a transpiration bed from the onsite sewage treatment plant.

Water quality is monitored at Airly at four locations; Airly Creek, a tributary to Airly Creek, the Discharge Dam and the Settling Dam. No discharges have occurred from these dams over the past couple of years. In addition, no results are available for Airly Creek as no flow occurred during the last two reporting periods. The water quality results for the past two years from the tributary to Airly Creek, which is located just upstream of where the proposed powerline will cross the Creek, are therefore presented in Table 7.

Table 7 – Summary of average water quality results in the tributary to Airly Creek

	pH (field)	TSS	EC (uS/cm)	Oil & Grease	BOD
2007 (August)*	7.8	11	4570	0	5
2007 (September)*	7.2	386	5330	0	5
2008	7.3	10	3455	<2	6.2

*Only 2 samples taken during 2007 from the tributary to Airly Creek

The water quality results recorded in the tributary to Airly Creek over the past two years indicate that the natural waters generally have a relatively high electrical conductivity (EC), and a neutral pH.

5.5.2 Potential Impacts

The proposed works have some potential for impacts on the local surface hydrology through removal of some vegetation cover along the easement. The potential for erosion of these disturbed areas results in a risk of sedimentation of the Airly Creek system, particularly in the vicinity of the creek crossing of the powerline. However, no construction works are to be undertaken within 40 m of the top bank of Airly Creek, and limited vegetation is to be removed in construction of the powerline. Therefore, with the implementation of the mitigation measures presented below in Section 5.5.3, the risk of any significant impacts on Airly Creek as a result of erosion and sedimentation are considered to be very low.

There will be no potential for impacts on groundwater.

5.5.3 Proposed Mitigation Measures

The specific mitigation measures to be undertaken within the vicinity of Airly Creek are outlined below:

- Powerline construction: No construction activity, including pole installation, will be undertaken within 40 m from the top bank of either side of Airly Creek. The 40m zone will be clearly marked by taping to delineate the restricted work areas. In addition, adequate sediment fencing and straw bales will be constructed prior to any activities occurring within the direct catchment of Airly Creek.
- All areas temporarily disturbed during construction of the powerline, such as laydown areas, will be rehabilitated and revegetated as soon as practical following completion of construction. Temporary sediment control structures (dam, traps or ponds) will be constructed, as required, at the downslope extremities of all drainage paths from the installation site to treat any surface flow from disturbed areas prior to discharge to Airly Creek. These will be retained until the soil surface is stabilised with established vegetation.
- Maintenance access: The maintenance track route will cross Airly Creek by connecting to an existing creek crossing, consisting of a fill embankment equipped with culverts and gabion rock erosion protection (see Plate 5 below), with more than a 40 m buffer between the track and the

top bank on either side of the creek. The maintenance track route then separates from the existing creek crossing joining back up to the powerline easement. This design feature will minimise land disturbance near Airly Creek.

Plate 5 – Existing crossing over Airly Creek in vicinity of powerline route

5.5.4 Conclusion

The proposed buffer between the powerline easement and the top of bank of Airly Creek will be greater than 40 m, which is considered sufficient to minimise any impact on the creek. The proposed mitigation measures should ensure adequate control of surface water quality entering Airly Creek, and no significant surface water impacts are anticipated.

5.6 Traffic and Transport

5.6.1 Existing Environment

Access to the proposed site of construction for the powerline will be via existing access points; the Airly Mine access road, and the farm access track off Glen Davis Road.

5.6.2 Potential Impacts

A farm track off Glen Davis Road will be used for access of vehicles for construction of the powerline and associated infrastructure (e.g. the circuit metering yard). The construction works should not interfere with any traffic flow other than the occasional delivery of material to the site during the short term construction phase.

The majority of heavy vehicle movements, including deliveries of equipment required for the construction works, will be via the Airly Mine site, not off Glen Davis Road. Traffic interruptions on Glen Davis Road will be either negligible or minimal.

As described above in Section 2.1, the volume of traffic associated with the required construction plant and equipment is presented in Table 8 below. Whilst the construction of the take-off point from the existing Integral Energy powerline forms part of a separate approval and is not part of this modification,

the plant and equipment required for connection to the take-off point is included in the table below to assist in assessing the overall impact on traffic movements.

Construction will occur over approximately 16 weeks, and so the slight increase in traffic movements in the area associated with construction of the powerline will be short term.

Table 8 – Approximate vehicle movements

Construction of:	Period	Heavy vehicle movements during period	Light vehicle movements per day
Connection to the Integral take-off point	4 to 6 weeks	1 semi trailer load of 4 poles and isolators 1 post hole borer 1 pole installation rig and cherry picker 1 truck load of conductors	1 to 4 light vehicles, depending on the number of construction personnel on site.
Circuit metering yard	12 to 16 weeks	1 semi trailer load of 2 poles and isolators 3 semi trailer loads of steel switch yard frames and platforms 1 post hole borer 1 pole installation rig and cherry picker 1 truck load of conductors Approximately 5 concrete trucks split over 2 x 2 day periods	1 to 5 light vehicles, depending on the number of construction personnel on site.
66kV powerline	12 to 16 weeks	4 to 6 semi trailer loads of poles and isolators 1 post hole borer 1 to 2 pole installation rigs and cherry pickers 1 to 2 truckloads of conductors Approximately 2 to 4 concrete trucks over 2 x 2 day periods	1 to 3 light vehicles, depending on the number of construction personnel on site.
Construction and maintenance track		Minor use of a bulldozer Gravel fill in unstable areas to protect from erosion	

The proposed 15 m wide powerline corridor will be situated inside Centennial owned land. This will allow sufficient room to conduct powerline installation activities without requiring any interruption to traffic.

Track arrangements at the creek crossing are to utilise an existing creek crossing and road and will therefore not be within 40 m of the top creek bank.

It is noted that Integral Energy also requires an access track for accessing their infrastructure e.g. the take-off point. This access is subject to a separate arrangement.

5.6.3 Proposed Mitigation Measures

Traffic control measures will be in place prior to the works commencing. These measures will be included in the CEMP to be prepared by the successful contractor.

5.6.4 Conclusion

No significant impacts on the traffic in the area are anticipated as a result of the proposed works.

5.7 Landscape and Visual Amenity

5.7.1 Existing Environment

The powerline easement and land in its vicinity consists of flat to gently undulating farming country, rising to steep forested hills to the South. The proposed easement site has undergone clearing from past agricultural activities and is located within a rural land setting. The Wallerawang-Gwebegar rail line is located adjacent to the southern end of the proposed powerline, along with an existing Integral Energy 66kV powerline. Airly Creek traverses the proposed powerline easement.

5.7.2 Potential Impacts

The potential visual impacts of this project are in two stages; firstly the construction phase where machinery will be present as well as temporary disturbance within the landscape for stockpiles and track construction, and secondly, the powerline itself once complete and in operation. However, given that other powerlines exist within the vicinity of the area, the location of the powerline and the limited plant and equipment proposed to be used for construction, the expected visual impacts relating to construction of the powerline are considered to be low. The visual aesthetics are also enhanced by remnant vegetation along Glen Davis Road, providing further screening of the proposed easement.

5.7.3 Proposed Mitigation Measures

The following mitigation measures will be employed to minimise the likelihood of any visual impact.

- Where clearing or vegetation is required, it will be contained to that only required for the works. Trees will be clearly marked to ensure the operators undertaking the clearing know exactly what areas to disturb. This will be documented in the successful contractors CEMP; and
- Where practical, all plant and equipment used during the day will be brought back to a central parking area. Again, this will be documented in the successful contractors CEMP.

5.7.4 Conclusion

Given the location, minor nature of the works and the limited plant and equipment proposed to be used on the project, no significant visual impacts are anticipated. In addition, the development is occurring predominately on Centennial Airly owned land, with the exception of one Crown unformed road, (permission has been obtained to cross this road as per the letter from the DoL in Appendix 4). No change to the existing land use will occur, with the land to continue to be used for grazing purposes following completion of construction.

5.8 Air Quality and Climate

5.8.1 Existing Environment

In the Airly EIS (Novacoal, 1991) it was noted that air quality in the district was relatively good, however it was affected by nearby powerstations (25 km south), coal mining operations, road and rail traffic, residential developments and agricultural activities such as ploughing and burn offs. These various sources of discharges cause different pollutants to enter the air. Unsealed gravel roads are also a contributor to dust generation in the area.

Air quality monitoring has continued at Airly whilst the site has been on care and maintenance. Four dust gauges measure dust fallout, with the results recorded over the past two years presented in Table 9 below. As can be seen in Table 9, the results are well within the limit of 4g/m^2/month.

Table 9 – Average dust monitoring results at Airly Coal Mine, 2007 & 2008

Dust Gauge	Average Insoluble solids (g/m^2/month) - 2007	Average Insoluble solids (g/m^2/month) - 2008
DM1	2.7	0.375
DM2	0.6	0.27
DM3	0.5	0.69
DM4	0.8	0.23

5.8.2 Potential Impacts

The activities associated with the proposed powerline construction and associated infrastructure that have the potential to be a source of dust generation and air quality degradation include:

- Clearing of vegetation (bulldozer);
- Civil works for track construction;
- Heavy vehicles for pole and overhead wire installation;
- General vehicle movement around the site.

In conjunction with the general traffic on site, the construction work will have the potential for wind-blown air quality impacts.

5.8.3 Proposed Mitigation Measures

During the construction phase the following mitigation measures will be implemented:

- A schedule of disturbance will be planned and implemented to minimise the period between initial surface disturbance and rehabilitation; and
- The construction and maintenance track will remain grassed wherever possible during construction, minimising the potential for dust generation as a result of traffic movements.

During the operational stage, the following mitigation measures will be implemented to reduce dust generation.

- Vehicle speeds will be limited to 40 km/hr to reduce dust on unsealed tracks; and
- Routine air quality monitoring for the Airly mine will continue to be undertaken nearby. The existing dust deposition gauge located at the Airly Homestead (DM4) will monitor dust generated from the construction of the powerline.

5.8.4 Conclusion

The potential for air quality impacts can be minimised through the mitigation measures listed above. With the implementation of these measures combined with site personnel vigilance and planning with consideration for weather conditions, the potential for significant air quality impacts is very low.

5.9 Noise

5.9.1 Existing Environment

The existing sources of noise in the area are primarily due to local rural and domestic activities, road and rail activity, or natural elements such as wind and rain. Studies undertaken in 1990 by James Madden Cooper Atkins Pty Ltd indicate these sources of noise were present prior to the construction of the Airly Coal Mine. Further noise monitoring was undertaken in 1998 and March 2009. These studies also confirmed that background noise levels are typical of a quiet rural environment.

5.9.2 Potential Impacts

The potential noise impacts from this project can be separated into the construction phase impacts and the operational phase impacts.

The activities associated with construction of the powerline and associated infrastructure that have the potential to act as noise sources include:

- Clearing of vegetation (bulldozer);
- Civil works for track construction;
- Installation of poles and fittings using cranes and Elevated Work Platforms (EWP);
- Installation of overhead wires using EWP's;
- Rehabilitation of disturbed areas; and
- General vehicle, crane and plant operation throughout the construction phase.

In all cases, these activities (and potential sources of noise) will be limited to a narrow corridor running for approximately 3.85 km along proposed powerline easement as shown in Figure 2.

The operational phase activities will be limited to vehicle inspections and maintenance programs which occasionally may utilise EWP's or cranes.

The closest receptor to the proposed powerline easement is the privately owned house on Lot 82 DP 755758, approximately 300 m to the south of the take-off point from the Integral Energy powerline, as illustrated in Figure 2. Through consultation with the landowners of this property, it was determined that the house is only occupied periodically on weekends. There are no commercial properties, schools or childcare centres within the immediate area.

Given the proposed works will be undertaken during normal operating hours i.e. 7 am to 5 pm Monday to Friday the potential for noise impacts on nearby residents is considered low.

5.9.3 Proposed Mitigation Measures

The potential for noise impacts from the proposed modification will be temporary, primarily associated with the construction of the powerline and associated infrastructure. To ensure that noise impacts are minimised, construction activities will be restricted to daytime work hours (7 am until 5 pm) only, with no work on weekends. Given that there are very few nearby receptors, with the only neighbouring property only periodically occupied on weekends, the potential for significant noise impacts is considered to be very low.

It is not expected that there will be any significant noise impacts during the operational phase; however the occasional use of machinery may be required for maintenance purposes.

5.9.4 Conclusion

The noise levels during both the construction and operational phase of the project are not expected to cause significant impacts on the nearby community.

5.10 Electric and Magnetic Fields

5.10.1 Existing Environment

It is recognised that there is genuine concern about a possible connection between electric and magnetic fields (EMFs) and health. The issue of EMF and health effects has been examined by over eighty independent and authoritative scientific review panels many times over the last 20 years and, consequently none has ever found a basis to conclude that EMF is harmful. While there is scientific consensus that health effects have not been established, the possibility cannot be ruled out.

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), the Australian body with a statutory responsibility for advising on EMFs, has concluded that "on balance, the scientific evidence does not indicate that exposure to 50 Hz electric and magnetic fields found around the home, the office or near powerlines is a hazard to human health … At this stage any action to reduce exposure must rest with the individual."

Australia's National Health and Medical Research Council (NHMRC) has adopted draft guidelines which set limits for magnetic fields of 10,000 milliGauss (mG) and 1,000 mG (allowed for the general public) up to a few hours per day and up to 24 hours per day respectively. These limits are based on restricting induced currents in the body to the level of those which occur naturally and are not intended to protect against possible effects associated with low EMF levels. TransGrid has measured EMF levels for various high voltage transmission lines in NSW. Levels measured for a 132 kV transmission line are typically less than 10 mG at the edge of the easement (22.5 m from the line) (International Environmental Consultants Pty Limited, 2008). The interim guidelines for exposure to electric and magnetic fields developed by Australia's National Health and Medical Research Council (NHMRC) recommend a magnetic field exposure limit for members of the public (24 hour exposure) of 1,000 mG. On this basis it is considered that the EMF generated by the proposed 66kV line will be well within exposure limits.

5.10.2 Potential Impacts and Mitigation Measures

There are no commercial properties, schools or childcare centres within the immediate area. In addition, there are limited residences in the area. The closest receptor to the proposed powerline easement is the privately owned house on Lot 82 DP 755758 (refer Figure 2), approximately 300 m to the south of the take-off point from the Integral Energy powerline, which is only occupied periodically on weekends.

5.10.3 Conclusion

In light of the above information, and in particular given there are no commercial properties, schools or childcare centres within the immediate area with only one nearby resident, the extent, nature and the level of adverse EMF impacts likely to be caused by the proposed powerline within the location, are considered low.

5.11 Waste Management

5.11.1 Existing Environment

The existing site is free of general rubbish. Construction of the powerline and associated infrastructure will generate waste that will require disposal.

5.11.2 Potential Impacts

Inadequate management of waste on the site may create visual and environmental pollution.

5.11.3 Proposed Mitigation Measures

Some green waste will be generated by the project during the clearing of the easement along the powerline route. The timber will be selectively harvested, with some timber reused where possible for fence posts, with the remainder to be removed to a stockpile and left for fauna habitat.

All wastes generate during construction such as hydrocarbons, batteries, building materials, sewerage, paper/cardboard, and domestic waste will be managed in accordance with the relevant requirements of the *Waste Avoidance and Resource Recovery Act 2001*.

Other waste stream may include cable scraps, and other material associate with the powerline construction unable to be used which will require disposal. All waste material will require appropriate assessment, and then recycled or suitably disposed of at an appropriately licensed waste facility in accordance with the requirements outlined in the DECC Guidelines.

Appropriate waste management will include but not be limited to:

- Provision of designated rubbish bins for general and recyclable waste at the Airly Mine site;
- Collection of effluent waste from portable toilet facilities;
- Suitably qualified (and licensed where necessary) waste contractors will be used for appropriate waste disposal.

5.11.4 Conclusion

With the above mitigation measures implemented, no significant impacts relating to waste management are expected as a result of the proposed works.

5.12 Other Issues

5.12.1 Disused Landing Ground

An old disused landing ground exists in the vicinity of the proposed powerline route, as illustrated in Figure 2. Discussions were held with CASA regarding the steps to be taken to formally close this landing ground. CASA advised the following steps were to be undertaken:

1. Place crosses on the landing ground. Crosses need to be clearly visible, and;
    - The minimum size and location of crosses is specified in Chapter 8 (Section 8.9) of the *CASA Part 139 Manual of Standards (MOS) Aerodromes*, http://www.casa.gov.au/rules/1998casr/139/139m08.pdf. In summary CASA advised that:
        - Crosses be placed every 200 m along landing ground; and
        - Crosses have a minimum size of 6 m x 6 m.
    - CASA advised that crosses don't need to be white, however need to clearly be a different colour to the ground colour, and that various materials can be used such as:
        - Plastic
        - Old conveyor belt
        - Dumped soil
    - The length of time these crosses need to remain in place is unclear; however, CASA advised that over time the ground can be used for other purposes, which in the case of farming could involve ploughing the field such that crosses were no longer visible. Ideally, the crosses shall be kept in place until such time as the 1:25,000 topographic map and World Aeronautical Chart are amended to remove the landing ground (see points 2 and 3 below).

2. Contact Department of Lands (Bathurst) to request that they take the landing ground off any future 1:25,000 topographic maps.

3. Contact Air Services Australia (Aeronautical Information Services) to request that they remove any *Aerodrome Symbol* from the *World Aeronautical Chart* at that location, identifying the location by providing them with the Latitude/Longitude coordinates.

5.12.2 Site Security

Gates at access points to the construction site will be the locked, including the access onto Glen Davis Road. Locked gates are also located at the Airly mine site end and near the Airly Homestead driveway access. Security patrols may also be implemented.

5.12.3 Bushfire

Centennial Airly is currently developing an emergency preparedness and response plan in association with various emergency service providers for the Airly Mine. The NSW Rural Fire Service (RFS) is part of this suite of local providers. Through discussions with local RFS, the proposed 66kV powerline will be identified as a specific asset management zone and managed accordingly.

5.13 Social and Economic Impacts

5.13.1 Social Impacts

Construction of the powerline and supply of power to Airly will allow the recommencement of mining, with the significant social benefit of providing employment opportunities for the local community.

The proposed development will not negatively impact on the public recreational opportunities in the locality. The proposed development is being undertaken on land that is currently zoned 1(a) - Rural (General) and will not be rezoned prior to or after the development. Therefore, it is not foreseen that the proposed development will impact on any proposed public recreational opportunities in the locality or the amount, location, design, use, or management of public spaces in and around the proposed development. The development will be contained wholly within the subject site.

No major pedestrian or vehicular access restrictions are envisaged. The construction traffic will increase marginally during the project; however, it will return to the current level after construction. Most activities will generally be confined to within Centennial owned land.

There may be localised and short duration increase in noise and dust. Given the size and placement of the development and the nature of the adjoining land uses, these are not predicted to be significant.

The proposed development will not adversely impact on the demographic structure of the community or result in any individuals or communities being significantly disadvantaged.

The energy needs of the proposed development in relation to its construction, maintenance and ongoing operation is well understood due to extensive past experience. Consideration of energy savings aspects was considered as part of the design of the powerline and associated infrastructure. Though specific savings were not identified for the powerline, it should be noted that energy savings aspects have been incorporated into the design of the 11kV power factor correction units located on the mine site (which are not part of this modification).

Energy consumption resulting from the development will be consistent with similar developments of this nature.

It is not anticipated that the powerlines will result in any additional safety risks.

5.13.2 Economic Factors

The ongoing provision of energy through the proposed 66kV powerline installation will allow Airly to recommence underground coal mining operations in accordance with the Development Consent. The proposed recommencement of underground mining operations at Airly will have positive socio-economic effects through the employment of staff, royalties, charges, and taxes.

6.0 ECOLOGICALLY SUSTAINABLE DEVELOPMENT

The principles of Ecologically Sustainable Development (ESD) are included in the *Protection of the Environment Administration Act 1991* (POEA Act) and include: the precautionary principle; inter-generational equity; conservation of biodiversity; and improved valuation, pricing and incentive methods. These principles have been considered in the development of the proposal. Specifically:

(a) The precautionary principle has lead to consideration during the development of the proposal of whether there are threats of serious or irreversible environmental damage resulting from the proposed works. The impacts of the proposal have been determined as not being serious or environmentally damaging. Further, the works are well understood.

(b) Inter-generational equity is the maintenance or enhancement of benefits for future generations. Social equity requires that the needs of future generations are considered with respect to any activity. In regard to this, the proposed modification and activities associated with it will not create permanent impact on the natural and human environments outside of existing conditions. Centennial Airly undertakes ongoing monitoring with mitigation measures to provide for effective environmental management. This management is provided through planning, communications, documentation, review and feedback.

(c) Conservation of biological diversity and ecological integrity is being met as the development is being managed so that existing biological or ecological values are being maintained.

(d) Improved valuation, pricing and incentive mechanisms, including polluter pays, has been considered in the development of the proposal as a range of costs are considered in the proposal. The full life cycle costs for the provision of electrical services for Airly have been included in Centennial Airly's consideration of its operations. Achieving the proposed aims has been pursued in the most cost-effective way that also meets project goals.

7.0 STATEMENT OF COMMITMENTS

The following statement of commitments has been prepared, in accordance with the DGR's. This statement of commitments provides a summary of the proposed environmental management and mitigation measures for the proposed modification.

Table 10 – Statement of Commitments

Aspect	Commitments/Mitigation measures
General	• Construction of the 66kV powerline and associated infrastructure will be undertaken in accordance with the description provided in the Environmental Assessment dated June 2009.
Flora and Fauna	• Appropriate measures will be employed to ensure that machinery working within the site does not bring materials (soils etc.) onto the sites that may infect onsite vegetation with *Phytophthora cinnamomi*. • Ongoing weed management will be instituted and potential weed infestations will be appropriately treated to ensure surrounding communities are protected from invasive species. • At the completion of the powerline construction, all non-operational areas will be suitably rehabilitated.
Archaeology and Cultural Heritage	• The newly recorded artefact scatter, located outside the powerline easement, will be placed on the AHIMS and a site card lodged with the DECC.
Soil and Water	• During construction temporary erosion control measures will be implemented and maintained in accordance with the Blue Book (Volumes 1 and 2). • Revegetation works of all disturbed areas will be established as soon as possible following completion of construction works. • Steep batters will be stabilised as soon as practical following removal of the trees and rehabilitated. • No construction activities, including pole installation will be undertaken within 40m of the top bank of Airly Creek.
Visual Amenity	• Clearing of vegetation will be contained to only that required for the works, with trees to be removed to be clearly marked.
Air Quality	• Vehicle speeds will be limited along unsealed sections of construction and maintenance tracks to 40km/hr.
Noise	• Construction activities will be limited to daytime work hours (7am to 5pm) Monday to Friday. No construction activities will take place on weekends.
Waste Management	• Suitably qualified and licensed waste contractors will be used for appropriate waste disposal. • Effluent waste will be managed and collected from portable toilet facilities.
Disused Landing Ground	• Crosses will be placed every 200m along the landing ground. • The Department of Lands (Bathurst) will be contacted to request the landing ground be removed from future 1:25,000 topographic maps. Air Services Australia (Aeronautical Information Services) will also be contacted to request they remove the Aerodrome symbol from the World Aeronautical Chart at that location.

8.0 CONCLUSION

This modification to Development Consent No. 162/91 seeks to define the route of a 66kV powerline from the Integral Energy take-off point to the mining lease boundary at Airly Mine, which will enable the re-commencement of underground mining operations. The EIS which accompanied the original Development Consent application included the establishment of a 66kV powerline for Airly Mine when at full capacity, however did not specify the route or land to be traversed by the powerline once off the proposed mining lease boundary. As such, the modification of this existing Development Consent to include the powerline route will not radically alter the nature of the development already approved.

Potential environmental impacts have been predicted, as identified in a Project risk assessment, and in accordance with the DGR's. Recognised specialists in the relevant technical fields have been selected to undertake key investigations. The Environmental Assessment concludes that adverse environmental impacts will be either negligible or very minimal and primarily temporary during the construction phase of the powerline.

The proposed construction of the 66kV powerline and associated infrastructure will occur on predominantly Centennial Airly owned land with exception of one Crown unformed road. Permission to cross this road has been obtained from the DoL.

The proposed modification is considered to be consistent with the objects of the EP&A Act, which are stated in Section 5 of the Act, and include the encouragement of:

- "*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 for the community and a better environment"* (emphasis added) (s5(a)(i));
- "*the promotion and co-ordination of the orderly and economic use and development of the land"* (s5(a)(ii); and
- "*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"* (s5(a)(vi).

The development will enable the re-commencement of underground mining operations at Airly in accordance with the existing Development Consent, allowing the development of mineral resources in the area through the recovery of coal reserves and bringing positive socio-economic benefits through employment of staff, royalties, charges and taxes. In addition, there is expected to be no significant environmental impacts resulting from the modification.

9.0 REFERENCES

Development Consent No. 162/91 and 162/91 MOD1.

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Landcom (2004) *Managing Urban Stormwater: Soils and Construction*, *4th Edition Volume 1 Soils and Construction.*

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