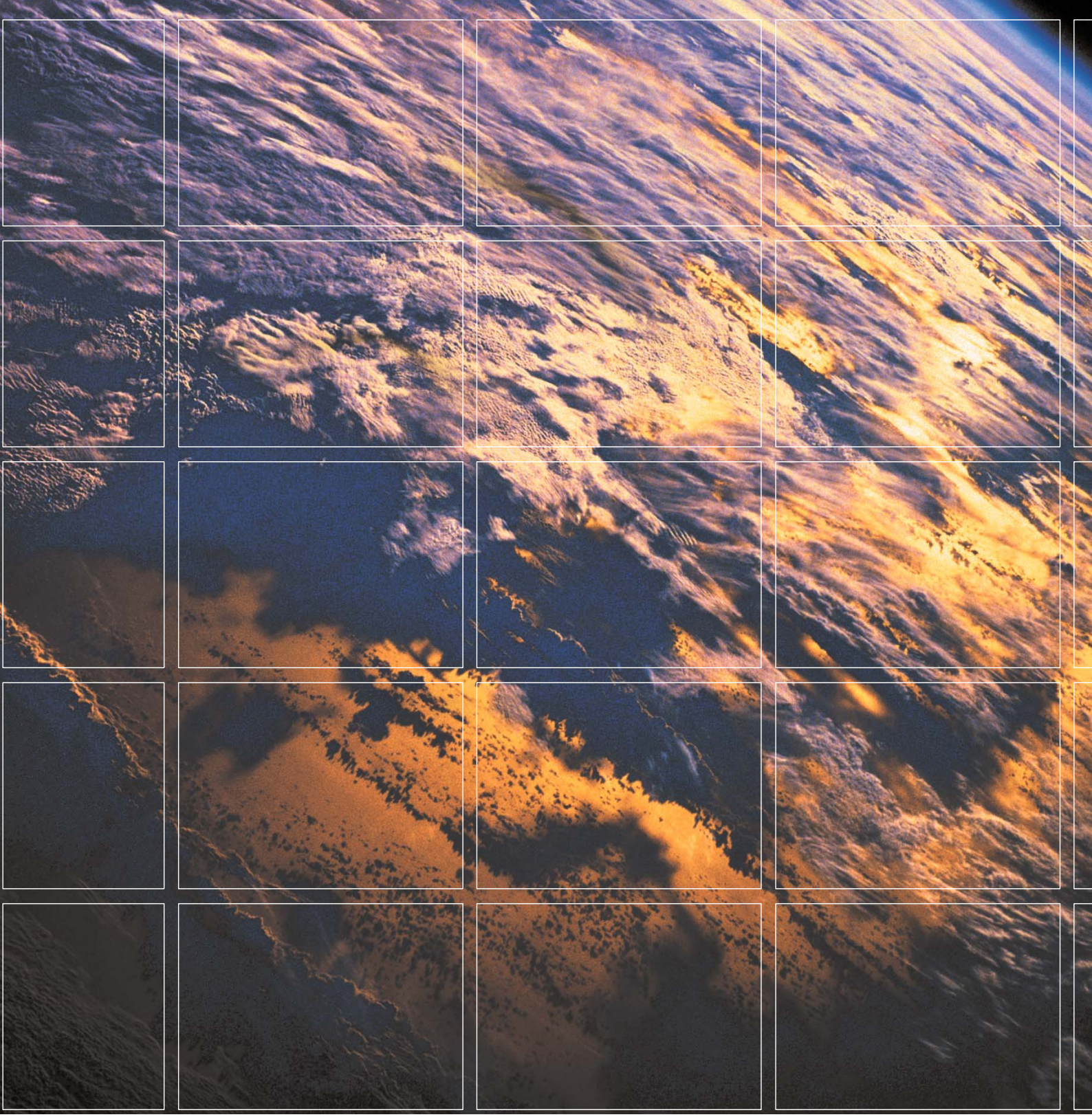

Proposed Modifications to Forest Road Ventilation Shaft Area

Environmental Assessment

Integra Coal Operations Pty Ltd

October 2008

0083217 Final

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Proposed Modifications to Forest Road Ventilation Shaft Area

Environmental Assessment

Integra Coal Operations Pty Ltd

October 2008
0083217 Final

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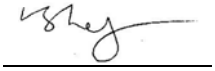
Approved by:	*Tanya Phillips*
Position:	Project Manager
Signed:	
Date:	*10 October, 2008*
Partner:	
	Mike Shelly

Environmental Resources Management Australia Pty Ltd Quality System

CONTENTS

CONTENTS

CONTENTS

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

In order to ensure the long term viability of their underground coal production and enable the more efficient use of energy in accordance with the Energy Efficiency Opportunities Act 2006, Integra Coal Operations Pty Ltd (ICO) is seeking to modify Project Approval PA 06_0057 (Annex A). PA 06_0057 pertains to the Surface Facilities Project at the Glennies Creek Colliery, now known as the Integra Underground.

This Environmental Assessment (EA), which has been prepared to accompany an application under Section 75W of the Environmental Planning and Assessment Act 1979, describes the nature and context of the proposed modifications and assesses the potential impacts of the modifications on the local environment in accordance with the requirements issued on behalf of the Director-General, Department of Planning on 24 July 2008. The EA was produced by ICO in collaboration with Environmental Resources Management Australia Pty Ltd. The proposed modifications relate directly to changes at ICO's existing Ventilation Shaft Area, which is located adjacent to Forest Road, approximately 12km north-west of Singleton and overlies the colliery's existing underground workings. All additional infrastructure will either be located within areas which were previously disturbed as a result of construction and installation of the existing ventilation shaft and associated facilities, or within areas currently approved for additional facilities under PA 06_0057. All proposed infrastructure will be designed, constructed and operated to ensure all current approval criteria applicable to Integra's underground and surface operations are satisfied.

1 INTRODUCTION

1.1 BACKGROUND

Environmental Resources Management Australia Pty Ltd (ERM) was engaged by Integra Coal Operations Pty Ltd to collaboratively prepare an Environmental Assessment to accompany a Section 75W modification application to be lodged with the Department of Planning (DoP). ICO proposes to modify Project Approval (PA) 06_0057 (*Annex A)* in relation to facilities at the existing Forest Road Ventilation Shaft Area.

This Environmental Assessment describes the proposed modifications, examines the statutory context of the proposal, and assesses its potential environmental impacts. Mitigation measures are proposed where potential adverse impacts have been identified.

1.2 THE APPLICANT

The Integra Coal Operations Pty Ltd (ICO) was formed in August 2006 through the integration of the former Glennies Creek and Camberwell joint ventures. ICO is the management company responsible for the operation of the former Glennies Creek Colliery and Camberwell Coal Mine, now referred to as the Integra Underground and Integra Open Cut respectively.

The participants of the Integra Joint Venture include VALE Australia Pty Ltd (Vale), an Australian subsidiary of CVRD, a Brazilian company which ranks as the second largest mining company in the world (61.2%); Toyota Tsusho, a trading arm of the Toyota group (28%); NS Glennies Creek Pty Ltd, a subsidiary of Nippon Steel (3.6%), POS-GC Pty Ltd, a subsidiary of POSCO (3.6%), JS Glennies Creek and JFE Steel Pty Ltd, both subsidiaries of Japan Steel (3.6%). Vale, NS Glennies Creek, POS-GC, JS Glennies Creek and JFE Steel comprise the Glennies Creek Joint Venture participants.

Notwithstanding the formation of the Integra Joint Venture, the ownership of the underlying mining tenements and assets in the former Glennies Creek Colliery and Camberwell Open Cut remain under the ownership of individual Joint Ventures.

1.3 THE SITE

The Integra Underground is an underground longwall mine in the Hunter Valley Coalfield of the Sydney basin, approximately 12km north-west of Singleton, within the Singleton Local Government Area (*see Figure 1.1*). The Ventilation Shaft Area, to which this application applies, comprises 4.99ha area located adjacent to Forest Road within Pt Lot 1 DP 940619 Parish of Vane. The Ventilation Shaft Area (hereafter referred to as the "Area" or "Site") is located approximately 2.9km west-north-west of the mine's pit top area and 1

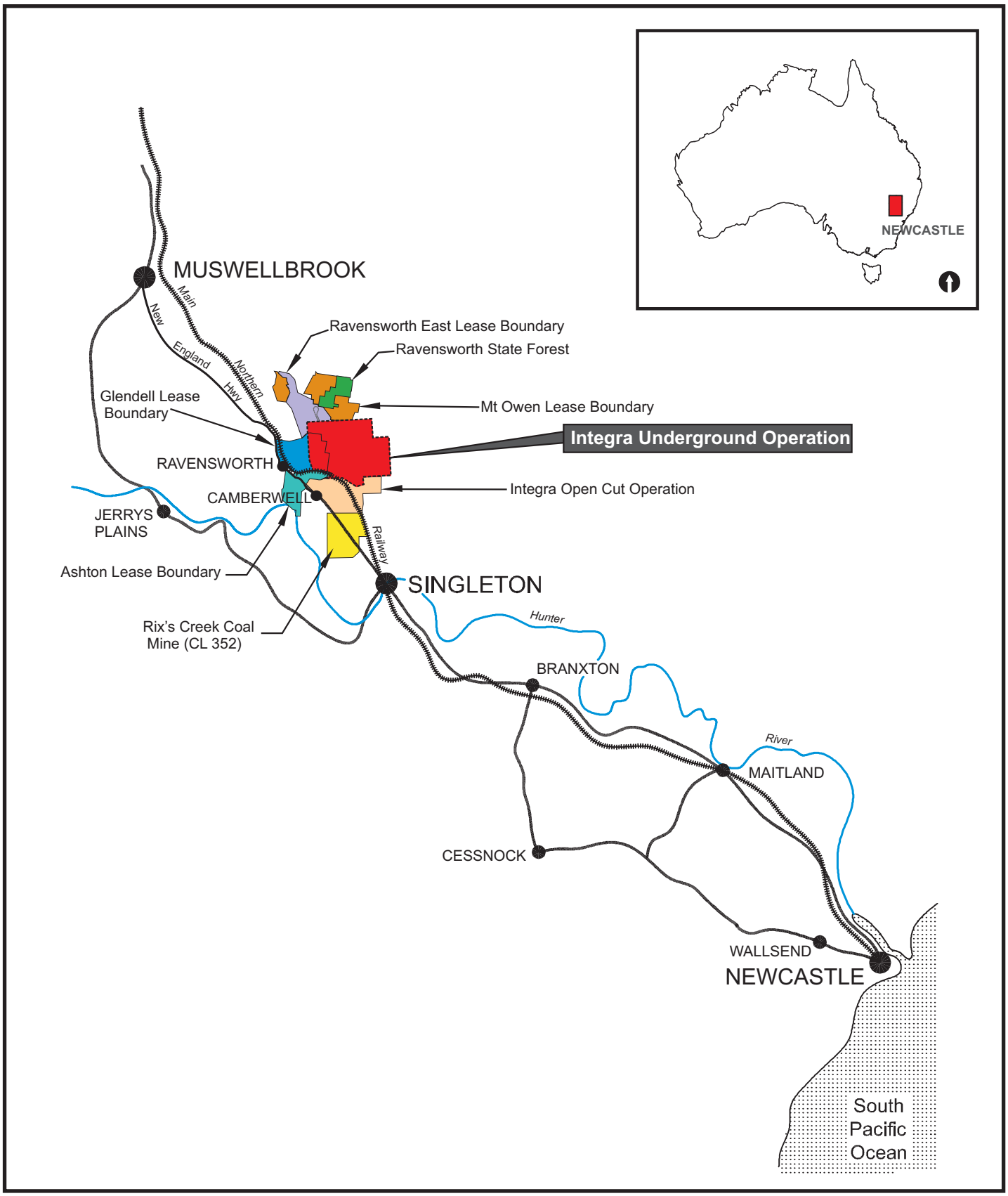


Figure 1.1

Regional Setting

Client:	Integra Coal Operations Pty Ltd		
Project:	Modification to Forest Road Ventilation Shaft		
Drawing No:	0083217hv_01		
Date:	31/07/08	Drawing size:	A4
Drawn by:	JD	Reviewed by:	TP
Source:	Integra Coal Operations Pty Ltd		
Scale:	Refer to Scale Bar		

0 5 10 15m

Approximate Only

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km north-north-west of the Main Northern Railway line crossing of Glennies Creek Road (*Figure 1.2*). The Area comprises a sub-lease of MPL343, held by Glendell Tenements Pty Ltd, and freehold land owned by Savage Minerals Ltd and Enex Foydell Ltd.

The Ventilation Shaft Area was initially established to enable the installation of facilities required to ventilate the underground mining operations. To date, this mining has been undertaken in the Middle Liddell seam, at depths ranging from approximately 250m to 400m. Over the remaining six years' operations within the Middle Liddell seam, the depth of mining will increase to approximately 500m.

Mining in the Middle Liddell seam has recently been completed in Longwall 8, and has moved into Longwall 9. A further eight longwall panels have been identified for mining within this seam (*Figure 1.2*), together with some additional areas which will be subject to first workings only. ICO also proposes to undertake future mining within the Hebden seam, which underlies the Middle Liddell seam, as well as the Barrett seam. The planned additional first workings in the Middle Liddell seam, together with the proposed Hebden and Barrett seam mining, are being assessed under a separate application to the DoP.

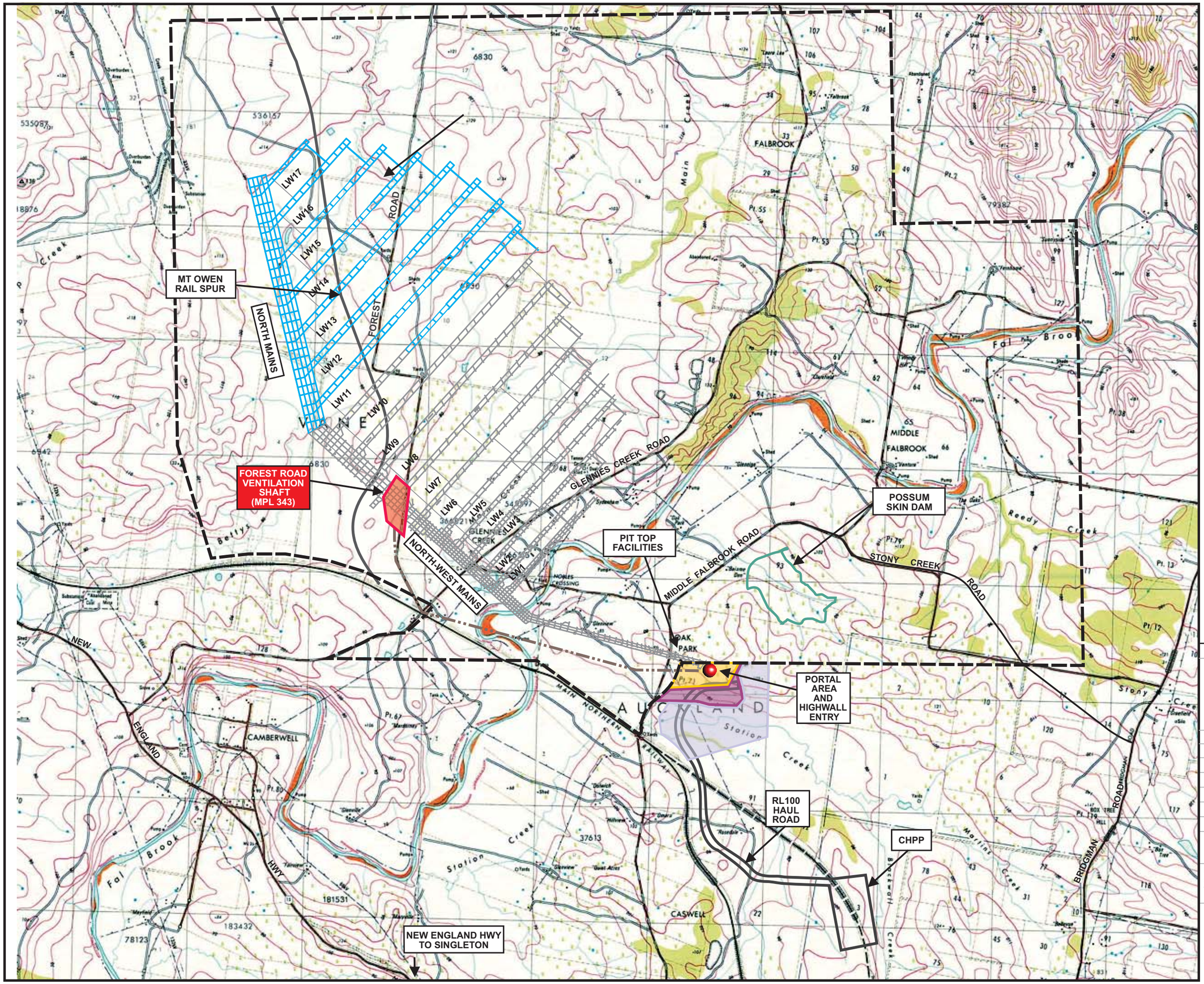
1.4 HISTORY OF DEVELOPMENT

The Glennies Creek Colliery Development application (DA 105/90) was approved by the Minister for Planning in 1991, following a Commission of Inquiry. In 2002, the Minister approved a Section 96(2) modification to DA 105/90 permitting the installation of the Ventilation Shaft and associated facilities at a site adjacent to Forest Road, together with the construction and operation of a private powerline to service the Site.

In 2004, Singleton Shire Council approved an application (DA 719-2003) allowing the installation of a dewatering borehole at the Forest Road Site and as associated pipeline to enable the transfer of mine water from the Integra underground workings to the Ashton Coal Mine.

On 31st January 2007, the Minister for Planning approved the Glennies Creek Coal Mine Surface Facilities Project (06_0057) under Part 3A of the *Environmental Planning and Assessment Act* 1979. PA 06_0057 included the ongoing use of all the existing surface facilities at the then Glennies Creek Colliery, including those at the Forest Road Ventilation Shaft Area, and also granted approval for the installation and use of a drophole at the shaft area to carry ballast to the underground workings, together with an associated ballast stockpile area and facilities (yet to be installed).

Table 1.1 summarises the approved Forest Road Ventilation Shaft Area features and facilities, including those yet to be installed. The location of the existing features can be seen on *Figure 1.3*.



Legend

- Proposed Middle Liddell Seam Mine Workings
- Existing Middle Liddell Seam Mine Workings
- CL 382 Boundary
- MPL 343 Boundary
- ML 1518 Boundary
- ML 1551 Boundary
- ML 1437 Boundary
- Powerline to Ventilation Shaft

Figure 1.2

Mine Site Layout

Client:	Integra Coal Operations Pty Ltd		
Project:	Modification to Forest Road Ventilation Shaft		
Drawing No:	0083217hv_02		
Date:	31/07/08	Drawing size:	A3
Drawn by:	JD	Reviewed by:	TP
Source:	1:25,000 Topographic Series- Camberwell		
Scale:	Refer to Scale Bar		

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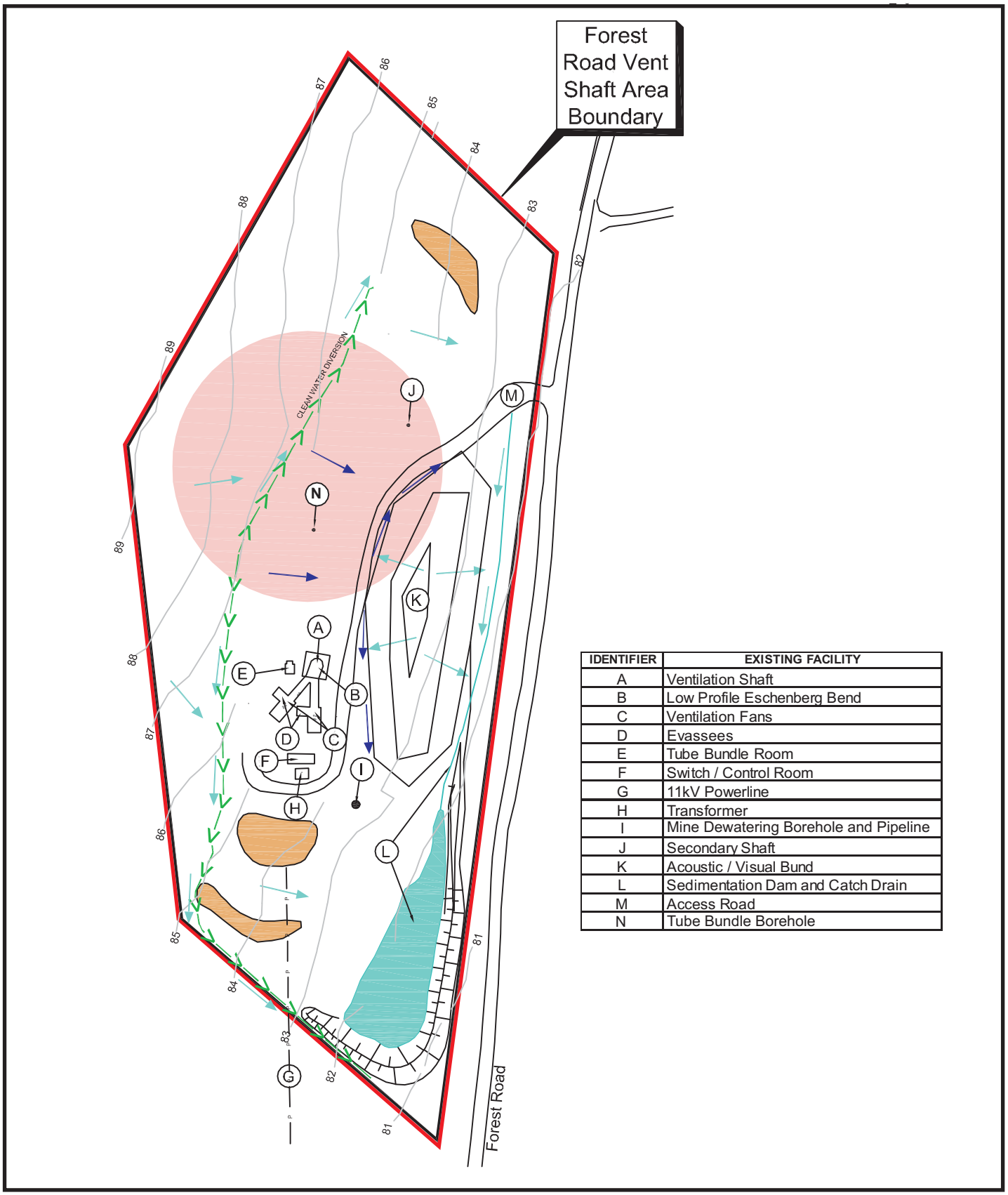

IDENTIFIER	EXISTING FACILITY
A	Ventilation Shaft
B	Low Profile Eschenberg Bend
C	Ventilation Fans
D	Evassees
E	Tube Bundle Room
F	Switch / Control Room
G	11kV Powerline
H	Transformer
I	Mine Dewatering Borehole and Pipeline
J	Secondary Shaft
K	Acoustic / Visual Bund
L	Sedimentation Dam and Catch Drain
M	Access Road
N	Tube Bundle Borehole

Legend

- Ventilation Shaft Area
- MPL 343 Sub-Lease Boundary
- Topsoil Stockpile
- Clean Water Diversion
- Clean Water Flow
- Dirty Water Flow
- Existing Facility
- Approved Infrastructure Envelope (PA 06-0057)

Figure 1.3

Existing Infrastructure at Ventilation Shaft Area

Client:	Integra Coal Operations Pty Ltd		
Project:	Modification to Forest Road Ventilation Shaft		
Drawing No:	0083217hv_03		
Date:	12/09/08	Drawing size:	A4
Drawn by:	JD	Reviewed by:	TP
Source:	Geo-Spectrum (Australia) Pty Ltd		
Scale:	Refer to Scale Bar		

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Table 1.1 Approved Forest Road Ventilation Shaft Area Facilities

Identifier (See Figure 1.3)	Feature	Function	Description	Installed
A	Ventilation Shaft	Provides the conduit for exhausting air from the underground mine workings to the atmosphere.	A fully enclosed 4.5m diameter, 330m deep concrete lined shaft.	Yes
B	Low Profile Eschenberg Bend	Directs air extracted from the ventilation shaft to the ventilation fan.	Ducting which changes the direction of the exhausted airflow from vertical to horizontal. Green Colorbond cladding.	Yes
C	Ventilation Fans	Draws air from the underground workings and discharges it via the evassees (Feature D).	Twin centrifugal fans which currently remove air from the workings at a rate of approximately 230 m3/sec. Green Colorbond cladding.	Yes
D	Evassees	Exhaust the air to the atmosphere.	One structure per ventilation fan. The evassees are 9.2m in height and inclined at an angle of approximately 25° from the vertical. Green Colorbond cladding.	Yes
E	Tube Bundle Room	Collect and analyse underground air samples.	Analyses the air from various locations within the underground workings for O2, CO, CH4 and CO2. Data is transferred to the central colliery computer system via Feature F. Green Colorbond cladding.	Yes
F	Switch / Control Room	Controls and monitors fan operations and performance.	Building has green Colorbond cladding.	Yes
G	11kV Power Line	Power transfer from the 66kV / 11kV sub-station at the Pit Top.	Overland powerline located on private land under land licence agreements. The line has been constructed to enable subsequent energizing to 66kV, if required.	Yes
H	Transformer	Converts incoming current from 11kV to 415V.		Yes
I	Mine Dewatering Borehole and Pipeline	Mine water transfer to Ashton Coal Mine.	A 406mm diameter borehole with an internal 200mm galvanized pipeline which conveys water pumped from or via the underground workings to the surface, and then via a 225mm welded polythene pipe to the Ashton leases via the Forest Road easement and an underbore beneath the Main Northern Railway	Yes

Identifier (See Figure 1.3)	Feature	Function	Description	Installed
			Line. The pipeline is fitted with a leak detection and automatic shutdown system.	
J	Secondary Shaft	Currently unused.	Formerly used to remove materials from underground which were produced during the development of the ventilation shaft. Now sealed to prevent inadvertent entry. Approved for possible future use for delivery of services underground or as an emergency (secondary) egress from the mine.	Yes
K	Acoustic / Visual Bund	Visual and acoustic screening to the east and south-east.	Constructed using spoil removed via the secondary shaft (Feature J), shaped and vegetated.	Yes
L	Sedimentation Dam and Catch Drain	Collection of potentially sediment-laden runoff from areas of disturbance within the sub-lease area.	1.5 ML capacity excavated structure with earthen walls formed from the excavated materials. Area of disturbed catchment < 2ha.	Yes
M	Access Road	Access to and from Forest Road and to Features A to L.	A gravelled road extending from the unsealed Forest Road via gates within the sub-lease area perimeter fencing. A culvert installed by Council provides unimpeded drainage flows southwards along Forest Road. Maintenance of Forest Road is undertaken by Council in accordance with agreement of 28 May 2004 and subject to review in May 2009.	Yes
N	Tube Bundle Drophole		Borehole of 337mm drill diameter.	Yes
O	Drophole	Drophole to carry ballast to the underground workings.	300mm steel-cased borehole and rubber (or similarly) lined hopper, for ballast delivery to the underground workings. The hopper will be lined to reduce the potential noise of ballast dropping on steel during loading.	No
P	Stockpile Area	Stockpile area for up to 400t of screened ballast.	Stockpile area of less than 400m^2 required if the stockpile(s) are only 1metre in height.	No

1.5 CONSULTATION

ICO's intention to submit this s75W application was outlined in a meeting held between ICO and the DoP on 6th March 2008.

The official application was lodged with the DoP on the 26th June 2008, with the proposal then registered by the DoP on the 24th July 2008. The Register of Major Projects is available on the DoP website for public viewing.

The Community Consultative Committee was given a detailed explanation of the proposal on the 13th August 2008 biannual meeting. Other potentially affected landowners were also contacted regarding the project, including neighbouring mines operators Ashton Coal, Xstrata Mt Owen and Glendell, to ensure any questions or concerns were addressed within the Environmental Assessment.

1.6 LAND OWNERSHIP AND NEARBY RESIDENCES

The surface of the Ventilation Shaft Area (to a depth of 5m) comprises a sub-lease of MPL343, held by Glendell Tenements Pty Ltd, and freehold land owned by Savage Minerals Ltd and Enex Foydell Ltd. The ICO joint venture participants hold the mining lease (ML1525) from 5m below the surface to the upper limits of its coal lease (CL382).

The nearest residence to the Ventilation Shaft Area, not owned by a mining company, lies approximately 1.5km to the east, and is owned by Mr Greg Donnellan. Others residences within 1.5km of the Area include five owned by Glendell Tenements Pty Ltd, the nearest of which lies approximately 1km to the south east. At the time of writing, this residence was unoccupied.

2 PROJECT PROPOSAL

2.1 PROPOSED DEVELOPMENT

2.1.1 Summary

ICO has completed a review of the longer term service requirements for the underground workings and, as a consequence of this review, wishes to modify PA 06_0057 to enable the following activities and facilities. The nominal location for each facility is identified in *Figure 2.1.*

- Relocation of two compressors (currently positioned adjacent to the mine portals) and the installation of a third compressor adjacent to the secondary shaft within the Forest Road Ventilation Shaft Area. The compressors will be partly enclosed with an impervious wall to ensure satisfaction of the noise criteria specified in PA 06_0057. A 300mm borehole will also be constructed in order to enable delivery of the compressed air underground.

- Installation of a 66kV to 11kV transportable 15 to 20 MVA substation, and backup 1250kVA genset.

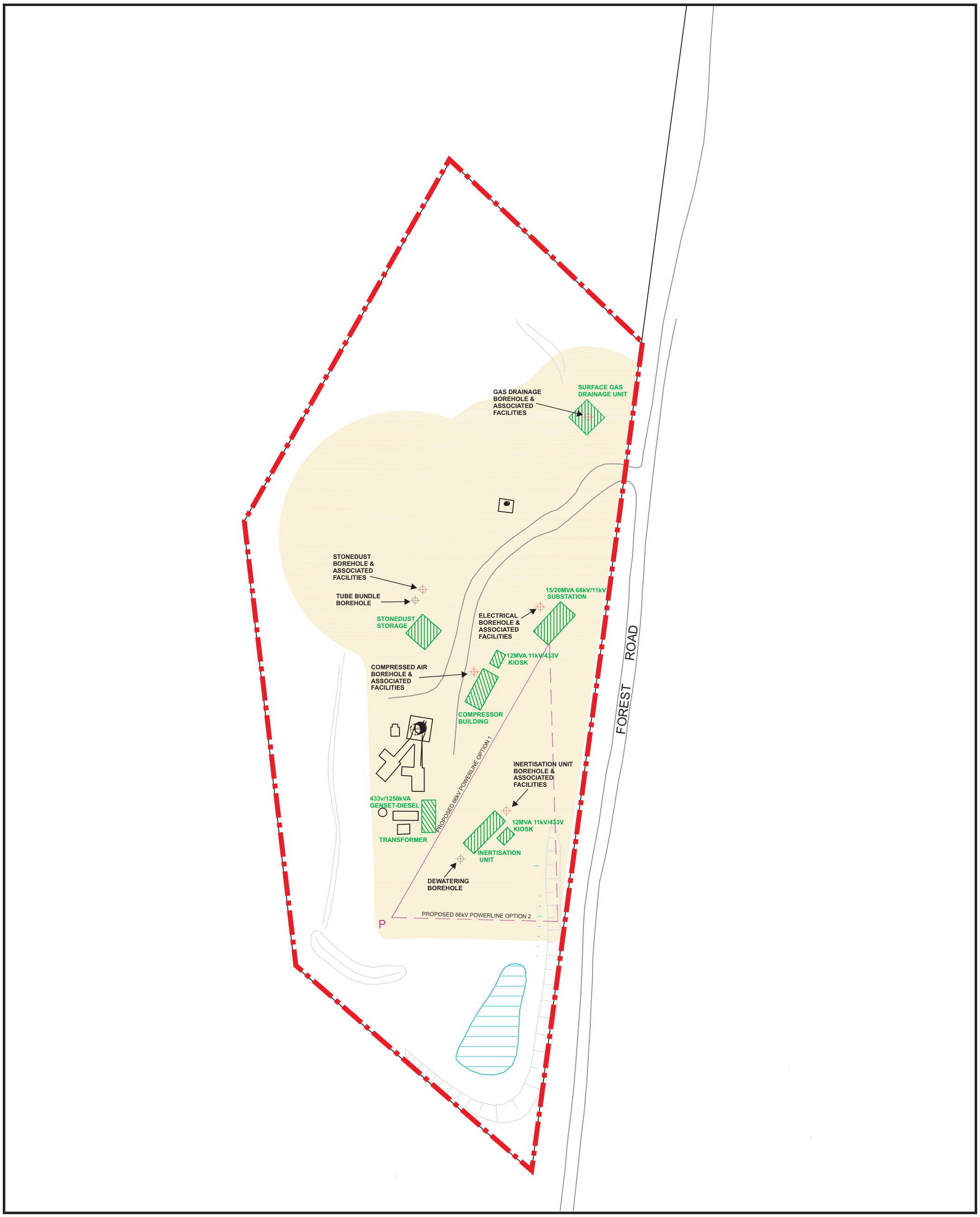
- Installation of a 450mm diameter borehole in which a 300mm feeder powerline would be run from the 66/11kV substation to a pit bottom switch board.

- Installation of a 100 tonne stonedust storage tank and associated 300mm drophole for delivery of stonedust to the underground workings.

- Development of an area and associated inertisation unit pad, together with an associated 460mm diameter borehole and pipework, to enable an inert gas to be piped to the underground workings. The inertisation unit would either be permanently located at the Ventilation Shaft Area or introduced to the area prior to each longwall sealing phase.

- The future development and operation of a 550mm diameter gas drainage borehole and associated infrastructure which would assist in gas drainage from the underlying coal seams, and potentially facilitate piping of the gas to the Glennies Creek waste coal mine gas Power Station owned by Envirogen Pty Ltd.

All proposed facilities and activities would be located within the infrastructure envelope as defined in *Figure 2.1*, an area which comprises the previously approved infrastructure area or areas previously disturbed during the preparation of hardstand required for the construction and operation of the Ventilation Shaft Area facilities.



Legend

- Ventilation Shaft Area
- Proposed Activity/ Infrastructure Envelope
- Proposed Building
- Proposed 66kV Powerline
- Proposed Surface Boreholes
- Existing Surface Boreholes
- Existing Facility

Figure 2.1

Proposed Infrastructure at Ventilation Shaft Area

Client:	Integra Coal Operations Pty Ltd		
Project:	Modification to Forest Road Ventilation Shaft		
Drawing No:	0083217hv_05		
Date:	12/09/08	Drawing size:	A3
Drawn by:	JD	Reviewed by:	TP
Source:	-		
Scale:	Refer to Scale Bar		

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Energising the existing 11kV powerline to 66kV and distribution of services such as compressed air to the workings, albeit via the Secondary Shaft or the ballast drophole, were approved under the 2002 modification and PA 06_0057 respectively.

Further details of all the proposed changes are provided in the subsequent sub-sections, with the construction and operational impacts of these proposed changes covered in *Section 4*.

2.1.2 Compressors

Currently, compressed air for the underground workings is generated by three compressors located within the Integra Underground Portal Area (*Figure 1.2*). Two of these compressors are Atlas Copco GA250s, with the third being an Atlas Copco GA110. Additionally an older compressor unit (Ingersoll Rand SSR-XF200), which is housed in a shelter at the same location, provides a back-up supply.

ICO propose to relocate the two Atlas Copco GA250s to the Ventilation Fan Area as well as install an additional GA250 compressor. These three air compressors would be upgraded prior to installation at the Ventilation Shaft Area to ensure they are capable of supplying the required compressed air volumes to the workings within the Middle Liddell seam.

The compressed air will be stored in a nominal 5,000 litre vertical air receiver located adjacent to the compressors. From this air receiver, an air line would travel down a nominal 300mm cased borehole and connect to the current underground compressed air reticulation system.

The air compressors and associated electrical switch board will be contained within a shelter and located on a concrete slab measuring approximately 15m x 7m. *Figure 2.1* shows its indicative location within the Ventilation Shaft Area. The ultimate position of the equipment will be determined by the location of the target intersection in the underground mine workings. An electrical kiosk of approximately 4m x 6m in size (including required buffer zones) would also be situated nearby as depicted on *Figure 2.1*. This 12 MVA 11kV to 433v kiosk would convert the power from the switchyard to the voltage required by the compressors.

2.1.3 Electrical Infrastructure

The reticulation of electricity to supply the mine's underground electrical requirements from the Ventilation Shaft Area requires the existing 11kV powerline to be energised to 66kV. This activity is currently approved under DA 105/90 (as modified) and was more recently reiterated in PA 06_0057. However, to make use of the 66kV electricity supply at the Site a 15-20 MVA substation will be required to convert the electricity supply back down from the 66kV to 11kV, together with an associated powerline to the new switch

yard and compound area. The electricity will subsequently be reticulated to the underground workings via a 460mm (nominal) borehole, through which a nominal 300mm feeder line would run to a primary distribution board within the underground workings. This, in turn, would supply the workings' electrical requirements. The indicative location of this borehole is shown on *Figure 2.1*.

Power supply to the 66kV to 11kV substation will be via an overhead powerline which will be connected to the existing power pole adjacent to the southern boundary of the Site. Two routes are under consideration for the powerline, both of which are depicted on *Figure 2.1*. Following more detailed project investigations, the most appropriate route would be selected.

A 1250kVA diesel powered genset would also be located nearby the existing 11kV substation (*Figure 2.1*) and would be used to supply power to essential services during the annual 24 hour high voltage equipment testing and maintenance period. This genset would also be capable of supplying power to essential safety services (such as ventilation fans) in the event of a power outage.

2.1.4 Stonedust Storage Tank and Drophole

The proposed bulk stonedust tank within the Ventilation Shaft Area would be approximately 6m high by 10m wide and 10m long, and would have a capacity sufficient for around two weeks supply of stonedust at the current usage rate. Delivery of stonedust to the Site would be by semi-trailer tanker. Based on current stonedust requirements, once the tank is filled initially, an average of around eight deliveries would occur per month. Stonedust would be pressure fed into the bulk storage tank to minimise any potential air quality impacts. From the storage tank, the stonedust would be fed into a pipeline which would deliver the stonedust to a receptacle in the underground workings. Delivery to the underground would be via a new 300mm nominal cased borehole.

The indicative locations of the stonedust tank and delivery borehole are depicted in *Figure 2.1*.

2.1.5 Inertisation Unit and Borehole

The inertisation unit will be situated on a 18m x 6m (nominal) concrete or gravel pad, within the envelope depicted on *Figure 2.1*.

It is planned to use the inertisation unit continuously over an 8-12 week period during each longwall sealing process. However, future requirements may dictate the inertisation unit being used on a 24 hr, 7 day basis if it is used to provide pressure balancing of longwall seals as a means of preventing unsafe methane emissions into mine roadways. Design and operation of the

equipment will ensure that the current noise criteria in PA 06_0057 will not be exceeded.

To enable the long term use of the inertisation unit, a 168mm diameter steel-cased borehole (drilling diameter of 254mm) will be installed adjacent to the unit as shown indicatively in *Figure 2.1*.

2.1.6 Gas Drainage Borehole

The gas drainage borehole would be drilled to a nominal diameter of 550mm to enable the installation of an 18" (450mm x 9.5) steel casing. The borehole will be drilled through to mine workings approximately 330m below the surface. Surface infrastructure installed at the collar of the borehole may include a fire suppression system, lightning protection, monitoring and telemetry equipment and an 8m x 8m fenced enclosure. Infrastructure required on site to enable piping of gas to the Envirogen power station would include a pipeline extending from Forest Road and a condensate collection tank located nearby the borehole site. The approval and installation of infrastructure requirements external to the Forest Road Ventilation Shaft Area would be the responsibility of Envirogen.

This project assumes that the Glennies Creek Power Station (Envirogen Pty Ltd) is able to provide a connection to the Integra infrastructure for the purpose of providing suction to the gas drainage system. This would facilitate the capture and use of waste mine methane for power generation.

2.2 PROJECT JUSTIFICATION

2.2.1 Compressors and Electrical Infrastructure

Since January 2007, mining in the Middle Liddell seam has moved further away from the portals, with longwall mining recently finishing in Longwall 8 and commencing in Longwall 9. Development activities have also been occurring in the North Mains and gateroads as far as Longwalls 10 and 11, at distances (underground) of up to 6.5km from the mine portals and pit top surface facilities (see *Figure 1.2*).

Over recent months, it has become apparent that services to the underground workings which are provided from facilities at the pit top / portal area, primarily compressed air and electrical power, cannot be effectively reticulated to the working face at the required levels over these distances. This is due to frictional losses within the compressed air pipework and voltage losses within electrical cabling. Given that Middle Liddell mining activities are currently approved to move as far as 10km from the pit top / portal, this situation will only worsen with time.

Following the completion of mining in the Middle Liddell seam, and subject to the receipt of the requisite approvals, ICO proposes to extend its mining activities into the underlying Hebden seam. As mining within the Hebden seam would, to the extent practicable, utilise the infrastructure supporting current mining, the modifications to the Ventilation Shaft Area would also benefit the proposed future mining activities.

In the 2002 modification application for DA 105/90, the then mine operator, Maitland Main Collieries Pty Ltd, identified that although the power supply to the Ventilation Shaft Area would initially be energised at 11kV, it would be constructed so that it could subsequently be used for 66kV power transmission. This future augmentation was identified as it was recognised at the time that overland power supply to the Ventilation Shaft Area and reticulation of the power from there to the underground workings would be required in the future. The long-term use of the secondary shaft at the Site (initially to be used to muck-out waste materials generated during the construction of the main Ventilation Shaft) as a means of providing services to the underground workings was also identified.

Although the reticulation of services to the underground from the Ventilation Shaft Area was identified, neither the 2002 application nor PA 06_0057 went into detail as to the additional activities or infrastructure that would be required because, at the time, these were unknown. This application addresses those matters.

2.2.2 Stonedust Storage Tank and Drophole

The current delivery of stonedust to the underground workings is via the mine's transport roadway, the entry of which is approximately 4.2km from the entrance to Longwall 9, while the proposed borehole is approximately 1km from Longwall 9. Stonedust storage and delivery via the proposed method will not only increase operational efficiency but also reduce energy consumption as a consequence of the decrease in travel time and travel distance using heavy mine vehicles.

2.2.3 Inertisation Unit

In response to a requirement from Department of Primary Industries (Mineral Resources) on the 6/12/2008, a number of options were explored to reduce the likelihood of an explosive atmosphere developing when sealing up the goaf at the completion of each longwall panel. One such method to reduce this risk is pumping an inert gas into the goaf area of the previously mined longwall panel during the sealing phase.

A trial of this method (using an inertisation unit) was been approved on 16/04/2008 by the Department of Planning and subsequently this trial was carried out during the seal-up process of Longwall 8. Given the positive results of this trial, and the Department of Primary Industries' satisfaction

over safety concerns, a longer term approval for the use of inertisation equipment is now sought.

2.2.4 Gas Drainage Borehole

The proposed gas drainage borehole will vent coal seam gas from both the Middle Liddell seam (in-seam drainage) and the future proposed Hebden seam (pre-drainage) mine operations. Gas drainage of the coal seam is required to reduce the insitu gas content to an acceptable level, while also maintaining an atmosphere within the mine workings that is safe for the workforce and does not adversely impact on operations.

Developing the borehole in this location will facilitate the connection to the Glennies Creek methane fired Power Station, via an existing nearby underground pipeline. The connection to this existing pipeline will be the responsibility of Envirogen Pty Ltd, and is not sought under this approval.

3 STATUTORY PLANNING CONTEXT

3.1 APPLICABLE LEGISLATION, POLICIES AND PLANS

There are a number of statutory planning provisions that relate to the proposed modification, including:

- *Environment Protection and Biodiversity Conservation Act, 1999;*
- *Environmental Planning and Assessment Act, 1979* and Regulations, 2000;
- *Mining Act, 1992;*
- *Coal Mine Health and Safety Act 2002* and Regulation, 2006;
- *Protection of the Environment Operations Act, 1997;*
- *Water Act, 1912;*
- *Water Management Act, 2000;*
- State Environmental Planning Policy (Major Projects), 2005;
- State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries), 2007;
- State Environmental Planning Policy No. 33 – Hazardous and Offensive Development;
- State Environmental Planning Policy No. 44 – Koala Habitat Protection;
- Hunter Regional Environmental Plan 1989; and
- Singleton Local Environmental Plan 1996.

The proposed modification is compliant with the various statutory requirements, with the relevant provisions outlined below.

3.2 COMMONWEALTH LEGISLATION

3.2.1 *Environment Protection and Biodiversity Conservation Act, 1999*

The *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) requires the approval of the Commonwealth Minister for the Environment for actions that may have a significant impact on matters of national environmental significance. The EPBC Act also requires Commonwealth approval for certain actions on Commonwealth land.

Matters of national environmental significance under the Act comprise:

- world heritage areas;
- national heritage places;
- Ramsar wetlands of international importance;
- threatened species or ecological communities listed in the EPBC Act;
- migratory species listed in the EPBC Act;
- Commonwealth marine environments; and
- nuclear actions.

There are no world heritage areas, national heritage places, Ramsar wetlands or Commonwealth marine areas on or near the Ventilation Shaft Area. Field surveys and desktop reviews of the relevant database have shown that there are no threatened ecological communities known to occur within the Site. The proposal does not involve a nuclear action.

Previous investigations undertaken within the Integra Underground holding identified the flora species, *Bothriochloa biloba*, within the Forest Road Ventilation Shaft Area and adjacent areas to the west of Forest Road. *Bothriochloa biloba* is listed as vulnerable under the EPBC Act. Given that the proposed activities will be undertaken within areas that were previously disturbed during the construction of the existing facilities or in areas approved for disturbance, the proposed development will not have a significant effect upon the health and viability this species (see *Section 8)*. *Section 8* also concludes that the proposed modifications will not adversely affect other threatened or migratory species listed under the provisions of the Act. Additionally, the proposal will not impact any areas of Commonwealth land. Accordingly the EPBC Act does not apply to this proposed modification.

3.3 NSW LEGISLATION

3.3.1 Environmental Planning and Assessment Act, 1979 and Regulations, 2000

The proposed modification must be assessed in accordance with the *Environmental Planning and Assessment Act, 1979* (EP&A Act) and the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation).

Section 75W (2) of the EP&A Act states that "*the proponent may request the Minister to modify the Minister's approval for a project*". The proposed application is seeking to modify Part 3A Major Projects approval PA 06_0057.

Section 75W (3) states that "*the request for the Minister's approval is to be lodged with the Director-General. The Director-General may notify the proponent of environmental assessment requirements with respect to the proposed modification that the proponent must comply with before the matter will be considered by the Minister*".

The Director-General responded to a request by ICO regarding the proposed modification and subsequently issued Director-General's Requirements on 24th July 2008. This Environmental Assessment addresses those requirements.

3.3.2 Protection of the Environment Operations Act, 1997

An Environment Protection Licence (EPL) (No 7622), issued under the *Protection of the Environment Operations Act, 1997* is held by ICO which relates to "coal mining". Both the existing and proposed Forest Road Ventilation Shaft Area developments and operations are activities relating to 'coal mining' and are located within the Glennies Creek Colliery Holding, the defined premises to which the EPL applies. The proposed modification will not result in additional significant discharges to air, water or land and therefore discharge points are not required to be identified in the licence. Therefore, the existing EPL will apply to the proposed modification and the EPL will not require modification. The proposed development will be subject to the conditions of the EPL.

3.3.3 Water Act, 1912

The Water Act, 1912 addresses issues relating to water rights, water and drainage, drainage promotion, and artesian wells. As neither this application nor the proposed activities require water licences, no approval under the *Water Act* is required. It is noteworthy that ICO holds a groundwater extraction licence for the dewatering of mine workings which, because of the dewatering borehole and Ashton Pipeline, specifically identifies Lot 1 DP 940619, ie the site of the proposed modifications.

3.3.4 Water Management Act, 2000

The objectives of the *Water Management Act, 2000* are to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations.

The proposal does not require the extraction of water from any Regulated River Water Source and no water sharing plans apply to the modification area. The planned boreholes would be placed, and activities undertaken, so as not to interfere with the Site's drainage: the clean water diversion currently in place upslope of the existing infrastructure would be retained or amended as required. Accordingly, no approval under the *Water Management Act* is required.

3.3.5 Threatened Species Conservation Act, 1995

In NSW, threatened species, populations and ecological communities are protected by the *Threatened Species Conservation Act, 1995* (TSC Act). Section 5A of the EP&A Act specifies that in deciding whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats, seven factors must be taken into account, along with any assessment guidelines. This assessment is referred to as the assessment of significance.

Although *Bothriochloa bilboa,* a species which is listed as vulnerable under the EPBC Act, was recorded in the vicinity of the Forest Road Ventilation Shaft Area during previous surveys, this species is not listed in the schedules within the TSC Act.

As no other State or federally listed threatened species were identified in the previous survey work and the proposed modifications will be confined to previously disturbed areas or areas previously approved for additional infrastructure, any ecological impacts are considered negligible (see *Section 8).* Consequently, no approval is required under this Act.

3.4 STATE ENVIRONMENTAL PLANNING POLICIES

3.4.1 State Environmental Planning Policy (Major Projects) 2005

State Environmental Planning Policy (Major Projects) 2005 identifies development to which the assessment and approval process under Part 3A of the EP&A Act applies.

The provisions of SEPP (Major Projects) apply to the proposed modification as the proposal involves a modification to a consent issued under Part 3A of the EP&A Act. Accordingly, the Minster for Planning is the consent authority for the section 75W modification.

3.4.2 State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

This policy, which was gazetted on February 16, 2007, aims:

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 and development of land containing mineral, petroleum and extractive material resource; and

c) *to establish appropriate planning controls to encourage ecologically sustainable development through the environmental assessment, and sustainable management, of development of mineral, petroleum and extractive material resources.*

Part 3 of the policy identifies matters for consideration by the consent authority in determining an application for consent for development for the purposes of mining, petroleum production or extractive industries. Whilst the current proposal is for a modification to an existing consent, the matters for consideration and the consistency of the proposed modification to these matters are detailed below.

- Compatibility of proposed mine, petroleum production or extractive industry with other land uses.

  The Site is located within the Hunter Valley Coalfield of the Sydney Basin and existing underground and open cut coal mines are evident in the locality. The proposed modification will involve the installation and operation of compressors, a substation, boreholes and an inertisation unit. Impacts associated with the proposed modification are detailed in *Chapters 4* to *12* and include the potential for short term dust generation and soil erosion during construction and noise associated with the operation of the compressors. Mitigation measures will be implemented which will ensure the potential impacts are minimised. The proposed modification is compatible with adjacent land uses which include agriculture and underground and open cut coal mines.

- Compatibility of proposed development with mining, petroleum production or extractive industry

  The proposed modification will support the short, medium and longer term underground mining requirements, thereby assisting the recovery of the coal resource.

- Natural resource management and environmental management.

  The proposed modification will result in minor environmental impacts which are able to be appropriately mitigated and managed (see *Chapters 4* to *12).*

- Resource recovery.

  The proposed modification will ensure appropriate ventilation and services are provided to the existing underground operations, enabling coal production to continue in a safe and efficient manner.

- Rehabilitation.

  The proposed Ventilation Shaft Area development will result in some surface disturbance associated with the installation of additional infrastructure, as identified in *Section 2.1*. Following the construction activities, disturbed areas no longer required for operational purposes will be rehabilitated. On cessation of underground mining, all facilities will be removed and areas of disturbance rehabilitated in accordance with the requirements of the stakeholders at the time.

As the proposed activities will be compatible with other land uses; environmental impacts associated with the development will be mitigated through the implementation of appropriate control measures, and the operation will assist the planned recovery of the coal resource, the proposed modifications are considered to be consistent with SEPP (Mining, Petroleum Production and Extractive Industries).

3.4.3 State Environmental Planning Policy No 33 – Hazardous and Offensive Development

State Environmental Planning Policy 33 – Hazardous and Offensive Development (SEPP 33) aims to "ensure that in considering any application to carry out potential hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact". The policy aims to ensure that the merits of a proposal are properly addressed before being determined, particularly in regard to off-site risk. The proposed modification is not "potentially hazardous" as defined in SEPP 33 and consequently a preliminary hazard analysis is not required.

3.4.4 State Environmental Planning Policy No 44- Koala Habitat Protection

Schedule 1 of State Environmental Planning Policy 44 - Koala Habitat Protection (SEPP 44) identifies local government areas where koalas are known to occur. Singleton Shire is identified in Schedule 1 of the SEPP.

The area subject to mining, and specifically the Ventilation Shaft Area, does not constitute potential or core koala habitat as defined in SEPP 44. Additionally, the proposed modifications and additions to the Ventilation Shaft Area will occur within previously disturbed areas and/or areas of hardstand, and will therefore have minimal impact on vegetation.

3.5 STATE GOVERNMENT NATURAL RESOURCE MANAGEMENT POLICIES

3.5.1 NSW State Rivers and Estuaries Policy

This policy sets out six principles for sustainable management in relation to rivers and estuaries in NSW. The proposed modification will not impact any rivers or estuaries.

3.5.2 NSW Wetlands Management Policy

This policy aims to promote the conservation, sustainable management and wise use of NSW wetlands by all stakeholders for the benefit of present and future generations. As no wetland ecosystems are present within the Forest Road Ventilation Shaft Area or adjacent area, this policy is not relevant to the proposal.

3.5.3 NSW Groundwater Policy Framework Document – General

This document was devised to manage the State's groundwater resources so that they can sustain environmental, social and economic uses for the people of NSW. The objectives of this management document are to:

- slow and halt, or reverse any degradation of groundwater resources;
- ensure long term sustainability of the systems ecological support characteristics;
- maintain the full range of beneficial uses of these resources; and
- maximise economic benefit to the region, State and Nation.

Potential impacts to groundwater associated with the proposed modification would be limited to dewatering during construction and potential groundwater seepage into the underground workings via the boreholes following construction. ICO holds a groundwater extraction licence for the dewatering of mine workings, which specifically covers Lot 1 DP 940619, on which the proposed modifications will occur.

3.5.4 NSW Groundwater Quality Protection Policy

This Policy is a component of the NSW Groundwater Policy Framework Document. The Policy recognises potential threats to groundwater quality as industrial and urban waste burial, contamination from point and diffuse sources, and pumping-out of groundwater systems. The proposed modification may involve the dewatering of boreholes during construction only. However, subsequently, limited groundwater seepage into the underground workings via the boreholes may potentially occur. This water

will be managed in accordance with ICO's current licence from the Department of Natural Resources.

3.5.5 NSW Groundwater Dependent Ecosystem Policy

This Policy is a component of the NSW Groundwater Policy Framework Document. The Policy aims to achieve the protection, management and restoration of groundwater dependent ecosystems. However, since there are no groundwater dependent ecosystems within the Forest Road Ventilation Shaft Area, this policy is not relevant to the proposal.

3.6 REGIONAL PLANNING INSTRUMENTS

3.6.1 Hunter Regional Environmental Plan 1989

The Hunter Regional Environmental Plan 1989 (HREP 1989) provides a regional environmental planning framework for the Hunter Region's development. The HREP 1989 aims to promote balanced development in the Hunter Region, encourage orderly and economic development and bring about optimum use of land and other resources consistent with the needs and aspirations of the local community.

Part 6, Division 1 of the HREP 1989 addresses mineral resources and extractive materials. Clause 41 of the HREP 1989 identifies matters that should be considered by consent authorities when considering proposals for mining or extraction.

'41. (1) Consent authorities, in considering proposals for mining or extraction (including dredging) –

a) should consider the conservation value of the land concerned and apply conditions which are relevant to the appropriate post-mining or extraction land use,

b) should, in respect to extraction from river banks or channels, ensure that instability and erosion are avoided,

c) should consult with officers of the Department of Mineral Resources, and of the Department of Agriculture, to determine appropriate post-mining or extraction land uses,

d) should ensure the progressive rehabilitation of mined or extracted areas,

e) should minimise the likelihood and extent of a final void and the impact of any final void, or facilitate other appropriate options for the use of any final void,

f) should minimise any adverse effect of the proposed development on groundwater and surface water quality and flow characteristics,

g) should consider any likely impacts on air quality and the acoustical environment,

h) should be satisfied that an environmentally acceptable mode of transport is available, and

i) should have regard to any relevant Total Catchment Management strategies.'

The proposed modification is generally consistent with the aims of this Hunter Regional Environmental Plan 1989.

3.7 LOCAL PLANNING INSTRUMENTS

3.7.1 Singleton Local Environment Plan 1996

The proposed development is on land zoned *1(a) Rural* under the Singleton Local Environmental Plan (LEP) 1996. Mining is permissible within this zone with development consent. The objectives for this zone are:

j) to protect and conserve agricultural land and to encourage continuing viable and sustainable agricultural land use,

k) to promote the protection and preservation of natural ecological systems and processes,

l) to allow mining where environmental impacts do not exceed acceptable limits and the land is satisfactorily rehabilitated after mining,

m) to maintain the scenic amenity and landscape quality of the area,

n) to provide for the proper and co-ordinated use of rivers and water catchment areas,

o) to promote provision of roads that are compatible with the nature and intensity of development and the character of the area.

The proposed modification is generally consistent with the objectives of the LEP and specifically meets objective (c) of the *1(a) Rural* zone.

4 AIR QUALITY AND GREENHOUSE GAS IMPACT ASSESSMENT

4.1 AIR QUALITY

4.1.1 Existing

The existing air quality in the vicinity of the Integra Underground mine is determined primarily by its proximity to large open cut coal mines such as Integra Open Cut, Rixs Creek, Ashton, Ravensworth East and Mt Owen. The air quality experienced at individual residences in the area is dependent on the proximity to one or more of these major emission sources and the relationship between the source, the receiver and the dominant wind directions. Underground mining such as at the Integra Underground, which have only limited areas of surface exposure, along with agriculture and vehicle movements on unsealed roads, are only minor contributors.

4.1.2 Potential Impacts

Air quality impacts which could arise from construction and operation of the proposed activities include:

- dust generated from borehole drilling and general ground disturbance during hardstand construction;
- dust from traffic movements to and from the Site during construction and operational phases;
- mine gas emissions from the gas drainage borehole; and
- exhaust emissions from plant and machinery during the construction and operational phases.

4.1.3 Mitigation Measures

Borehole drilling has the potential to generate some dust in the absence of appropriate control measures. As is currently the case with other drilling activities undertaken on ICO's tenements, dust emissions will be controlled during these activities by:

- soil stripping when moist either naturally or through the application of water; and
- use of cyclones or other dust collectors on the drill rig (when percussion drilling is employed).

Use of the proposed stonedust storage and borehole will require an average of eight semi-trailer deliveries a month along Forest Road and Glennies Creek Road, as well as light vehicle movements associated with maintenance. The stonedust will be delivered by tanker or in covered truck loads, thereby eliminating the opportunity for fugitive emissions as could occur with the use of bulka bags. Truck speeds on the unsealed Forest Road will be restricted to a maximum of 40kph to minimize dust lift-off and dispersal from the road surface.

Exhaust emissions from plant will be of a level that will be imperceptible in the surrounding air quality environment. Ground disturbance activities required to implement the proposed modifications will be short-lived, and with no receivers within 1km of the Site, potential air quality impacts on surrounding residents will be negligible.

4.2 GREENHOUSE GAS

4.2.1 Existing

Greenhouse gas emissions resulting from the proposed modifications will have minimal impact on the overall emissions from the Integra Underground operations, with some facilities proposed for the Ventilation Shaft Area to replace those already in operation elsewhere on site, and others proposed to increase efficiencies or improve safety. Any improvements in efficiency will result in a reduced energy demand with a consequential reduction in scope 1 and/or 2 greenhouse emissions.

4.2.2 Potential Impacts

The coal extraction and underground mining operations which the Ventilation Shaft infrastructure services, are subject to separate approvals. This application does not seek any addition to these activities, and hence will not result in an increase in the associated greenhouse gas emissions.

Given the minor nature of the proposed modifications, a qualitative assessment of the potential GHG impacts has been provided in *Table 4.1*.

Table 4.1 Potential Greenhouse Gas Impacts of Proposal

Infrastructure		Potential GHG Impact	Comment
Proposal	**Source of GHG impact**		
Compressors (2 of) GA250 – relocated from portal	Operation	Negative to positive – minor	Minimal increase due to upgraded capacity. Reduced reticulation distance will reduce potential system inefficiency losses and may therefore potentially reduce GHG emissions.
Compressor GA250 - additional	Operation	Negative	Increase in emissions through additional electricity consumption. Partially offset through reduced reticulation distance and system efficiency losses.
Substation - replace current supply system	Operation	Neutral / Positive	Same supply to Underground as present, but with greater efficiency and less transmission losses.
Stonedust Storage Tank - additional	Haulage of stonedust to tank	Neutral / Positive	Replacement of underground haulage with surface haulage over lesser distance.
Inertisation Unit – additional	Operation	Negative	Increase in emissions. Electricity consumption.
	Inertisation of goaf	Positive	Increased stability in goaf resulting in decreased chance of combustion.
Gas Drainage Borehole – additional	Mine seam gas drainage	Neutral	Gas drainage from mine operations subject to separate approvals. Piping of methane to Envirogen Glennies Creek Power Station where possible.
Boreholes	Drill-rig emissions	Negative - minor	Short-term increase in emissions during construction. No ongoing emissions.

4.2.3 Mitigation Measures

The preferential reticulation of gas from drainage boreholes to the Envirogen Glennies Creek Power Station, rather than venting or exhausting to the atmosphere, has been addressed in approvals for underground mining. ICO will allow Envirogen to connect to the Ventilation Shaft drainage borehole, so long as this does not disrupt the day to day operations at the Ventilation Shaft Area and underground mine, or impact upon safety. Linking the borehole to the Envirogen facility also presents an opportunity to reduce emissions of greenhouse gases by using waste coal mine gas to generate electricity. Approvals for these connections are subject to separate approvals.

ICO is registered as a member of Greenhouse Challenge Plus. This is an initiative established to enable Australian companies to form working partnerships with the Australian Government to improve energy efficiency and reduce greenhouse gas emissions. Similarly ICO, as part of the Vale Australia group of companies, will be a participant in the Energy Efficiency Opportunities programme commencing March 2009. This Federal Government programme encourages large energy-using businesses to

improve their energy efficiency. It does this by requiring businesses to identify, evaluate and report publicly on cost effective energy savings opportunities.

Additionally, ICO has prepared an Energy Savings Action Plan for the Integra Underground as required under the *Energy Administration Amendment (Water and Energy Savings) Act, 2005*. Actions that have been identified under the Plan and are either being undertaken currently, or will be undertaken in the future, include:

- diesel efficiency considerations will be included in assessments of new mobile and fixed equipment - the less diesel used, the less greenhouse gas emitted during combustion;
- electrical efficiency will be considered in assessments of new mobile and fixed equipment - the less electricity used, the lower the emitted greenhouse gas per tonne of coal produced;
- energy audits when practicable, to ensure that the mine is using best practice techniques to minimise energy use and is operating at optimum energy levels;
- equipment will be maintained to retain high levels of energy efficiency;
- greenhouse awareness training will be held at staff inductions to make employees aware of the science of global warming and detailed efforts to minimise emissions; and
- emissions and abatement strategies will be reported annually.

Existing greenhouse mitigation and monitoring programs will be continued throughout the remaining life of the Integra Underground, including the operation of the modified Ventilation Shaft Area.

5 NOISE IMPACT ASSESSMENT

5.1 INTRODUCTION

5.1.1 Background

A noise assessment has been undertaken to address potential impacts associated with the proposed modifications to the Forest Road Ventilation Shaft Area, thereby addressing the Director General's Requirements that ICO,

> *demonstrate that the construction and operation of the proposed modification would comply with the existing noise controls for the mine.*

This assessment has been conducted with reference to the Department of Environment and Climate Change (DECC) *Industrial Noise Policy* (INP, 2000) and Environmental Noise Control Manual (ENCM).

5.1.2 Acoustic Glossary

Environmental noise levels are commonly expressed in dB(A). The A-weighting scale approximates the average human hearing response and enables comparison of the intensity of noise with different frequency characteristics. Noise from environmental sources often varies with time. For this reason, noise emission from such sources is often described in terms of statistical noise descriptors. The following descriptors are commonly used to assess noise.

- dB(A) - Noise level measurement units are decibels (dB). The "A" weighting indicates that a filter has been applied to the measured results to mimic the human response to noise;
- L_{max} - The absolute maximum noise level in a noise sample;
- L_{10} - The noise level which is exceeded for 10 per cent of the time and is approximately the average of the maximum noise levels;
- L_{90} - The noise level exceeded for 90 per cent of the time and is approximately the average of the minimum noise levels. The L90 level is often referred to as the "background" noise level and is commonly used as a basis for determining noise criteria for assessment purposes;
- L_{eq} - This level represents the "equivalent" or average noise energy during a measurement period. The L_{eq} (24 hour) noise descriptor simply refers to the Leq noise level calculated over a 24 hour period. Indeed, any of the above noise descriptors may be defined in this way, with an accompanying time period (eg. L_{10} (20 minute)) as required;

- Sound Power Level Lw or SWL - This is a measure of the total sound power radiated by a source. The sound power of a source is a fundamental property of the source and is independent of the surrounding environment; and
- Lp - Sound Pressure Level - The level of sound pressure, expressed in decibels, as measured by a standard sound level meter with a microphone. Lp differs from Lw in that this is the received sound as opposed to the sound 'intensity'.

5.2 EXISTING NOISE ENVIRONMENT AND NOISE CRITERIA

5.2.1 Receptors and Noise Criteria

Condition 7 within Schedule 3 of the Glennies Creek Surface Facilities Project Approval (application 06_0057) specifies the noise impact assessment criteria for that project. The condition from the consent is reproduced below.

> 7. *The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria presented in Table 1 at any residence on privately owned land.*

Table 1: Noise impact assessment criteria dB(A) L_{Aeq} (15min)

Location	*Day/Evening/Night*
Mordey, Lambkin, Donellan, Hardy, Noble	*38*
Watling, Oxford, G. Hall, Proctor, Richards, Burgess	*39*
Egan, Payne, Moore	*36*

Notes:

(a) The noise criteria do not apply to residences within the Zone of Affectation for the Camberwell coal mine (Dulwich and Tisdell), or to properties where the Proponent and the affected landowner have reached a negotiated agreement in regard to noise, and a copy of the agreement has been forwarded to the Director- General and DEC.

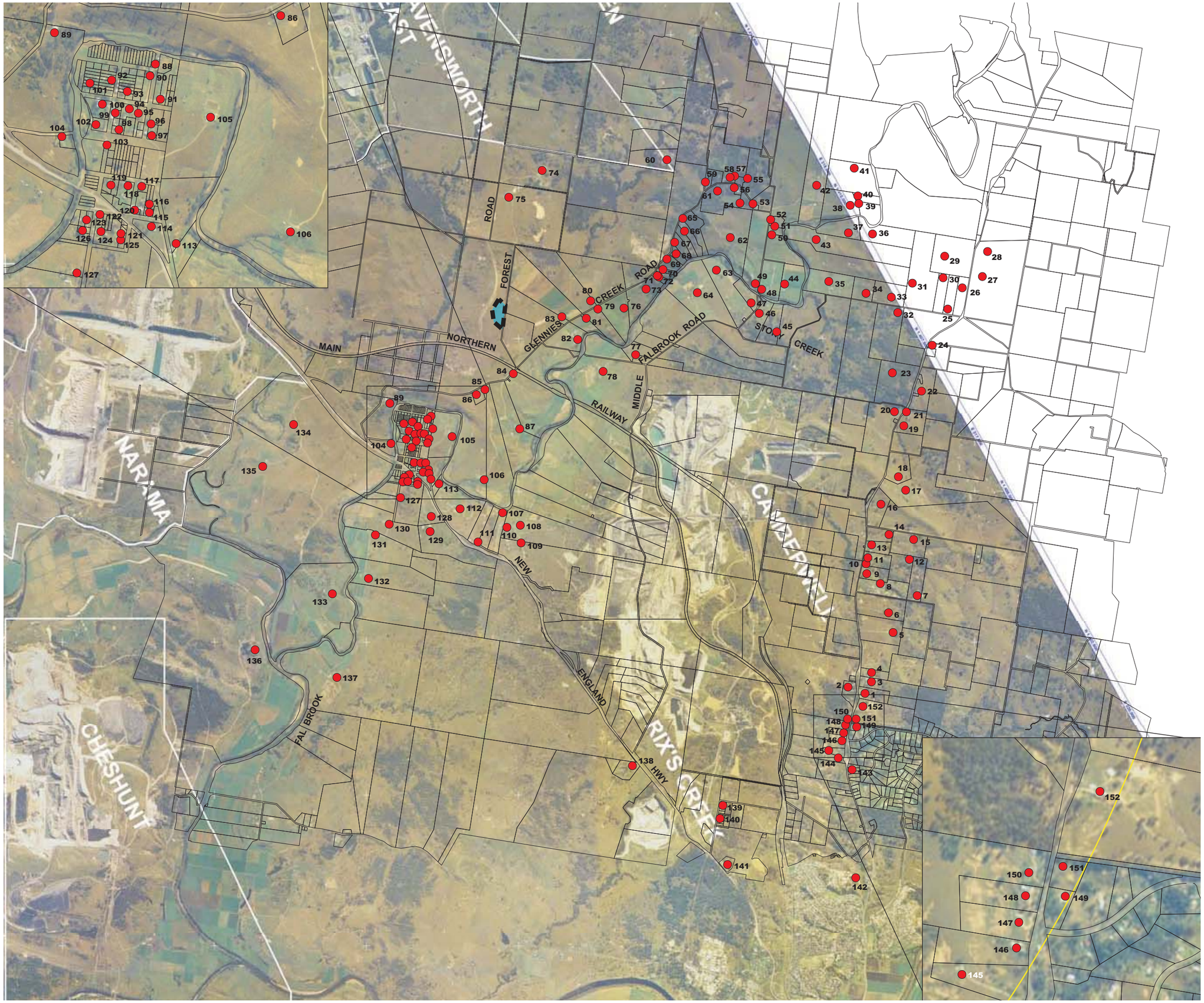
(b) Noise from the project is to be measured at the most affected point or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary, to determine compliance with the L_{Aeq} (15min) noise limits in the above table. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DEC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.

(c) The noise emission limits identified in the above table apply under meteorological conditions of:

- *wind speeds of up to 3 m/s at 10 metres above ground level; or*
- *temperature inversion conditions of up to 3°C/100m.*

For the purposes of this assessment, receptors noted as 'private residences' are those that are not owned by a mine-related company.

Locations for 152 receptors are shown in *Figure 5.1*, with impacts modelled against all these receptors, although to simplify the presentation of results



Legend

- Forest Rd Ventilation Shaft Site (MPL 343)
- Receptor (28)

Figure 5.1

Noise Receptors

Client:	Integra Coal Operations Pty Ltd		
Project:	Modification to Forest Road Ventilation Shaft		
Drawing No:	0083217hv_02		
Date:	11/09/08	Drawing size:	A3
Drawn by:	JD	Reviewed by:	TP
Source:	URS		
Scale:	Refer to Scale Bar		

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0 250 500 750m

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ERM

only the nearest receptors or those that are specified in the Project Approval 06_0057 have been included in this report.

The receptor names and allocated receptor identification numbers are presented in *Table 5.1*, along with the relevant approval criteria. Note the limiting criteria for receptors not listed in PA 06_0057 have been adopted from the nearest assessment location identified within the approval.

Table 5.1 Noise receptor reference, identification and assessment criteria dB(A) LAeq (15min)

Receptor Name	Receptor ID	Receptor Limiting Criteria
Mordey[1]	8	38
Lambkin	16	38
Donellan	80	38
Hardy[2]	79	38
Noble	73	38
Watling[3]	106	39
Oxford[4]	108	39
G. Hall	110	39
Proctor[5]	112	39
Richards	87	39
Burgess	111	39
Egan	33	36
Payne	46	36
Moore	63	36
Glendell Tenements	84	39
Glendell Tenements	83	38
Glendell Tenements	82	38
Glendell Tenements	81	38

1. Now owned by DK Geelan
2. Now owned by Glendell Tenements
3. Now owned by B&R Richards
4. Now owned by Tisdell
5. Now owned by S&C Ernst

5.2.2 Construction Noise Criteria

The DECC's current guidelines for construction are described below and apply to residential receivers only (note: the NSW Construction Noise Guidelines are currently in draft format for consultation and therefore have not been referenced within this assessment).

Working Hours

The primary objective of the DECC's construction guideline is to limit audible construction working hours to:

- Monday to Friday - 0700 hours to 1800 hours;
- Saturday - 0800 hours to 1300 hours; and
- no work on Sundays or Public Holidays.

Noise Levels

DECC guidelines set out methods for determining construction noise criteria. Table 5.2 summarises the construction noise criteria based on expected construction duration that apply to nearest sensitive receivers.

Table 5.2 Construction noise emission duration adjustment criteria

Construction Period	Acceptable LA10 Noise Level
4 weeks and under	Background (LA90) plus 20 dBA or limiting criteria + 15 dBA
4 weeks to 26 weeks	Background (LA90) plus 10 dBA or limiting criteria + 5 dBA
Greater than 26 weeks	Background (LA90) plus 5 dBA or limiting criteria

Note : See *Table 5.1* for limiting criteria

5.2.3 Cumulative Noise Criteria

Assessing For Amenity

The DECC's amenity criterion requires industrial noise to be within an acceptable level for the particular locality and land use and that, where the ambient noise is already high, the acoustic environment should not be deteriorated significantly. The strategy behind the amenity criterion is a holistic approach to noise, where all industrial noise (existing and future) received at a given receptor does not exceed the recommended goals.

Private residences and other sensitive receivers potentially affected by cumulative noise are covered by the DECC's varying amenity categories. The relevant category for this assessment is the rural category as presented in Table 2.1 of the INP and reproduced in *Table 5.3*.

Table 5.3 Amenity Criteria - Recommended LAeq Noise Levels from Industrial Noise Sources

Receiver	Indicative Noise Amenity Area	Time of Day	Recommended LAeq(Period) Noise Level (dBA)	
			Acceptable	Recommended Maximum
Residence	Rural	Day	50	55
		Evening	45	50
		Night	40	45

5.2.4 Road Traffic Noise

Traffic noise emissions associated with this proposal would be associated with deliveries of stonedust to the drophole at the Forest Road Ventilation Shaft Area. This will result in an estimated average of eight semi-trailer movements

a month along Forest Road and Glennies Creek Road. The hours of these deliveries would be between Monday and Friday between 7am and 5pm.

As a conservative and brief assessment, all eight movements have been assessed within a one hour period to the near point of receptors using the USA Environment Protection Agency (USEPA) method. A worst case calculation indicates that the road traffic Leq 1-hour would be 53 dBA, which is below the relevant Environmental Criteria for Road Traffic Noise (ECRTN) of 55 dBA Leq 1-hour for a land use development with the potential to create additional traffic on local roads. Furthermore, the impact of eight movements per month would not increase existing traffic noise levels by more than 2 dBA.

Due to the minimal impacts traffic noise has not been considered further in this assessment.

5.3 NOISE IMPACT ASSESSMENT

5.3.1 Operational Noise Impact Assessment

Calculation Procedures

ENM noise modelling software was used to assess potential noise impacts associated with the proposal. ENM is a NSW DECC accepted software package and takes into account distance, ground effects, atmospheric absorption and topographic detail.

The model incorporated three-dimensional digitised ground contours for the Site, as derived from proposed site plans, and the surrounding land base topography, superimposed on each other. Plant and equipment was modelled at relevant locations and heights, representative of plant operating conditions.

The noise model predicts L_{eq} noise levels with all plant and equipment operating simultaneously. Where relevant, modifying factors have been applied to calculations in accordance with Section 4 of the INP. The 1250kVA diesel powered genset to be located within the Area (to supply power only during the annual 24 hour testing and maintenance period and power outages), has not been assessed due to the acoustic insignificance compared to other items of plant in the compound.

Equipment Sound Power Levels

The sound power data of the existing ventilation fan and plant to be installed were calculated from measurements obtained from the existing Integra operations on 16 July 2008. Three worst-case modelling scenarios were completed assuming all on-site equipment to be operating simultaneously for

day, evening and night inversion periods. The noise emission levels used in modelling are summarised in *Table 5.4.*

Table 5.4 Equipment Sound Power Levels

Typical Item	Representative $L_{eq,15minute}$ Sound Power Level, dB(A)
66kV/11kV transformer[1]	77[1]
3 x Atlas Copco compressors[2]	114
Upcast Ventilation Fan	104
Inertisation unit (Floxal)	105

1. Includes 5 dBA low frequency penalty
2. Includes a 4 metre high impervious barrier (east side of the source)

Noise Modelling Meteorological Parameters

Detailed meteorological analyses for the area surrounding Integra's operations were completed as part of previous assessments for the Site and are reproduced below from *'Glennies Creek Open Cut Coal Mine, Noise and Blasting Assessment'* (Corkery/Heggies, 2007). Relevant meteorological conditions for the Site and adopted in this assessment are reproduced in *Table 5.5*.

Table 5.5 Relevant Site Specific Meteorological Parameters

Assessment Condition	Temperature	Wind Speed / Direction	Relative Humidity	Temperature Gradient
Day - Calm	20^{0}C	N/A	65%	N/A
Evening - Calm	15^{0}C	N/A	80%	N/A
Night - Inversion	10^{0}C	N/A	90%	3^{o}C

Operational Noise Modelling Results and Discussion

A summary of the limiting criteria as specified in PA 06_0057 and modelled noise levels at the worst-affected receptors surrounding the Forest Road Ventilation Shaft Area are provided in *Table 5.6* and *Table 5.7* for calm meteorological conditions (day and evening respectively) and in *Table 5.8* for inversion conditions. Noise modelling has incorporated a proposed partial enclosure and a four-metre high barrier at the eastern side of the compressors.

Table 5.6 Noise modelling summary, Day - Calm Meteorological Conditions Leq dB(A)

Receptor Name	Receptor ID	Vent Shaft Area Contribution	Receptor Limiting Criteria
Mordey[1]	8	<30	38
Lambkin	16	<30	38
Donellan	80	31	38
Hardy[2]	79	30	38
Noble	73	<30	38
Watling[3]	106	<30	39
Oxford[4]	108	<30	39
G. Hall	110	<30	39
Proctor[5]	112	<30	39
Richards	87	<30	39
Burgess	111	<30	39
Egan	33	<30	36
Payne	46	<30	36
Moore	63	<30	36
Glendell Tenements	84	35	39
Glendell Tenements	83	35	38
Glendell Tenements	82	31	38
Glendell Tenements	81	31	38

1. Now owned by DK Geelan
2. Now owned by Glendell tenements
3. Now owned by B&R Richards
4. Now owned by Tisdell
5. Now owned by S&C Ernst

Table 5.7 Noise modelling summary, Evening - Calm Meteorological Conditions Leq dB(A)

Receptor Name	Receptor ID	Vent Shaft Area Contribution	Receptor Limiting Criteria
Mordey[1]	8	<30	38
Lambkin	16	<30	38
Donellan	80	31	38
Hardy[2]	79	30	38
Noble	73	<30	38
Watling[3]	106	<30	39
Oxford[4]	108	<30	39
G. Hall	110	<30	39
Proctor[5]	112	<30	39
Richards	87	<30	39
Burgess	111	<30	39
Egan	33	<30	36
Payne	46	<30	36
Moore	63	<30	36
Glendell Tenements	84	35	39
Glendell Tenements	83	35	38
Glendell Tenements	82	31	38
Glendell Tenements	81	31	38

1. Now owned by DK Geelan
2. Now owned by Glendell tenements
3. Now owned by B&R Richards
4. Now owned by Tisdell
5. Now owned by S&C Ernst

Table 5.8 Noise modelling summary, 3°C/100m Inversion Meteorological Conditions Leq dB(A)

Receptor Name	Receptor ID	Vent Shaft Area Contribution	Receptor Limiting Criteria
Mordey[1]	8	<30	38
Lambkin	16	<30	38
Donellan	80	34	38
Hardy[2]	79	33	38
Noble	73	<30	38
Watling[3]	106	30	39
Oxford[4]	108	<30	39
G. Hall	110	<30	39
Proctor[5]	112	<30	39
Richards	87	<30	39
Burgess	111	<30	39
Egan	33	<30	36
Payne	46	<30	36
Moore	63	<30	36
Glendell Tenements	84	39	39
Glendell Tenements	83	37	38
Glendell Tenements	82	34	38
Glendell Tenements	81	34	38

1. Now owned by DK Geelan
2. Now owned by Glendell tenements
3. Now owned by B&R Richards
4. Now owned by Tisdell
5. Now owned by S&C Ernst

Modelling results identify that noise emissions from the Forest Road Ventilation Shaft Area would remain at or below the existing approval criteria for all receptors during day, evening and night periods.

5.3.2 *Construction Noise Impact Assessment*

Construction Equipment

Construction works at the Site are expected to take up to 26 weeks. The construction noise impact assessment has adopted the simultaneous operation items of equipment presented in *Table 5.9* to represent likely noise levels associated with construction of the boreholes and infrastructure. The sound power levels provided were obtained from ERM's database.

Table 5.9 Construction Plant

Plant and Equipment	Sound Power Level (LA10)
Compressor	91 dBA
Agitator	107 dBA
Franna Crane / Hooklift Truck	105 dBA
Road Trucks	103 dBA
Drilling	108 dBA
Rollers	113 dBA
Excavator Komatsu PC300	103 dBA
Hand tools (including grinding, hammering etc.)	106 dBA

Construction Modelling Results

Table 5.10 presents results of the construction noise model results.

Table 5.10 Construction noise modelling summary, Day - Calm Meteorological Conditions L10 dB(A)

Receptor Name	Receptor ID	Vent Shaft Area Construction	Receptor Limiting Criteria
Mordey[1]	8	<20	43
Lambkin	16	<20	43
Donellan	80	30	43
Hardy[2]	79	28	43
Noble	73	<20	43
Watling[3]	106	<20	44
Oxford[4]	108	<20	44
G. Hall	110	<20	44
Proctor[5]	112	<20	44
Richards	87	<20	44
Burgess	111	<20	44
Egan	33	<20	41
Payne	46	<20	41
Moore	63	<20	41
Glendell Tenements	84	35	44
Glendell Tenements	83	35	43
Glendell Tenements	82	30	43
Glendell Tenements	81	30	43

1. Now owned by DK Geelan
2. Now owned by Glendell tenements
3. Now owned by B&R Richards
4. Now owned by Tisdell
5. Now owned by S&C Ernst

Note : Limiting criteria based on construction period of up to 26 weeks

The ENM model results identified that noise emissions would remain below relevant daytime construction noise goals at all receptors. The highest modelled outputs were at mine owned Receptors 83 and 84 with an emission level of 35 dBA (L10), well below the lowest relevant construction criteria. The highest modelled output for a privately-owned receptor was at Receptor 80, with an emission level of 30 dBA (L10), which is also below the construction and operational criteria.

5.3.3 Cumulative Impact Assessment

A cumulative noise impact assessment has been completed to establish the combined noise emissions from the Ventilation Shaft Area against existing industrial noise.

Table 5.11 to *Table 5.13* present the top five worst-case cumulative noise emission impacts for existing industry combined with the Forest Road Vent Shaft Area during day, evening and inversion conditions.

Modelling identifies potential cumulative noise increases due to the addition of the proposed Ventilation Shaft Area facilities would not exceed the acceptable amenity criteria during the day and evening period, inclusive of the North Open Cut mining operations.

During the inversion scenario, a 1 dBA exceedence may occur at Receptor 84 (*Figure 5.1*), although this receptor is mine owned. The overall noise level would remain at or below the acceptable INP Amenity Criteria at all privately-owned receptors.

Table 5.11 Noise Modelling Summary, Cumulative Assessment – Calm Meteorological Conditions (Day) Leq dB(A)

Receptor Name	Receptor ID	Vent Shaft Area Contribution	Existing Industrial Noise Contribution + NOC	Cumulative Sum	Receptor Acceptable Amenity Criteria (Period)
Donellan	80	31	37	39	50
Glendell Tenements	81	31	37	39	50
Glendell Tenements	82	31	37	38	50
Glendell Tenements	83	35	37	38	50
Glendell Tenements	84	35	37	38	50

Table 5.12 Noise Modelling Summary, Cumulative Assessment – Calm Meteorological Conditions (Evening) Leq dB(A)

Receptor Name	Receptor ID	Vent Shaft Area Contribution	Existing Industrial Noise Contribution + NOC	Cumulative Sum	Receptor Acceptable Amenity Criteria (Period)
Donellan	80	31	37	39	45
Glendell Tenements	81	31	37	39	45
Glendell Tenements	82	31	37	38	45
Glendell Tenements	83	35	37	38	45
Glendell Tenements	84	35	37	38	45

Table 5.13 Noise Modelling Summary, Cumulative Assessment – 3°C/100m Inversion Meteorological Conditions (Night) Leq dB(A)

Receptor Name	Receptor ID	Vent Shaft Area Contribution	Existing Industrial Noise Contribution + NOC	Cumulative Sum	Receptor Acceptable Amenity Criteria (Period)
Donellan	80	34	37	39	40
Glendell Tenements	81	34	37	39	40
Glendell Tenements	82	34	37	39	40
Glendell Tenements	83	37	37	40	40
Glendell Tenements	84	39	37	41	40

5.4 SUMMARY

Noise associated with the operation of the Forest Road Ventilation Shaft Area would remain at or below the relevant existing consent criteria for calm, evening and inversion conditions at all assessed receptors. Noise modelling has incorporated mitigation measures that included a partial enclosure and barrier around the compressor unit.

Construction of infrastructure and boreholes will remain below the construction noise criteria at all receptors, including the nearest affected Receptors 83 and 84.

The cumulative noise assessment identified that during the inversion scenario, a 1 dBA exceedence may occur at Receptor 84 although this receptor is a dilapidated mine owned dwelling. The overall noise level would remain at or below the acceptable INP Amenity Criteria at all privately-owned receptors.

6 GROUNDWATER IMPACT ASSESSMENT

6.1 EXISTING ENVIRONMENT

There are two principal aquifer types within the Integra Underground Colliery holding, namely:

- unconsolidated alluvials associated with Glennies Creek, Station Creek, Main Creek and other minor drainage paths; and
- basement coal measures.

The existing mine water management system has proven effective in the achievement of the Site's water management objectives, with no evidence or suggestion of groundwater contamination as a consequence of the mine's activities (GCCM, 2006).

6.2 POTENTIAL IMPACTS

Based on previous experiences when installing boreholes and the ventilation and secondary shafts at the Ventilation Shaft Area, it is likely that the proposed additional boreholes will intersect saline aquifers resulting in short term minor flows of this water into the underground workings. However, as this water has no beneficial uses; the Proponent already holds a licence to dewater the underground workings to a volume of up to 450ML/ per annum (a volume far in excess of current or predicted requirements), and any inflows would be manageable within the existing water management system, no significant direct or indirect groundwater impacts would be expected in association with this proposal and no additional control measures would be required.

7 SURFACE WATER IMPACT ASSESSMENT

7.1 EXISTING

With the exception of its western-most part, the Integra Underground holding lies within the catchment of the permanent (regulated) Glennies Creek, a tributary of the Hunter River, with drainage to Glennies Creek via a number of ephemeral creeks and drainage lines including Station Creek, Main Creek and Stony Creek. The Forest Road Ventilation Shaft Area lies within the Glennies Creek catchment.

Within the Forest Road Ventilation Shaft Area, "clean" run-on waters are directed around the areas of disturbance to the adjacent grazing lands and natural drainage lines by upslope drains, while the "dirty" water is collected by downslope drains and bunds and directed to the 1.5ML capacity sedimentation dam located in the southeast corner of the Area (*Feature L – Figure 1.3*).

7.2 POTENTIAL IMPACTS

Clean and dirty water diversions are currently in place at the Ventilation Shaft Area. Given that all proposed modifications and additional infrastructure will be located downslope of these pre-existing diversions as shown on *Figure 2.1*, no surface water impacts are expected as a result of this proposal. It is noted however that the previously approved infrastructure envelope extends outside the existing clean water diversion. Should any infrastructure be positioned within this area, modifications would be made to the clean water diversion to ensure the infrastructure is maintained within the dirty water catchment.

8 FLORA AND FAUNA IMPACT ASSESSMENT

8.1 EXISTING

The existing and prior areas of disturbance at the Forest Road Ventilation Shaft Area are sparsely vegetated, while the remainder, though carrying a good ground cover of native and exotic species which may provide a food source for some bird species, exhibits a general lack of litter, shelter for reptiles or roost sites for birds and mammals. The lack of litter is primarily a consequence of the prior routine burning of the area which was undertaken to encourage fodder pasture growth.

Investigations previously undertaken identified the listed threatened flora species, *Bothriochloa biloba*, within the Forest Road Ventilation Shaft Area and adjacent areas to the west of Forest Road. However, in April 2004, *Bothriochloa biloba* was removed from the schedule of the TSC Act. An Environmental Assessment undertaken in August 2006 (GCCM) for the Integra Surface Facilities and Activities project noted that while numerous threatened bird, reptile and mammal species were identified within the Singleton LGA, none had been located within the relevant project areas, including the Ventilation Shaft Area.

8.2 POTENTIAL IMPACTS

The proposed modifications and additions to the Ventilation Shaft Area will be confined to either previously disturbed areas or areas previously approved for additional infrastructure. Hence, the proposal will have minimal effect on existing flora and fauna in the area. Consequently no additional controls are warranted for the proposed activities.

9 ABORIGINAL AND CULTURAL HERITAGE

9.1 EXISTING

The Forest Road Ventilation Shaft Area has been highly disturbed and modified by previous developments and installations. In addition, while previous heritage surveys undertaken for the Integra Underground have found items of heritage significance within the holding, none have been identified within Ventilation Shaft Area. An archaeological assessment was undertaken in 2002 for the proposed Ventilation Facility and private power line (AS&R, 2002), and these projects have progressed with no impact to items of cultural heritage.

9.2 POTENTIAL IMPACTS

All of the proposed facilities and activities would be confined to areas previously disturbed during the preparation and construction of the existing Ventilation Shaft Area facilities or areas previously approved for additional infrastructure. Consequently the proposed construction activities will not compromise nor impact upon items of Aboriginal or Cultural heritage.

Notwithstanding the comments above, ICO would advise all relevant personnel of their obligations under the *NPW Act 1974* and ensure that, in the unlikely event of any relic or item being discovered during the proposed works, that the work would cease in the relevant area and, the relevant Aboriginal groups and DECC are notified. Work would not recommence in the relevant area until the necessary clearance(s) are received.

10 VISUAL IMPACT ASSESSMENT

10.1 EXISTING

Forest Road does not currently serve as the primary access to any local residences, which significantly limits any potential visual impacts on local residents. The Ventilation Shaft Area and facilities are also effectively screened from distant vantage points by the existing bund adjacent to Forest Road, intervening vegetation and/or vegetation adjacent to Forest Road which achieves heights of up top 10m.

10.2 POTENTIAL IMPACTS

Construction equipment such as drill rigs and plant may be visible during the construction period, however these will cause only temporary visual impacts. Some of the additional infrastructure such as the compressors, sub-station and inertisation unit will be visible to varying degrees from Forest Road and other local vantage points. However, given the existing infrastructure within the Site, the roadside vegetation and the nature of road usage, the potential additional visual impacts would be minimal and primarily restricted to those from infrequent local travellers on Forest Road.

The necessity for lighting of equipment for safety and maintenance purposes would be assessed following construction. However, given the distance to the nearest residences (1.5km to the nearest non-mine-owned residence and 1.0km to the nearest mine-owned residence) and the extent of intervening vegetation, visibility of lighting would be minimal and would not impact on the amenity at any residence.

10.3 MITIGATIONS MEASURES

The existing visual bund, whist it may be modified slightly to accommodate some of the additional infrastructure, will be retained and, together with the roadside vegetation, will continue to provide visual screening of the majority of the Ventilation Shaft Area infrastructure from vehicles travelling along Forest Road. In addition, the proponent will ensure any infrastructure installed at the Ventilation Shaft Area is in keeping with both the surrounding environment and existing infrastructure.

If required, site lighting would be of low intensity and operated only for required maintenance or for safety.

11 TRAFFIC AND TRANSPORT IMPACT ASSESSMENT

11.1 EXISTING ENVIRONMENT

Light vehicle movements to and from the Forest Road Ventilation Shaft Area primarily travel via Middle Falbrook Road, Glennies Creek Road and Forest Road. On occasion, light vehicles travelling between the Pit Top Facilities and the Forest Road Ventilation Shaft Area to undertake maintenance or inspection activities may travel from the Pit Top Facilities via Middle Falbrook Road, Nobles Lane and then Glennies Creek Road. If heavy vehicle access is required for major maintenance at the Ventilation Shaft Area, the preferred route is from the New England Highway via Glennies Creek Road.

11.2 POTENTIAL IMPACTS

11.2.1 Construction / Installation

Installation of the proposed additional infrastructure within the Forest Road Ventilation Shaft Area would involve a drill rig and support truck, occasional light vehicle movements and potentially trucks delivering pre-fabricated components or plant that is required for construction activities. Although resulting in a temporary increase in vehicle movements along the local road network, the increase would be of limited magnitude and of short duration. Consequently the impact on road surfaces and other motorists as a result of the proposal would be minimal

11.2.2 Operations

Operation of the stonedust drophole at the Forest Road Ventilation Shaft Area would result in an average of eight semi-trailer movements a month along Forest Road and Glennies Creek Road. The hours of these deliveries would be between Monday and Friday between 7am and 5pm.

Given that visits to the Ventilation Shaft Area are already undertaken on a regular basis for maintenance purposes, it is considered unlikely that there will be any requirement for a significant increase in light vehicle movements per day as a consequence of the proposed modification and, consequently, any impact on traffic levels would be imperceptible. Integra Coal Operations is already required to pay a maintenance fee for Forest Road, Middle Falbrook Road, Bridgman Road and Stony Creek Road, which should ensure that Council can maintain these roads in good condition.

No changes to ROM coal extraction at the Integra Underground are proposed from the approved 4.5Mt per annum, hence coal transfers will not be impacted.

Although traffic to the Ventilation Shaft Area will increase as a result of the deliveries of stonedust, there will be a corresponding reduction in the number of heavy vehicle movements on the more heavily used Bridgman, Stony Creek and Middle Falbrook Roads.

12 SOCIAL IMPACT ASSESSMENT

12.1 EXISTING

ICO is committed to its acceptance as a valued member and contributor to the community within the local area, Singleton Shire and the Hunter Region and its acceptance by the community in general as a legitimate land user, and has set the following objectives to achieve this commitment:

- promotion of local employment – Integra Underground currently injects in excess of $20M per annum via wages and oncosts into the community. Approximately 75% of Company employees reside in the Singleton / Cessnock / Maitland area;

- preferential support of local businesses – The Integra Underground currently spends more than $30M per annum on contractor employment and contract-related activities (eg equipment overhauls and coal transportation), the majority of which is to companies in the Newcastle / Hunter region;

- the promotion of local employment and support of local businesses also provides additional positive economic impacts through consumption and production induced flow-on effects;

- provision of support to local community and charitable groups including schools and sporting clubs;

- maintaining a long-term presence in the local area, thereby providing continuity of employment and community support;

- maintaining an honest, open and free exchange of information between the Company and the community through community consultation; and

- undertaking its activities in a manner which seeks to minimise impacts upon local land uses, land users, community services or infrastructure or environmental values.

As members of the local community, mine employees or contractors and those persons who benefit economically through the presence of the Integra Underground, also contribute socially and economically through their involvement in community, sporting, educational and social organisations and expenditure of varying components of their disposable incomes.

The Integra Underground also currently contributes in excess of $15M annually in the form of royalties, taxes, fees and charges and generates in excess of $100M annually in export earnings.

12.2 POTENTIAL IMPACTS

The proposed additions to the Ventilation Shaft Area will allow for the more efficient continuation of mining activities, while maintaining the current workforce. ICO will continue to contribute to the local community throughout the life of the mine.

13 DRAFT STATEMENT OF COMMITMENTS

Table 13.1 lists ICO's current commitments with respect to the management of the environmental issues related to its existing operations and surface facilities (including the Forest Road Ventilation Shaft Area facilities), or would adopt as a consequence of the installation and operation of the additional surface facilities at the Site. New or additional commitments arising as a consequence of the current s75W application have been bolded.

The commitments are listed in terms of their desired outcome(s), action(s) and timing. The commitments are presented in terms of:

- operational matters;
- environmental issues; and
- environmental monitoring.

Table 13.1 Draft Statement of Commitments

Desired Outcome	Action	Timing
1. Environmental Management		
Obtain and/or comply with all conditional requirements in all approvals, licenses and leases	1.1 Comply with all commitments recorded in Table 14.1	Continuous and as required
	1.2 Comply with all conditional requirements included in the: Planning Approval; Environment Protection Licence; Mining Leases; SMP or s138 Approvals; and any other approvals	
Conduct all operations in accordance with all relevant documentation	1.3 Undertake all activities in accordance with any current Mine Operations Plan, environmental procedures, safety management plan or site-specific documentation	Continuous and as required
2. Area of Activities		
All new surface facilities are undertaken generally in the approved envelopes nominated on the figures shown in Section 2.	2.1 Mark or survey the boundaries of the area of disturbance	Prior to the commencement of the relevant activity
3. Operating Hours – Installation of New Facilities and Operations		
Installations are undertaken within the approved operating hours	3.1 Vegetation clearing / soil removal: 7:00am to 6:00pm / 7 days	As required

Desired Outcome	Action	Timing
	3.2 Construction Activities: 7:00am to 10:00pm / 7days	As required
	3.3 Construction materials delivery: 7:00am to 10:00pm / 7 days	As required
	3.4 Audible construction activities at the Ventilation Shaft Area: **7:00am to 6:00pm Monday – Friday** **8:00am to 1:00pm Saturdays** **No work on Sundays or Public Holidays** **(note: construction may be undertaken outside of these hours if inaudible at privately-owned receptors)**	**As required**
Ongoing operations are undertaken within the approved operating hours	3.4 Coal conveying and stockpiling: 24 hours / 7 days	Continuous
	3.5 Use of surface amenities / workshops and offices: 24 hours / 7 days	Continuous
	3.6 Ballast delivery to Ventilation Shaft Area: 7.00am to 5.00pm / 5 days	As required
	3.7 Stonedust to Ventilation Shaft Area **7.00am to 5.00pm / 5 days**	**As required**
4. Surface Water / Mine Water Management		
To separate "clean" and "dirty" water wherever possible.	4.1 Maintain dividing bunds between operational / non-operational areas within the Pit Top Area.	Ongoing
	4.2 Divert upslope runoff around the Forest Road Ventilation Shaft Area	**Prior to new earthworks**
	4.3 Retain appropriately sized sedimentation dams to collect sediment laden water	Prior to surface disturbance
	4.4 Retain the peripheral diversion drain around Possum Skin Dam and continue to operate Possum Skin Dam such that adequate capacity remains to contain a rainfall event in excess of a 1 in 100 ARI	Ongoing
	4.5 Isolate each borehole compound from flow-on waters, eg. using stockpiled topsoil	Prior to construction of borehole compound
	4.6 Avoid storing fuel on site during site development / borehole installation	During site development / borehole installation
	4.7 Place all construction and operational wastes / consumables in leak-proof containers and have these removed from site by licensed contractors	Ongoing
	4.8 Clean-up any hydrocarbon spillages immediately and excavate any contaminated materials	In event of hydrocarbon spillage
	4.9 Install silt-stop fencing downslope of topsoil and spoil stockpiles where necessary	As required
To collect all "dirty" water.	4.10 Maintain existing Portal Sump, Sedimentation Dam SD-1 and Process Water Dam for"dirty" water	Ongoing
	4.11 Maintain sedimentation dam in southeast corner of the Forest Road	Ongoing

Desired Outcome	Action	Timing
	Ventilation Shaft Area (see Figure 1.3)	
	4.12 Maintain the sedimentation dam downslope of the wall of Possum Skin Dam	Ongoing
	4.13 Direct all dirty water from the activity area at each gas drainage borehole to the drill sump	During drilling
	4.14 Dewater the drill sump and transport to Integra Underground "dirty" water management system	During drilling
	4.15 Remove consolidated materials from the drill sump as part of the site rehabilitation activities.	During rehabilitation activities
	4.16 Install additional dirty water controls such as sediment retention structures where necessary.	As required
To adequately manage all saline water pumped from underground	4.17 Provide water in accordance with supply agreements.	Ongoing
	4.18 Continue to investigate water export or supply opportunities to reduce excess water on site	Ongoing
	4.19 Pump all excess saline water to Possum Skin Dam for evaporation	Ongoing
To minimise erosion and sediment entrainment	4.20 Maintain existing access tracks and drains as necessary	Ongoing
	4.21 Comply with weather-related access limitations as determined in consultation with the relevant landowner	Ongoing
	4.22 Minimise the extent of vegetation removal required during the establishment of each borehole and additional infrastructure area	During establishment of boreholes, ballast drophole and stockpile area
	4.23 Restrict vehicle speeds to 30kph on access tracks	Ongoing
	4.24 Apply water and/or dust suppressant on roads and access tracks	As required – for construction and operations
5. Noise and Vibration		
All activities are undertaken in such a manner as to reduce the noise level generated and minimise impacts on surrounding landholders and/or residents	5.1 Use equipment with lower sound power levels in preference to more noisy equipment. All equipment is to be fitted with mufflers	Ongoing
	5.2 Regularly service all equipment and maintain infrastructure (eg. roads) used on-site	Ongoing
	5.3 Use equipment shielding (if necessary) to reduce noise levels (eg compressor housing)	**During construction and operation**
	5.4 Maintain a dialogue with the potentially affected landowners to ensure any concerns over construction, operational or transport noise are addressed	At appropriate times during the establishment period and periodically during operations

Desired Outcome	Action	Timing
	5.5 Position equipment where practicable to maximise acoustic shielding.	Continuous
6. Air Quality		
Site activities are undertaken without exceeding DECC air quality criteria or goals	6.1 Limit areas of disturbance, where possible, to areas required for construction (including tracks)	During construction periods
	6.2 Maintain existing covers on above ground conveyors and apply water as necessary	Continuous during operations
	6.3 Restrict the areas of disturbance and progressively rehabilitate areas no longer required for operational purposes, eg. boreholes	As required
	6.4 Sheet the access between the stockpile and the hopper (within Forest Road Ventilation Shaft Area) with hardrock aggregate	Construction period.
	6.5 Strip soil when soil is moist and/or apply water to soil prior to stripping when the moisture content is too low	During stripping operations.
	6.6 Install a compacted hardstand surface within each fenced gas drainage borehole compound	During construction.
	6.7 Ensure the drill used to install the gas drainage boreholes satisfies EPA exhaust emission criteria	During drilling
	6.8 Use cyclones or other dust collectors on the drill rig when percussion drilling is employed	During drilling of gas drainage boreholes
	6.9 Restrict vehicle speeds to 30km hour on access tracks.	Ongoing
	6.10 Apply water and/or ecotrax dust suppressant on roads and access tracks	As required – for both construction and operations
	6.11 Cover loads of stonedust or use contained vessels when transporting to Forest Road Ventilations Shaft Area	**Continuous**
	6.12 Speed restrictions on Forest Road of 40kph for deliveries of stonedust and ballast to the Ventilation Shaft Area	**Ongoing**
7. Visibility		
Limit daytime visibility of site activities	7.1 Minimise areas of disturbance, particularly tree removal	Construction period
	7.2 Preferentially use fawn or green colouration for buildings and structures	At the time of construction/erection
	7.3 Undertake progressive rehabilitation and landscaping including vegetation of bunding	Ongoing
	7.4 Use existing vegetation to provide screening around new buildings / structures where practical	Design period
Limit night-time visibility of site lighting	7.5 Orientate entrance / exit roads to reduce headlights shining towards residences	Design/ construction period

Desired Outcome	Action	Timing
	7.6 Minimise use of lighting on elevated structures.	Design/ construction period / operation
	7.7 Orientate lighting to minimise impacts	Ongoing
	7.8 Utilise "low spill" lighting and timers where possible	Design period and operation
8. Environmental Monitoring		
Record local surface water quality to confirm absence of Project impacts	8.1 Conduct surface water monitoring at GCSW09 as per current monitoring regime	Monthly
Record noise levels	8.2 Monitor noise levels at Residences R5, R11, R12, R25, R27 and R28 (Figure 5.2)	Quarterly
To demonstrate the DECC guideline levels are being satisfied	8.3 Continue to monitor deposited dust levels at Locations D3, D4, D5, D7, D9, D10, D11	Monthly
	8.4 Continue to monitor PM10 data at HV1 and HV3 sites	Every 6 days in accordance with EPA Calendar
Record groundwater data to assess the impact of mining	8.5 Continue to monitor the piezometers as per the Site Water Management Plan	Ongoing
9. Transportation		
Maintenance of Forest Road in a trafficable condition	9.1 Contribute to the maintenance of Forest Road	Ongoing
	9.2 Maintain and review periodically, the agreement with Council with respect to ongoing road maintenance	Ongoing
10. Ecology		
To avoid introduction of weeds and control existing weed species	10.1 Clean earthmoving equipment before transport on site	Prior to transport of machinery on site.
Minimise long term impact on flora and fauna on and around the surface facilities	10.2 Position the boreholes and infrastructure so as to minimise vegetation clearing where practical.	During design
	10.3 Rehabilitate the site with the pre-development vegetation	As area becomes available
11. Cultural Heritage		
Appropriate protection and/or salvage of identified cultural heritage sites	11.1 Avoid identified sites of cultural heritage significance	Ongoing
	11.2 Cease work in the specified area and notify representatives of local Aboriginal groups and DEC (NPWS)	In the event of a cultural heritage site being identified
	11.3 For future longwalls, obtain a land clearance permit in areas where gas drainage boreholes are to be located	
12. Bushfire		
Minimise potential for generation of bushfires and reduction in bushfire hazard	12.1 Do not undertake topsoil/vegetation removal activities on vegetated areas during periods of extreme fire danger or total fire bans	During topsoil/vegetation removal

Desired Outcome	Action	Timing
	12.2 Maintain appropriate fire extinguishers in all mobile equipment and within office and compound areas	Ongoing
	12.3 Install lightning protection on gas drainage boreholes	Prior to operation
	12.4 Ensure office and compound areas are free of vegetation	Ongoing
13. Rehabilitation		
The creation of a stable final landform which is commensurate with a variety of sustainable land resource or amenity uses	13.1 Progressively stabilise all earthworks, drainage lines and disturbed areas that are no longer required for mining related activities	As areas become available
	13.2 Investigate opportunities for temporary rehabilitation of visually exposed areas	Ongoing
The creation of a stable final landform which is commensurate with a variety of sustainable land resource or amenity uses	13.3 Undertake the earliest appropriate rectification / rehabilitation works in areas of indirect mine-related disturbance, eg. in areas affected by subsidence, to minimise adverse physical and/or land use impacts	As required
	13.4 Undertake the final rehabilitation of the site in accordance with an approved Closure Plan developed in consultation with all stakeholders	At end of mine life
	13.5 Integrate the post-completion landform with the surrounding natural and/or man-made features (physical and biological) in a manner which enhances or could potentially enhance visual amenity and biodiversity and/or ongoing agricultural pursuits	At end of mine life
14. Socio-Economic		
Maintenance of a positive social and economic influence in both the short and long term	14.1 Promote local employment and support local businesses	Ongoing
	14.2 Provide support to local community and charitable groups	Ongoing
	14.3 Maintain an honest, open and free exchange of information between the Company and the community through consultation	Ongoing

14 CONCLUSION

This assessment of the potential environmental impacts arising from the installation and operation of the additional facilities within the Forest Road Ventilation Shaft Area has established that through the adoption and ongoing use of a range of safeguards and mitigation measures, the level of environmental impact would be minimal and acceptable.

The successful utilisation of the Ventilation Shaft Area to date, without any unacceptable level of impact, supports the conclusion that the nominated area is suitable for the operation of the proposed additional facilities. Overall, the use of the existing and additional facilities can be confidently justified and would create a number of improvements in daily operations within the Integra Underground with negligible adverse change in environmental impacts.

The assessment of the proposal has identified that the Project should proceed because it would:

- contribute to maintaining the efficient supply of coal produced from the Integra Underground;
- continue to have minimal and manageable impacts on the biophysical environment;
- create a safer working environment for employees and contractors working at the colliery; and
- continue to remain in the public interest, principally through the economic benefits and low level of residual environmental impacts.

REFERENCES

Archaeological Surveys & Reports Pty Ltd (AS&R) (2002) **The Archaeological investigation of the site of a proposed Ventilation Facility, and a private powerline". Glennies Creek Colliery near Singleton NSW**

Glennies Creek Colliery Management Pty Ltd (GCCM) (2006) **Environmental Assessment of Surface Facilities and Activities.**

Heggies Pty Ltd (2007) **Glennies Creek Open Cut Coal Mine, Noise and Blasting Assessment.** Prepared on behalf of Integra Coal Operations Pty Ltd.

Annex A

Project Approval 06_0057

Project Approval

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

I, the Minister for Planning, approve the project referred to in schedule 1, subject to the conditions in schedules 2 to 5.

These conditions are required to:

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

Frank Sartor MP
Minister for Planning

Sydney 31ST January 2007 File No: S03/00047

SCHEDULE 1

Application No:	06-0057.
Proponent:	Glennies Creek Coal Management Pty Limited.
Approval Authority:	Minister for Planning.
Land:	See Appendix 1.
Project:	Glennies Creek Coal Mine – Surface Facilities Project.

TABLE OF CONTENTS

DEFINITIONS

AEMR	Annual Environmental Management Report
BCA	Building Code of Australia
CCC	Community Consultative Committee
CHPP	Coal Handling and Preparation Plant
Council	Singleton Shire Council
Day	Day is defined as the period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
DEC	Department of Environment and Conservation
DNR	Department of Natural Resources
Department	Department of Planning
Director-General	Director-General of Department of Planning, or delegate
DPI	Department of Primary Industries
EA	Environmental Assessment
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
Evening	Evening is defined as the period from 6pm to 10pm
Land	Land means the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this approval
Mine water	Water that accumulates or originates within active mining areas, coal rejects emplacement areas, coal stockpile areas, tailings dams and other infrastructure areas
Minister	Minister for Planning, or delegate
Night	Night is defined as the period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
Privately owned land	Land that is not owned by a public agency, or a mining company or its subsidiary
Proponent	Glennies Creek Coal Management Pty Limited, or its successors
ROM	Run of Mine
Site	Land to which the Project Application applies

SCHEDULE 2
ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

1. The Proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.

Terms of Approval

2. The Proponent shall carry out the project generally in accordance with the:
   (a) Project Application 06_0057;
   (b) EA titled *Glennies Creek Colliery: Environmental Assessment of Surface Facilities and Activities*, dated August 2006;
   (c) letter from the Proponent to the Department amending the project application, dated 3 October 2006; and
   (d) conditions of this approval.

   Notes:
   - *This approval relates to construction and use of surface facilities associated with the Glennies Creek coal mine only. Underground coal mining, coal haulage beyond the site boundary, and coal processing are regulated under separate approvals.*
   - *The general layout of the project is shown on the plans in Appendix 2.*

3. If there is any inconsistency between the above, the conditions of this approval shall prevail to the extent of the inconsistency.

4. If there is any inconsistency between the conditions of this approval and the conditions of any other development approval for the Glennies Creek colliery, the conditions of this approval shall prevail to the extent of the inconsistency.

5. The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
   (a) any reports, plans, programs or correspondence that are submitted in accordance with this approval; and
   (b) the implementation of any actions or measures contained in these reports, plans, programs or correspondence.

Limits on Approval

6. This approval lapses on 1 January 2027.

7. The Proponent shall not process more than 4.5 million tonnes of ROM coal a year at the site.

Structural Adequacy

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

   Notes:
   - *Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works.*
   - *Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.*

Demolition

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

Operation of Plant and Equipment

10. The Proponent shall ensure that all plant and equipment used at the site is:
    (a) maintained in a proper and efficient condition; and
    (b) operated in a proper and efficient manner.

SCHEDULE 3
SPECIFIC ENVIRONMENTAL CONDITIONS

SURFACE AND GROUND WATER

Discharge Limits

1. Except as may be expressly provided by a DEC Environment Protection Licence or DNR water licence, the Proponent shall not discharge any mine water from the site.

Site Water Management Plan

2. The Proponent shall prepare (and following approval implement) a Site Water Management Plan for the project, to the satisfaction of the Director-General. The Plan shall be prepared in consultation with the DNR, and be submitted to the Director-General by the end of March 2007. The Plan must be prepared by a suitably qualified hydrogeologist/hydrologist whose appointment/s have been approved by the Director-General, and shall include:
   (a) a Site Water Balance;
   (b) an Erosion and Sediment Control Plan;
   (c) a Surface Water Monitoring Program; and
   (d) a Groundwater Monitoring Program.

3. The Water Balance shall:
   (a) include details of:
      - sources of water (including groundwater make from underground workings and from Camberwell overburden emplacement areas);
      - reliability of water supply;
      - water use on site;
      - volume of water storages on site;
      - water management on site;
      - on-site and off-site water transfers;
      - reporting procedures; and

   (b) describe measures to minimise water use by the project.

4. The Erosion and Sediment Control Plan shall:
   (a) be consistent with the requirements of the Department of Housing's *Managing Urban Stormwater: Soils and Construction* manual;
   (b) identify activities that could cause soil erosion and generate sediment;
   (c) describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters;
   (d) describe the location, function, and capacity of erosion and sediment control structures; and
   (e) describe what measures would be implemented to maintain the structures over time.

5. The Surface Water Monitoring Program shall include:
   (a) baseline data on surface water flows and quality in waterbodies that could potentially be impacted by the mine;
   (b) surface water impact assessment criteria;
   (c) a program to monitor surface water flows and quality;
   (d) a program to monitor water volume and levels in water storages across the site;
   (e) a protocol for the investigation, notification and mitigation of identified exceedances of the surface water impact assessment criteria; and
   (f) a program to monitor the effectiveness of the Erosion and Sediment Control Plan.

6. The Groundwater Monitoring Program shall include:
   (a) a program to monitor the volume and quality of groundwater make within the Camberwell North Pit and underground mine workings;
   (b) regional groundwater levels and quality in the surrounding aquifers; and
   (c) the groundwater pressure response in the surrounding coal measures.

NOISE

Noise Impact Assessment Criteria

7. The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria presented in Table 1 at any residence on privately owned land.

Table 1: Noise impact assessment criteria dB(A) $L_{Aeq\ (15\ min)}$

Location	Day/Evening/Night
Mordey, Lambkin, Donellan, Hardy, Noble	38
Watling, Oxford, G. Hall, Proctor, Richards, Burgess	39
Egan, Payne, Moore	36

Notes:

(a) The noise criteria do not apply to residences within the Zone of Affectation for the Camberwell coal mine (Dulwich and Tisdell), or to properties where the Proponent and the affected landowner have reached a negotiated agreement in regard to noise, and a copy of the agreement has been forwarded to the Director-General and DEC.

(b) Noise from the project is to be measured at the most affected point or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary, to determine compliance with the $L_{Aeq(15\ minute)}$ noise limits in the above table. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DEC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.

(c) The noise emission limits identified in the above table apply under meteorological conditions of:

- *wind speeds of up to 3 m/s at 10 metres above ground level; or*
- *temperature inversion conditions of up to 3°C/100m.*

Ballast Delivery Hours of Operation

8. Ballast delivery operations at the Forest Road Ventilation Shaft Area shall be restricted to 8:00am to 5:00pm, Monday to Friday.

Noise Monitoring Program

9. The Proponent shall prepare (and following approval implement) a Noise Monitoring Program for the project, to the satisfaction of the Director-General. The program must include a noise monitoring protocol for evaluating compliance with the noise impact assessment criteria in this approval, and be submitted to the Director-General by the end of March 2007.

Note: The noise monitoring program may be integrated with any similar program for the Camberwell coal mine.

AIR QUALITY

Impact Assessment Criteria

10. The Proponent shall ensure that the dust emissions generated by the project do not cause additional exceedances of the air quality impact assessment criteria listed in Tables 2, 3, and 4 at any residence on, or on more than 25 percent of, any privately owned land.

Table 2: Long term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 $\mu g/m^3$
Particulate matter < 10 µm (PM_{10})	Annual	30 $\mu g/m^3$

Table 3: Short term impact assessment criterion for particulate matter

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM_{10})	24 hour	50 µg/m^3

Table 4: Long term impact assessment criteria for deposited dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m^2/month	4 g/m^2/month

Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 1991, AS 3580.10.1-1991: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.

Air Quality Monitoring Program

11. The Proponent shall prepare (and following approval implement) an Air Quality Monitoring Program, to the satisfaction of the Director-General. The program must include an air quality monitoring protocol for evaluating compliance with the air quality impact assessment criteria in this approval, and be submitted to the Director-General by the end of March 2007.

Note: The air quality monitoring program may be integrated with any similar program for the Camberwell coal mine.

METEOROLOGICAL MONITORING

12. By the end of March 2007, the Proponent shall establish and subsequently maintain a suitable meteorological station operating in the vicinity of the project in accordance with the requirements in *Approved Methods for Sampling of Air Pollutants in New South Wales*, and to the satisfaction of the DEC and the Director-General.

Note: The meteorological station may be integrated with a similar station established for the Camberwell coal mine.

VISUAL IMPACT

Visual Amenity

13. The Proponent shall minimise the visual impacts of the project to the satisfaction of the Director-General.

Lighting Emissions

14. The Proponent shall:
    (a) take all practicable measures to mitigate off-site lighting impacts from the project; and
    (b) ensure that all external lighting associated with the project complies with *Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting,*

    to the satisfaction of Council, the DPI and the Director-General.

ABORIGINAL CULTURAL HERITAGE

Aboriginal Cultural Heritage Management Plan

15. The Proponent shall prepare (and following approval implement) an Aboriginal Cultural Heritage Management Plan, to the satisfaction of the Director-General. The Plan shall be prepared in consultation with DEC and the Aboriginal communities, and be submitted to the Director-General by the end of March 2007. The Plan must include:
    (a) measures to protect and preserve identified Aboriginal sites on the mine site;
    (b) a monitoring program for identified Aboriginal sites; and
    (c) a protocol for the ongoing consultation and involvement of the Aboriginal communities in the conservation and management of Aboriginal cultural heritage on the site.

TRAFFIC & TRANSPORT

Coal Transport

16. From no later than 31 December 2010, the Proponent shall cease truck haulage of coal from the mine to the Camberwell CHPP, with all ongoing transport via overland conveyor.

    Truck haulage (along the RL 100 haul road) may continue to be undertaken in emergency circumstances or during maintenance of the overland conveyor. In these situations, the Proponent shall advise the Director-General and Council in writing of the need to haul coal by truck.

Local Road Maintenance Contributions

17. The Proponent shall pay reasonable contributions to Council for the ongoing maintenance of Forest Road, Middle Falbrook Road, Stony Creek Road and Bridgman Road, to the satisfaction of the Director-General.

GREENHOUSE GAS

18. The Proponent shall:
    (a) monitor or calculate the greenhouse gas emissions generated by the project;
    (b) investigate ways to reduce greenhouse gas emissions on site; and
    (c) report on these investigations in the AEMR,
    to the satisfaction of the Director-General.

WASTE MINIMISATION

19. The Proponent shall minimise the amount of waste generated by the project to the satisfaction of the Director-General.

HAZARDS MANAGEMENT

Spontaneous Combustion

20. The Proponent shall take the necessary measures to prevent, as far as is practical, spontaneous combustion on the site.

Dangerous Goods

21. The Proponent shall ensure that the storage, handling, and transport of dangerous goods is done in accordance with the relevant *Australian Standards*, particularly *AS1940* and *AS1596*, and the *Dangerous Goods Code*.

BUSHFIRE MANAGEMENT

22. The Proponent shall:
    (a) ensure that the project is suitably equipped to respond to any fires on-site; and
    (b) assist the Rural Fire Service and emergency services as much as possible if there is a fire on-site during the project.

MINE CLOSURE STRATEGY

23. At least 3 years prior to the cessation of mining, the Proponent shall prepare a Mine Closure Strategy for the development, in consultation with Council, DPI and DEC, and to the satisfaction of the Director-General. The plan must:
    (a) define the objectives and criteria for mine closure;
    (b) investigate options for the future use of the site, including the pit top and surface facilities area;
    (c) investigate ways to minimise the adverse socio-economic effects associated with mine closure, including reduction in local employment levels;
    (d) define a strategy for the ongoing management of water inflow to the mine;
    (e) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the development; and
    (f) describe how the performance of these measures would be monitored over time.

SCHEDULE 4
ADDITIONAL PROCEDURES FOR AIR QUALITY AND NOISE MANAGEMENT

NOTIFICATION OF LANDOWNERS

1. If the results of monitoring required in schedule 3 identify that impacts generated by the project are greater than the relevant impact assessment criteria in schedule 3, then the Proponent shall notify the Director-General and the affected landowners and/or existing or future tenants (including tenants of mine owned properties) accordingly, and provide quarterly monitoring results to each of these parties until the results show that the development is complying with the criteria in schedule 3.

INDEPENDENT REVIEW

2. If a landowner (excluding mine owned properties) considers the project to be exceeding the impact assessment criteria in schedule 3, then he/she may ask the Proponent in writing for an independent review of the impacts of the project on his/her land.

   If the Director-General is satisfied that an independent review is warranted, the Proponent shall within 3 months of the Director-General advising that an independent review is warranted:
   (a) consult with the landowner to determine his/her concerns;
   (b) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to conduct monitoring on the land, to determine whether the project is complying with the relevant criteria in schedule 3, and identify the source(s) and scale of any impact on the land, and the project's contribution to this impact;
   (c) give the Director-General and landowner a copy of the independent review.

3. If the independent review determines that the project is complying with the relevant criteria in schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.

4. If the independent review determines that the project is not complying with the criteria in schedule 3, and that the project is primarily responsible for this non-compliance, then the Proponent shall:
   (a) take all practicable measures, in consultation with the landowner, to ensure that the project complies with the relevant criteria; and
   (b) conduct further monitoring to determine whether these measures ensure compliance; or
   (c) secure a written agreement with the landowner to allow exceedances of the relevant criteria in schedule 3,

   to the satisfaction of the Director-General.

   If the additional monitoring referred to above subsequently determines that the project is complying with the relevant criteria in schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.

   If the Proponent is unable to finalise an agreement with the landowner, then the Proponent or landowner may refer the matter to the Director-General for resolution.

   If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process (see Appendix 3).

5. If the independent review determines that the relevant criteria in schedule 3 are being exceeded, but that the project and another project/mine are responsible for this exceedance, then the Proponent shall, together with the relevant project/mine:
   (a) take all practicable measures, in consultation with the landowner, to ensure that the relevant criteria are complied with; and
   (b) conduct further monitoring to determine whether these measures ensure compliance; or
   (c) secure a written agreement with the landowner to allow exceedances of the relevant criteria in schedule 3,

   to the satisfaction of the Director-General.

   If the Proponent is unable to finalise an agreement with the landowner and/or other project/s, then the Proponent or landowner may refer the matter to the Director-General for resolution.

   If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process (see Appendix 3).

6. If the landowner disputes the results of the independent review, either the Proponent or the landowner may refer the matter to the Director-General for resolution.

   If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process.

SCHEDULE 5
ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING

ENVIRONMENTAL MANAGEMENT STRATEGY

1. By the end of June 2007, the Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This strategy must:
   (a) provide the strategic context for environmental management of the project;
   (b) identify the statutory requirements that apply to the project;
   (c) describe in general how the environmental performance of the project would be monitored and managed during the project;
   (d) describe the procedures that would be implemented to:
      - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
      - receive, handle, respond to, and record complaints;
      - resolve any disputes that may arise during the course of the project;
      - respond to any non-compliance;
      - manage cumulative impacts; and
      - respond to emergencies; and
   (e) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the project.

ENVIRONMENTAL MONITORING PROGRAM

2. The Proponent shall prepare (and following approval implement) an Environmental Monitoring Program for the project, to the satisfaction of the Director-General. This program must consolidate the various monitoring requirements in schedule 3 of this approval into a single document, and be submitted to the Director-General within 2 months of the date of approval of the monitoring programs required under schedule 3 of this approval.

INCIDENT REPORTING

3. Within 7 days of detecting an exceedance of the limits/performance criteria in this approval or an incident causing (or threatening to cause) material harm to the environment; the Proponent shall report the exceedance/incident to the Department (and any relevant agency). The report must:
   (a) describe the date, time, and nature of the exceedance/incident;
   (b) identify the cause (or likely cause) of the exceedance/incident;
   (c) describe what action has been taken to date; and
   (d) describe the proposed measures to address the exceedance/incident.

ANNUAL REPORTING

4. The Proponent shall prepare and submit an AEMR to the Director-General and the relevant agencies. This report must:
   (a) identify the standards and performance measures that apply to the project;
   (b) describe the works carried out in the last 12 months;
   (c) describe the works that will be carried out in the next 12 months;
   (d) include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
   (e) include a summary of the monitoring results for the project during the past year;
   (f) include an analysis of these monitoring results against the relevant:
      - impact assessment criteria/limits;
      - monitoring results from previous years; and
      - predictions in the EA/EIS;
   (g) identify any trends in the monitoring results over the life of the project;
   (h) identify any non-compliance during the previous year; and
   (i) describe what actions were, or are being, taken to ensure compliance.

INDEPENDENT ENVIRONMENTAL AUDIT

5. Every 5 years (and consistent with the mine's existing audit schedule), unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:
   (a) be conducted by suitably qualified, experienced, and independent expert/s whose appointment has been endorsed by the Director-General;
   (b) assess the various aspects of the environmental performance of the project, and its effects on the surrounding environment;

(c) assess whether the project is complying with the relevant standards, performance measures, and statutory requirements;
(d) review the adequacy of any strategy/plan/program required under this approval; and, if necessary,
(e) recommend measures or actions to improve the environmental performance of the project, and/or any strategy/plan/program required under this approval.

6. Within 3 months of completing this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, with a response to any recommendations contained in the audit report.

7. Following each Independent Environmental Audit, the Proponent shall review and if necessary revise each of the environmental management and monitoring strategies/plans/programs in schedules 3 and 5, to the satisfaction of the Director-General. The revised strategies/plans/programs shall be submitted to the Director-General within 6 months of completing the audit.

COMMUNITY CONSULTATIVE COMMITTEE

8. The Proponent shall maintain a Community Consultative Committee to oversee the environmental performance of the project. The CCC shall:
(a) be comprised of:
- 2 representatives from the Proponent, including the person responsible for environmental management at the mine;
- at least 1 representative from Council (if available); and
- at least 2 representatives from the local community,

whose appointment has been approved by the Director-General in consultation with the Council;
(b) be chaired by an independent chairperson, whose appointment has been approved by the Director-General;
(c) meet at least twice a year;
(d) review the Proponent's performance with respect to environmental management and community relations;
(e) undertake regular inspections of the mine operations;
(f) review community concerns or complaints about the mine operations, and the Proponent's complaints handling procedures; and
(g) provide advice to:
- the Proponent on improved environmental management and community relations, including the provision of information to the community and the identification of community initiatives to which the Proponent could contribute;
- the Department regarding the conditions of this approval; and
- the general community on the performance of the mine with respect to environmental management and community relations; and

(h) be operated generally in accordance with any guidelines the Department may publish in regard to the operation of CCCs for mining projects.

Notes:
- *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Proponent complies with this approval.*
- *The CCC may combine its function with the CCC for the Camberwell coal mine.*

9. The Proponent shall, at its own expense:
(a) ensure that 2 of its representatives attend CCC meetings;
(b) provide the CCC with regular information on the environmental performance and management of the project;
(c) provide meeting facilities for the CCC;
(d) arrange site inspections for the CCC, if necessary;
(e) take minutes of the CCC meetings;
(f) make these minutes available to the public;
(g) respond to any advice or recommendations the CCC may have in relation to the environmental management or community relations; and
(h) forward a copy of the minutes of each CCC meeting, including a response to any recommendations from the CCC, to the Director-General within a month of the CCC meeting.

ACCESS TO INFORMATION

9. Within 3 months of the approval of any plan/strategy/program required under this approval (or any subsequent revision of these plans/strategies/programs), the completion of the Independent Environmental Audits required under this approval, or the completion of the AEMR, the Proponent shall:

(a) provide a copy of the relevant document/s to the Council, relevant agencies and the CCC; and
(b) put a copy of the relevant document/s on the Proponent's website;
to the satisfaction of the Director-General.

10. During the life of the project, the Proponent shall:
(a) make a summary of monitoring results required under this approval publicly available on its website; and
(b) update these results on a regular basis (at least every 6 months),
to the satisfaction of the Director-General.

APPENDIX 1
SCHEDULE OF LAND

PIT TOP AREA

Lot 1 DP 1083482, Lot 710 DP 642852, Lot 4 DP 606344, Lot 93 DP 752442, Lot 2 DP 1083482, Lot 1 DP 783398, Lot 792 DP 586255, Lot 791 DP 580967, Lot 1 DP 772332.

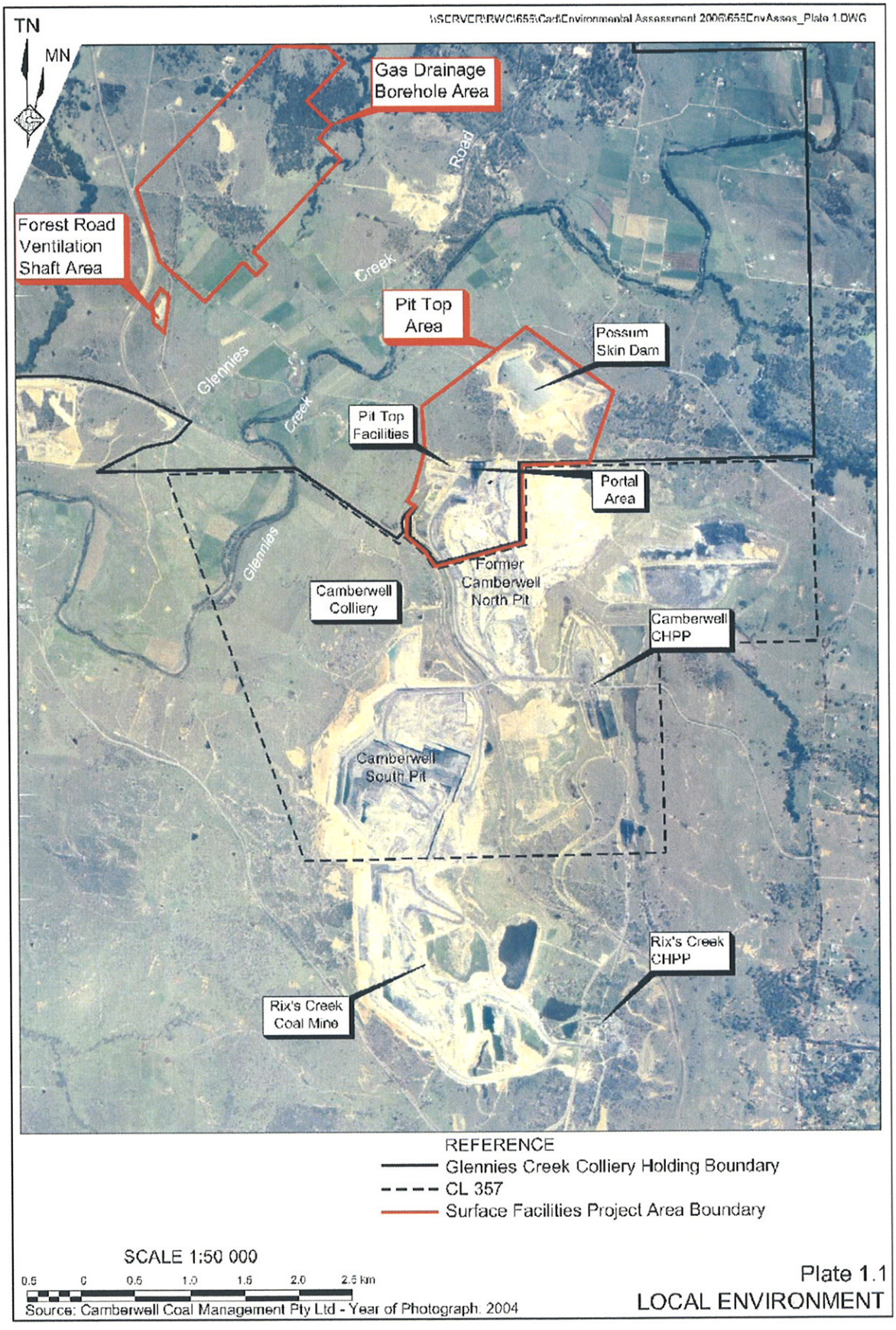
FOREST ROAD VENTILATION SHAFT AREA

Part Lot 1 DP 940619.

GAS DRAINAGE BOREHOLE AREA

Lot 1 DP 781057, Lot 1 DP 770733, Lot 2 DP 780607, Lots 10, 11, 12 & 13 DP 6830, Lot 1 DP 940619 and various Crown Roads

APPENDIX 2
PROJECT LAYOUT PLANS



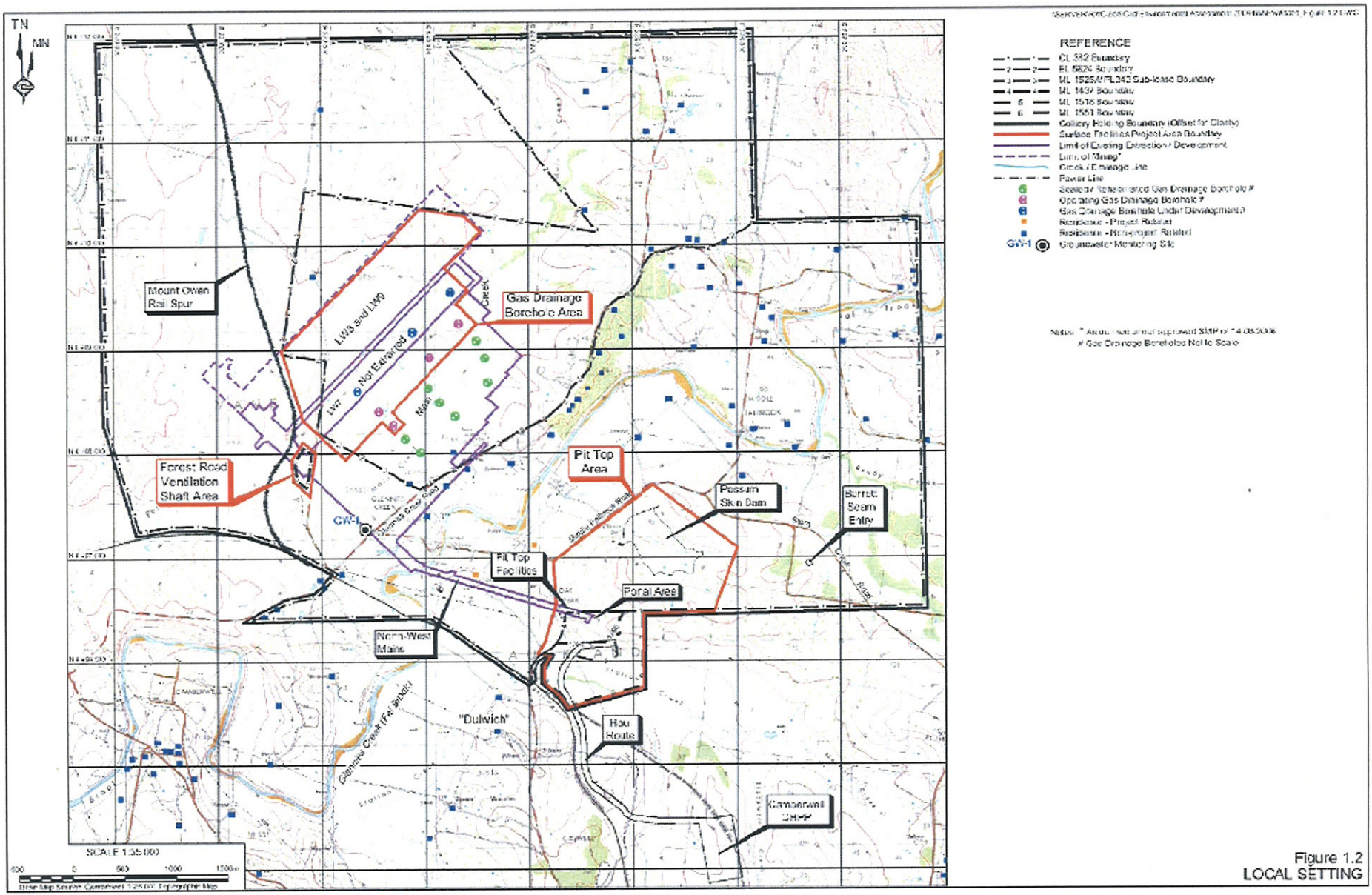
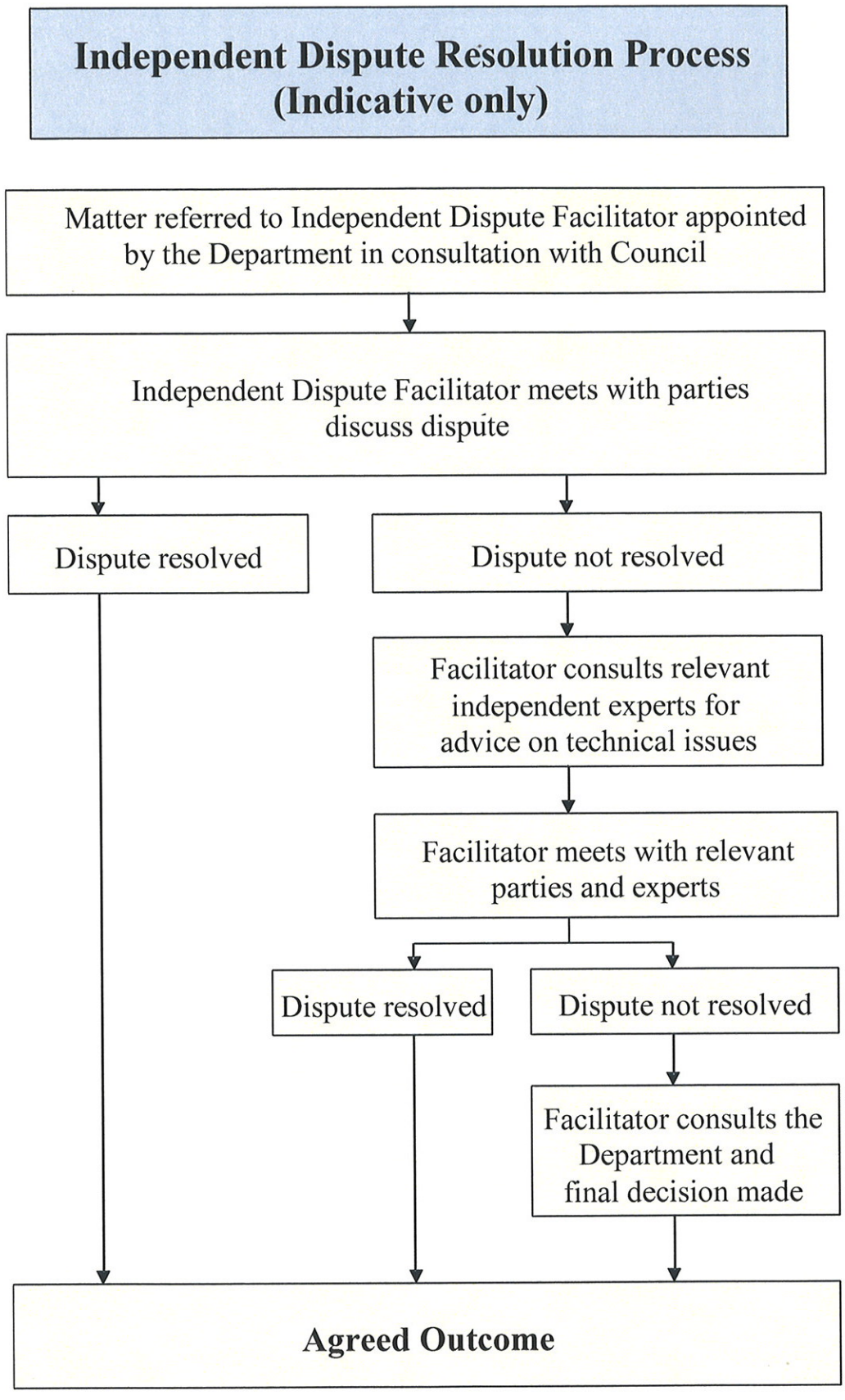


Figure 1.2
LOCAL SETTING

APPENDIX 3
INDEPENDENT DISPUTE RESOLUTION PROCESS



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