MUDGEE STONE COMPANY PTY LTD

ABN: 89 100 974 365

Preliminary Project Outline and Environmental Assessment

for the

Oberon White Granite Quarry Proposed Extension

Prepared by:

R.W. CORKERY & CO. PTY. LIMITED

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Oberon White Granite Quarry Proposed Extension

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1.0 INTRODUCTION

1.1 SCOPE

Mudgee Stone Company Pty Ltd ("the Proponent") proposes to extend its existing quarrying and processing operations within Lot 2, DP 1089826 ("the Project Site"), approximately 6km east-southeast of Oberon. **Figure 1.1** presents the location of the Project Site and the area of the proposed extension.

This *Preliminary Project Overview and Environmental Assessment* (the "preliminary assessment") has been prepared to provide the Department of Planning and other relevant government agencies with a preliminary description of the proposed quarry extension ("the Project"), identify the key environmental issues and undertake a preliminary assessment of those issues. The information provided in the preliminary assessment will ultimately be incorporated, into a comprehensive *Environmental Assessment*, to be prepared in accordance with the provisions of Part 3A, Section 75 of the *Environmental Planning and Assessment Act 1979*.

1.2 THE PROPONENT AND PROJECT SITE

1.2.1 The Proponent

The Proponent for the Project is Mudgee Stone Company Pty Ltd (ABN 89 100 974 365), a wholly owned subsidiary of Mudgee Dolomite and Lime Pty Ltd (the "parent Company"). Along with WJ Murdoch and Co. Pty Ltd, Mudgee Dolomite and Lime is a family owned business based in Mudgee, NSW.

The parent Company and its subsidiaries produce a wide range of products including agricultural lime, dolomite, road base and aggregates, talc and rhyolite aggregate. Drilling, blasting, crushing plant and operator hire services are also provided to other quarry and mine operators in the region. The parent Company and subsidiaries currently employ a total of 20 people.

The Proponent has been operating the Oberon White Granite Quarry since February 2005.

1.2.2 The Project Site

The Project Site encompasses all of Lot 2, DP 1089826. The Project Site covers an area of approximately 40ha and includes:

- the proposed 6ha extraction area;
- a 20m wide area for construction of a safety bund and channel around the northern, eastern and southern boundary of the proposed extraction area; and
- an office amenities and stockpiling area (see **Figure 1.2**).

The approved transport route incorporates Ferndale Road running from the northern boundary of the Project Site to Hampton Road and an approximately 600m section of existing right of carriageway located within the Project Site. Internal access roads would also be located from the carriageway to the office, amenities and stockpiling area and continuing from the southern point of the existing right of carriageway to the north and east of the proposed extraction area (see **Figure 1.2**). The proposed internal access roads would provide the long-term access to the extraction area.

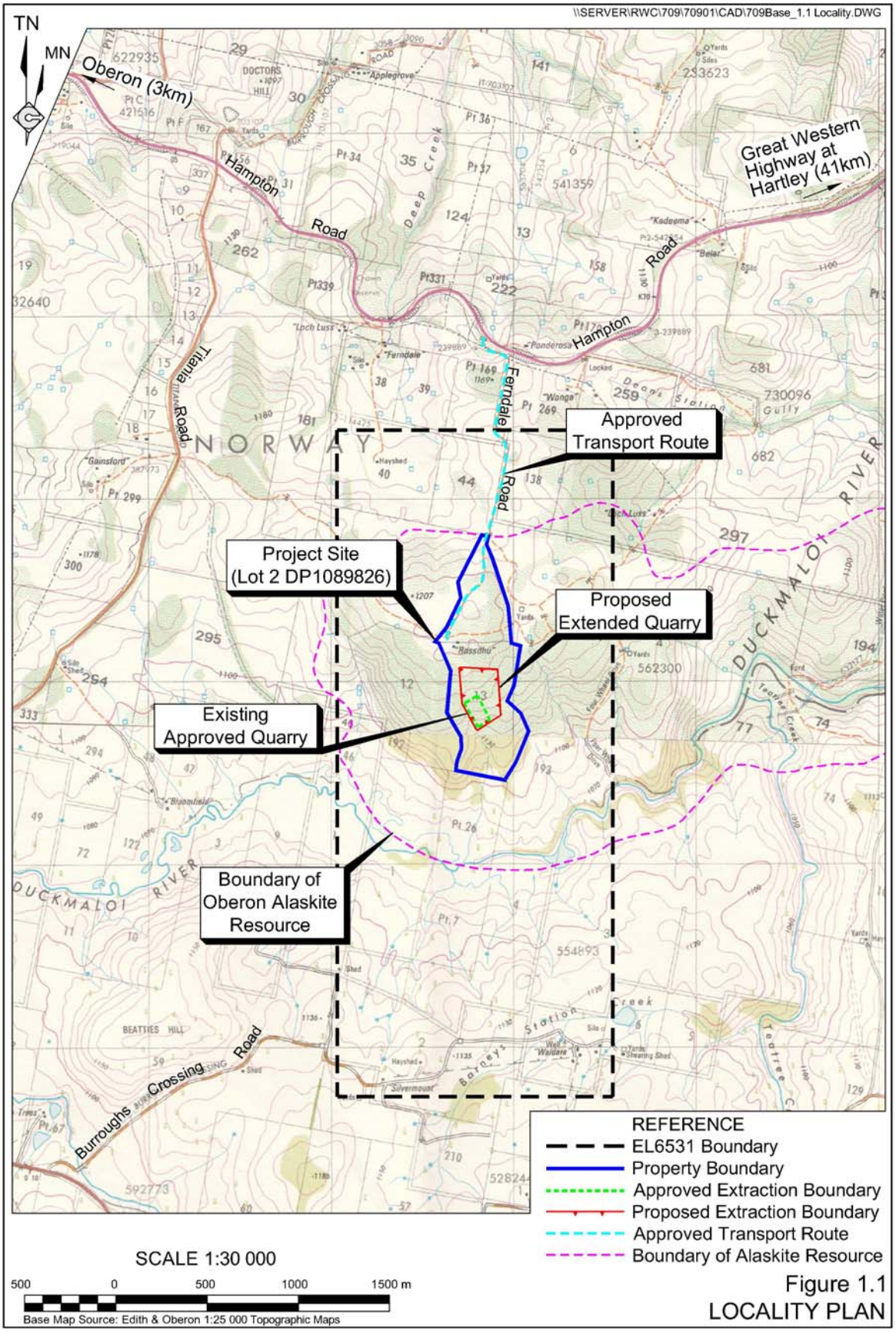


Figure 1.1
LOCALITY PLAN

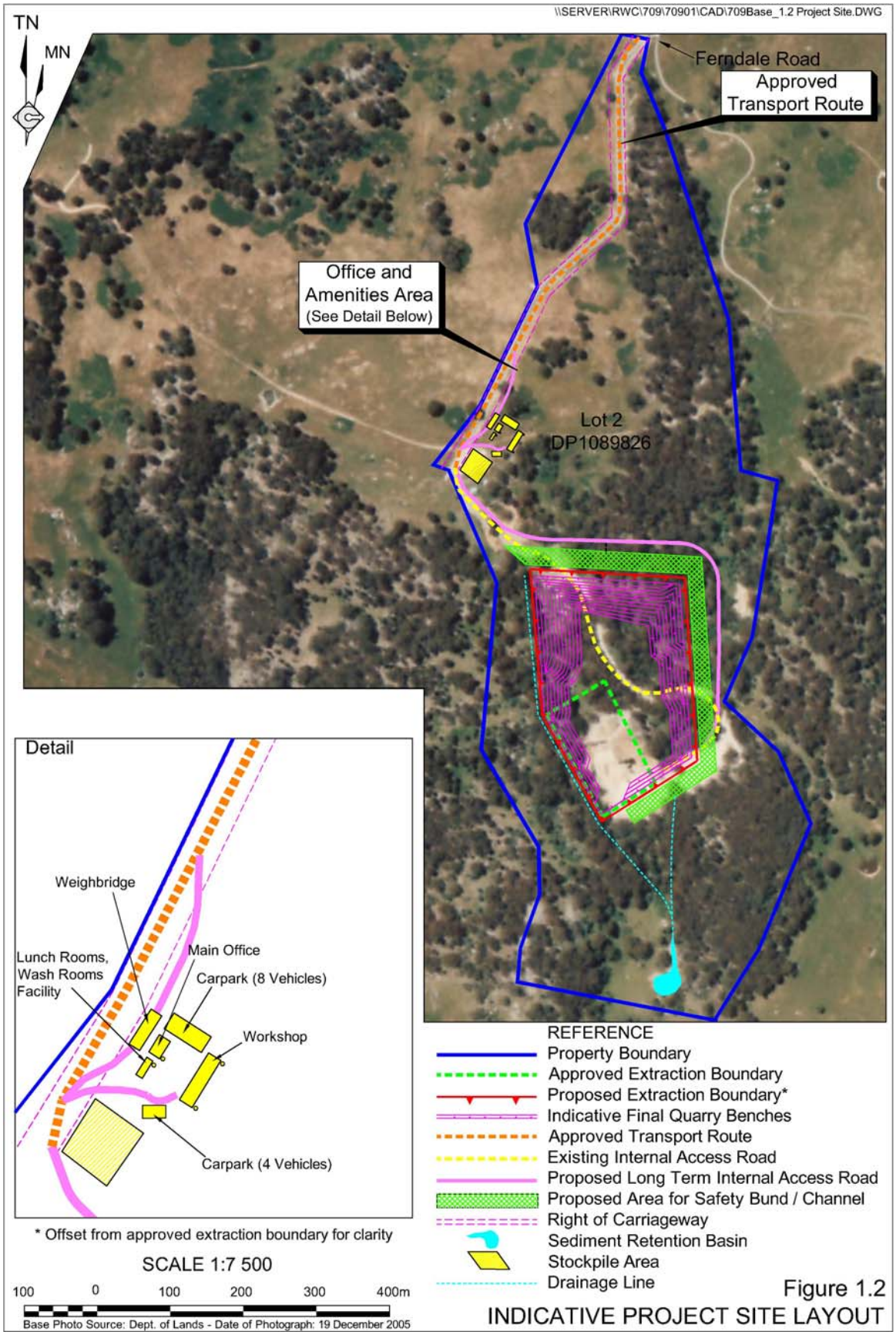


Figure 1.2
INDICATIVE PROJECT SITE LAYOUT

1.3 PROJECT BACKGROUND

In 2002, the Proponent was commissioned by National Ceramic Industries to locate further high grade raw materials to complement existing sources to support a proposed tile plant and general aggregate demand within the Oberon area and the Sydney Basin. Following investigations into the Oberon Alaskite[1] resource, the Proponent undertook further exploration and resource definition.

Exploration of the Alaskite resource indicated that the resource was highly suitable and, in 2003, the Proponent purchased Lot 2 DP 1089826 for the purposes of developing the Oberon White Granite Quarry. The development application for the existing Oberon White Granite Quarry was submitted in July 2003 and initially refused by Oberon Shire Council despite a recommendation for approval by Council Officers. Following an appeal to the NSW Land and Environment Court, Development Consent DA 126/03 was granted on 21 December 2004.

Since the establishment of the quarrying operation, the Proponent has produced a range of products and subsequently secured a range of customers who have acknowledged through ongoing purchases the quality of the product produced. In particular, the State significant tile plant at Rutherford, operated by National Ceramic Industries, has been using the crushed Alaskite as a raw material in tile manufacture. This company has plans to increase production levels from June 2007 through the installation of a second kiln with an additional two kilns also planned at a later date, thereby increasing the need for raw materials, including the Alaskite materials.

The Proponent has also been increasing the production of its road base material and concrete aggregates, anti-slip surfacing material and decorative gravels. These markets collectively have resulted in the Proponent seeking to extend both the area of approved extraction and the extraction rate to meet the forecast market requirements for quarry products.

1.4 EXISTING APPROVALS AND OPERATIONS

1.4.1 Existing Approvals

The Oberon White Granite Quarry operates under DA 126/03, issued by the NSW Land and Environment Court on 21 December 2004. No other licences or approvals are required for the operation of the quarry given its current approved area of disturbance (1.4ha) and maximum production level (25 000 tonnes).

The Proponent also holds Exploration Licence (EL)6531 which encompasses an area of approximately 550ha centred on Lot 2, DP 1089826 (see **Figure 1.1**).

[1] Alaskite is a geological term for a white granite typically comprising a ratio of the following minerals.

- Albite (32%)
- Quartz (28%)
- Sodic microline (26%)
- Muscovite (12%)
- Other minerals (1.5%)

1.4.2 Existing Operations

Figure 1.2 presents the existing extraction area, internal access road and section of the transport route approved under DA 126/03.

Extraction and Processing Operations

Extraction is approved within an area of approximately 1.4ha (including the area of disturbance associated with the internal access road) to a elevation of 1 140m AHD (resulting in maximum face heights of approximately 30m). The majority of the approved extraction area has been cleared of vegetation and topsoil and overburden stripped. Overburden and topsoil have been used to create an acoustic bund on the southern perimeter of the extraction area or stockpiled for future rehabilitation.

Granite is currently extracted using a combination of an excavator and drill and blast methods. The existing approval provides for up to two blasts per year, each removing approximately 10 000t to 20 000t of material. The extraction area has been developed into the shape of a narrow amphitheatre open to the south with bench heights of approximately 10m to 15m and a face angle of up to 80° from the horizontal.

Extracted material is loaded directly into a mobile crushing plant with a primary circuit consisting of a jaw crusher, screen and cone crusher producing aggregate products, generally with a top-size of approximately 10mm. Crushing is undertaken on a campaign basis approximately two to three times per year, each campaign being of 14 to 30 days duration. At the completion of each crushing campaign, up to 10 000 tonnes of crushed granite is stockpiled for subsequent despatch from site.

The approved maximum extraction rate is 25 000tpa.

Transportation

Processed materials are loaded into product trucks using a front-end loader. The current approval allows for up to three, 28t truck loads to and from the site (6 movements) per day. The transportation of all materials from the quarry occurs via an approved transport route (**Figure 1.1**) comprising an approximately 1.1km section of Ferndale Road to Hampton Road with vehicles either turning right to Sydney or Mudgee, via Lithgow or left to Bathurst, via Oberon.

Hours of Operation and Project Life

The existing approved operating hours are as follows.

Monday to Friday	7:00am to 5:00pm, excluding public holidays
Saturday & Sunday	8:00am to 5:00pm, excluding public holidays

The current development consent provides for a maximum of 20 years of operation, ie until 21 December 2024.

1.5 MANAGEMENT OF INVESTIGATIONS

The preliminary assessment has been prepared by Mr Scott Hollamby, B.EnvSc (Hons), Environmental Scientist with R.W. Corkery & Co Pty Limited and Mr Rob Corkery, M.Appl.Sc., B.Sc (Hons), Principal of R.W. Corkery & Co Pty. Limited. Details of the Project have been provided by Mr Scott Murdoch, Director of Mudgee Stone Company Pty Ltd.

Assistance with the preliminary flora and fauna investigations has been provided by Mr Bruce Hansen of Central West Environmental Services.

Once confirmation of the issues to be assessed are available through the provision of Director-General's requirements (DGR's) for the *Environmental Assessment*, a complete flora and fauna assessment and additional specialist environmental studies will be commissioned.

2.0 ENVIRONMENTAL SETTING

2.1 SURROUNDING LAND OWNERSHIP AND LAND USE

The existing land ownership surrounding the Project Site is shown on **Figure 2.1**.

Being a rural area, most of the surrounding landholdings are substantial in size ranging from 2.5ha to 181ha. The land immediately to the east of the Project Site is owned by TA & JM Breed. Three smaller landholdings adjoin the Project Site to the south and west. These properties are owned by HR & SP Webb, CJ &VT O'Niel and Lawndock Pty Ltd.

The Project Site is located within a rural area, with the surrounding land use predominantly agricultural, though dense native bushland is located within and to the east and west of the Project Site (**Figure 1.2**).

2.2 SURROUNDING RESIDENCES

Properties surrounding the Project Site are shown on **Figure 2.1** and landowners listed in **Table 2.1**. A total of 10 residences have been identified within 2km of the proposed extraction area.

Table 2.1
Surrounding Land Ownership and Residences

Page 1 of 2

Ref No.	Landowner	Residence*	Approx. Distance from Residence to		Direction from Project Site
			Approved Extraction Area	Proposed Extraction Area	
1	Mudgee Stone Company Pty Ltd	No Residence			
2	H.R. & S.P. Webb	No Residence			
3	C.J. & V.T. O'Neill	R	1710	1560	NW
4	W.A. & B.P. Armstrong	I / J	1920	1750	NNW
5	T.A. & J.M. Breed	No Residence			
6	Lawndock Pty Limited	O	1780	1780	SSE
7	M.G. & J.A. Armstrong	A	600	600	SW
8	Z.H. Yang & W.Q. Liang	U	620	620	WSW
9	M.G. & L.A. Timbrell	No Residence			
10	A.A. & M. Apoleski	B	890	890	W
11	Sutfol Pty Limited	No Residence#			
12	Bloomfield Pastoral Co. Pty Limited	C	1720	1690	SW

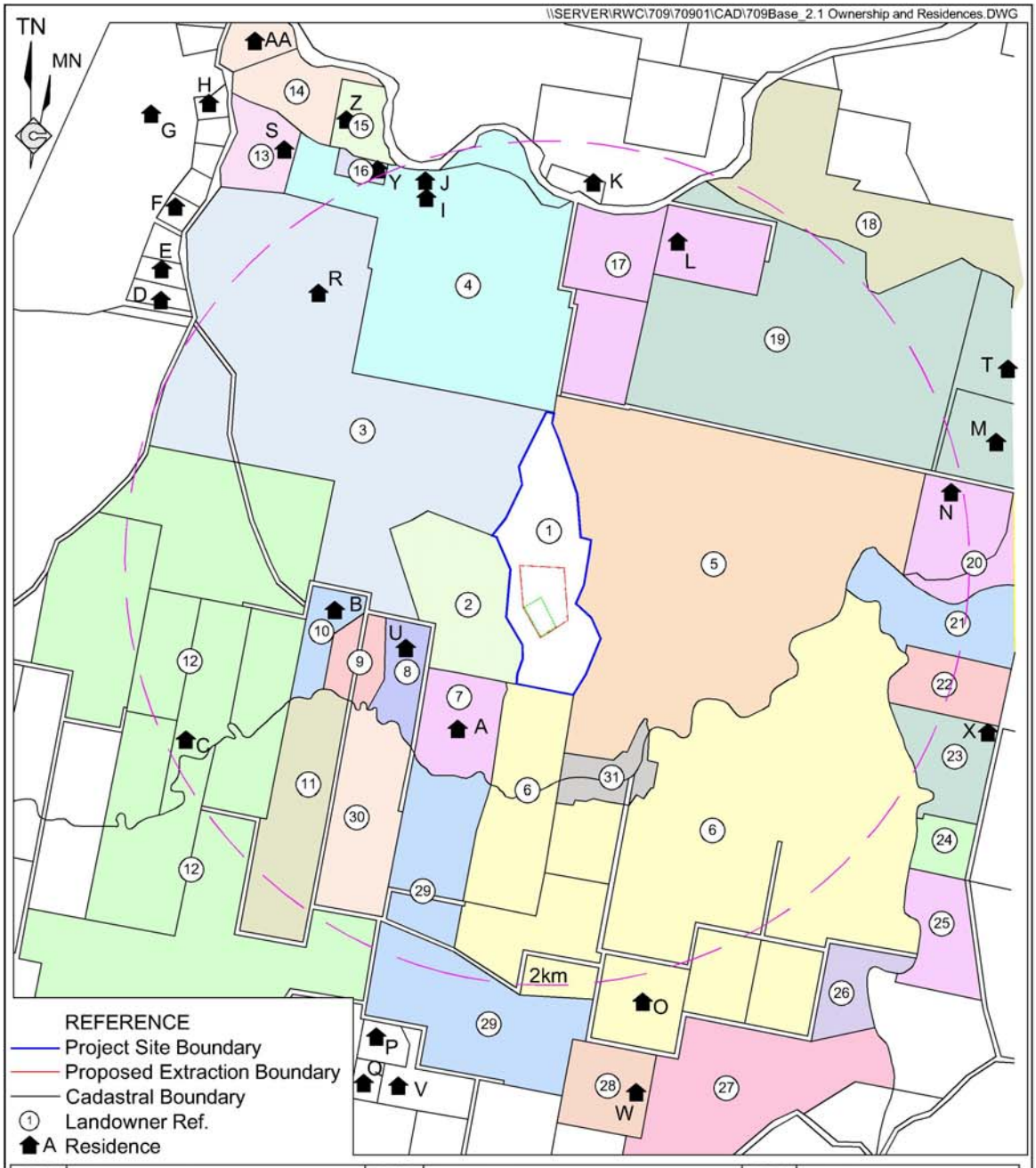
* Approximate locations only. Residence locations to be confirmed within final Environmental Assessment.
#To be confirmed.

Table 2.1 (Cont'd)
Surrounding Land Ownership and Residences

Ref No.	Landowner	Residence*	Approx. Distance from Residence to		Direction from Project Site
			Approved Extraction Area	Proposed Extraction Area	
13	M. & K. Fenton	S	2430	2280	NW
14	R.P. Palfreyman & J.A. Ward	AA	2960	2780	NW
15	E.E. Mawhood	ZZ	2440	2270	NW
16	D.E. Whitley	Y	2180	2000	NW
17	Australian Feldspar Pty Limited	L	1790	1620	NNE
18	M.J. Mcleland	No Residence			
19	D.J. &C.J. McFawn	T/M	2380	2230	NE
20	P. & S. Koleda	N	1960	1850	E
21	B.R. Harman	No Residence			
22	P.S. & B.M. Young	No Residence			
23	C.C. Jackson	x	2010	2060	ESE
24	J.A. & P.J. Hudak	No Residence			
25	M.J. Brady	No Residence			
26	E.A. & H.L. Kalotay	No Residence			
27	D.J. & K.W. Sotter	No Residence			
28	G.G. Armstrong	W	2200	2200	SSE
29	I.W. Armstrong	No Residence			
30	Reference Not Held	No Residence[#]			
31	Minister for Public Works	No Residence			

* Approximate locations only. Residence locations to be confirmed within final Environmental Assessment.
[#]To be confirmed

A dwelling potential has also been approved (Development Consent DA 110/03) on Lot 12 DP 603429 owned by H.R. and S.P. Webb (see **Table 2.1** Reference No. 2). It is noted that a building envelope has not been specified within this Lot and any dwelling would be subject to the approval of Council. It is also noted that Condition 3 of DA 110/03 requires that "*the location and design of a dwelling on the land shall take into account the presence or potential presence, and the impacts or potential impacts, of any proposed or existing quarry operations on the adjoining lands*".



REF.	LANDOWNER	REF.	LANDOWNER	REF.	LANDOWNER
1	Mudgee Stone Company Pty Ltd	12	Bloomfield Pastoral Co. Pty Limited	22	P.S. & B.M. Young
2	H.R. & S.P. Webb	13	M.& K. Fenton	23	C.C. Jackson
3	C.J. & V.T. O'neill	14	R.P. Palfreyman & J.A. Ward	24	J.A. & P.J. Hudak
4	W.A. & B.P. Armstrong	15	E.E. Mawhood	25	M.J. Brady
5	T.A. & J.M. Breed	16	D.E. Whitley	26	E.A. & H.L. Kalotay
6	Lawndock Pty Limited	17	Australian Feldspar Pty Limited	27	D.J. & K.W. Sotter
7	M.G. & J.A. Armstrong	18	M.J. Mcleland	28	G.G. Armstrong
8	Z.H. Yang & W.Q. Liang	19	D.J. & C.J. McFawn	29	I.W. Armstrong
9	M.G. & L.A. Timbrell	20	P.& S. Koleda	30	Reference Not Held
10	A.A. & M. Apoleski	21	B.R. Harman	31	Minister for Public Works
11	Sutfol Pty Limited				

Note: All landownership and residence locations will be confirmed within the final Environmental Assessment

SCALE 1:30 000

500 0 500 1000 1500 m

Base Map Source: Edith & Oberon 1:25 000 Topographic Maps

Figure 2.1
SURROUNDING LAND OWNERSHIP AND RESIDENCES

2.3 TOPOGRAPHY

The Project Site is located within an elevated region which is part of the greater Oberon Plateau on the western slopes of the Great Dividing Range. Elevations across the Project Site range from approximately 1 110m AHD in the south to 1 200m AHD in the north with elevations within the proposed extraction area ranging between approximately 1 135m AHD to 1 190m AHD (see **Figure 2.2**). The Project Site slopes to the south towards the Duckmaloi River, located approximately 50m topographically lower than the lowest part of the Project Site. Natural slopes within the Project Site range between 1:17.5 (V:H) (3°) within the northern parts of the Project Site to 1:1.7 (V:H) (30°) within the southern parts of the Project Site (south of the existing extraction area).

The existing quarry forms an amphitheatre into the side of the plateau providing topographic shielding to surrounding land located to the north, east and west.

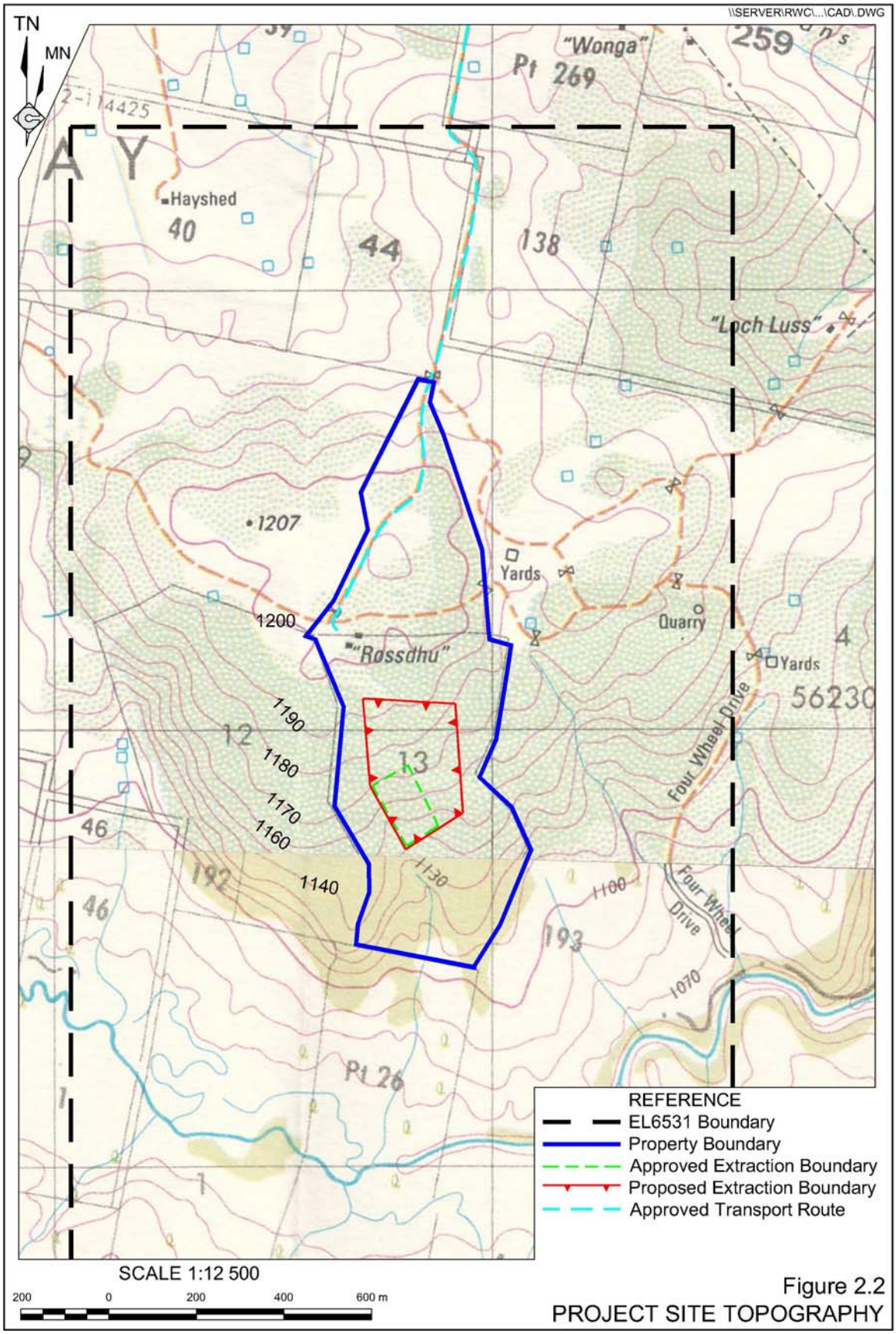


Figure 2.2
PROJECT SITE TOPOGRAPHY

3.0 APPROVALS REQUIRED AND PLANNING ISSUES

3.1 APPROVALS REQUIRED

Based upon the current Project design and understanding of environmental issues, the proposed extension would require the following approvals to proceed.

1. Project Approval from the Minister for Planning – as the Project is expected to be classified as a "Major Project" under *State Environmental Planning Policy (Major Projects) 2005* as the total resource exceeds 5 million tonnes and the annual extraction rate would be more than 200 000 tonnes per annum (tpa).

   Subject to the receipt of a satisfactory Project Approval, covering the entire quarry development, the Proponent would relinquish DA 126/03.

2. An Environment Protection Licence from the Department of Environment and Climate Change (Environment Protection Authority) (DECC(EPA)).

The existing transport route via Ferndale Road to Hampton Road and its intersection with Hampton Road is considered adequate, however, in the event any minor improvements are required, a Section 138 approval under the *Roads Act 1993* would also be sought.

3.2 PLANNING ISSUES

3.2.1 State Planning Issues

In addition to State Environmental Planning Policy (Major Projects) 2005, the following SEPPs have been considered as potentially applying to the Project or over the Project Site.

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33)

Hazardous and offensive industries, and potentially hazardous and offensive industries, relate to industries that, without the implementation of appropriate impact minimisation measures, would, or potentially would, pose a significant risk in relation to the locality, to human health, life or property, or to the biophysical environment. A risk screening of the Project will be performed in accordance with the document entitled *Applying SEPP 33 2nd edition,* (DUAP, 1997), however, as the only hazardous substances and dangerous goods to be used or stored on the Project Site would be restricted to well managed diesel fuel and other hydrocarbon products, the Project is unlikely to classify as hazardous or potentially hazardous industry.

State Environmental Planning Policy No. 44 – Koala Habitat Protection (SEPP 44)

Oberon Local Government Area is identified in Schedule 1 of this policy as an area that could provide habitat for Koalas. As required by the SEPP, an investigation will be carried out to determine if the Project Site represents core or potential Koala habitat.

State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)

SEPP 55 is not considered applicable given no area of the land within the Project Site is known to be contaminated.

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

This SEPP was gazetted on February 17 2007, in recognition of the importance to New South Wales of mining, petroleum production and extractive industries.

The SEPP specifies matters requiring consideration in the assessment of any mining, petroleum production and extractive industry development. A summary of the matters that the consent authority needs to consider when assessing a new or modified proposal is as follows.

- **Clause 12**: Compatibility of proposed mine, petroleum production or extractive industry with other land uses.

  Consideration must be given to:

  - the existing uses and approved uses of land in the vicinity of the development;
  - the potential impact on the preferred land uses (as considered by the consent authority) in the vicinity of the development; and
  - any ways in which the development may be incompatible with any of those existing, approved or preferred land uses.

  The respective public benefits of the development and the existing, approved or preferred land uses must be evaluated and compared, along with any measures proposed by the applicant to avoid or minimise the incompatibility.

- **Clause 13**: Compatibility of proposed development with mining, petroleum production or extractive industry.

  Consideration must be given to whether the development is likely to have a significant impact on current or future mining, petroleum production or extractive industry and ways in which the development may be incompatible. Measures taken by the applicant to avoid or minimise any incompatibility are to be considered. The public benefits of the development and any existing or approved mining, petroleum production or extractive industry must be evaluated and compared.

- **Clause 14**: Natural resource management and environmental management.

  Consideration must be given to ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure:

  - impacts on significant water resources, including surface and groundwater resources, are avoided or minimised;
  - impacts on threatened species and biodiversity, are avoided or minimised; and
  - greenhouse gas emissions are minimised and an assessment of the greenhouse gas emissions (including downstream emissions) of the development is provided.

- **Clause 15**: Resource recovery.

  This clause requires the efficiency of resource recovery, including the reuse or recycling of material and minimisation of the creation of waste, be considered**.**

- **Clause 16**: Transportation.

  Consideration must be given to alternative means of product transportation other than by road and that a code of conduct for the transport of materials on public roads is prepared.

- **Clause 17**: Rehabilitation.

  The rehabilitation of the land affected by the development must be considered including:

  - the preparation of a plan that identifies the proposed end use and landform of the land once rehabilitated;
  - the appropriate management of waste generated by the development;
  - remediation of any soil contaminated as a result of the development; and
  - the steps to be taken to ensure that the state of the land does not jeopardize public safety, while being rehabilitated or at the completion of rehabilitation.

An assessment of how each of these considerations is addressed will be provided within the *Environmental Assessment*.

3.2.2 Regional Planning Issues

No regional planning issues have been identified as applicable to the Project.

3.2.3 Local Planning Issues

Oberon Local Environmental Plan 1998
The Project Site is located within land zoned Rural 1A under the *Oberon Local Environmental Plan 1998*. Extractive industry is permissible with development consent with areas zoned Rural 1A.

Development Control Plan 2001
Within land zoned Rural 1A, extractive industries are afforded protection from the encroachment of residential development. The Development Control Plan provides for a 500m buffer between new residential development and extractive industry. It is noteworthy that this buffer does not extend to the approved transport routes for extractive industries.

Section 117(2) Direction
A direction under S117(2) (**Appendix 2**) has previously been issued by the, then, Minister for Planning in December 1994 covering the Oberon Local Government Area. The relevant plans issued with the direction identify that the Project Site is located within an area of significant Alaskite resource (see boundary displayed on **Figure 1.1**).

The direction aims to make Council aware of the mineral resources within the Local Government Area and to prevent the unnecessary loss of important resources.

4.0 OVERVIEW OF THE PROJECT

4.1 OBJECTIVES

The Proponent's primary objectives for the extension to the Oberon White Granite Quarry are to:

- increase the level of production from the quarry from 25 000tpa to 250 000tpa to meet the supply demands of existing and potential markets;
- to secure an adequate resource volume for the long term operation of the quarry at increased production levels; and
- progressively rehabilitate the Project Site to provide for long-term nature conservation and potentially agricultural activities following completion of operations.

These objectives would be achieved by:

- planning and extracting the resource in a manner that maximises the quality of materials removed and ensures efficient resource utilisation;
- undertaking all activities in an environmentally responsible manner that enables compliance with all relevant requirements;
- planning and undertaking all activities in consultation with surrounding residents and the wider community; and
- monitoring and reviewing the environmental performance of the Proponent's activities.

4.2 PROJECT OVERVIEW

4.2.1 Project Site Geology and Resources

The resource consists of Alaskite, a granite derivative, developed within the Rossdhu Granite, a small granite batholith of Carboniferous age (approximately 350 million years old). Alaskites are granites practically devoid of dark minerals, comprising principally of quartz, alkali feldspars and mica. The Rossdhu granite outcrops across a surface area of approximately 10km^2 as shown on the Oberon 1:100,000 geological map. Given the granitic nature of the rock, the Alaskite extends for considerable depth below the ground surface (ie at least 1km).

Within the proposed extraction area, the Alaskite resource would be extracted to an elevation of approximately 1 130m AHD or between 10m and 60m below the natural surface resulting in the recovery of approximately 7 million tonnes of Alaskite.

4.2.2 Project Site Layout

Figure 1.2 displays the following principal components of the Project.

- A 6ha proposed extraction area.
- A 20m wide area for the construction of a safety bund and channel surrounding the northern, eastern and southern boundaries of the extraction area.

- An internal access road providing access to the southeastern corner of the extraction area.
- An office, weighbridge, amenities and stockpiling area approximately 160m north of the extraction area.

4.2.3 Site Establishment

The primary activities during site establishment would be the:

- establishment of the site office, weighbridge and amenities area;
- survey of proposed extraction area boundary;
- erection of fencing and signage along the right of carriageway and the western boundary of the extraction area; and
- the construction of the internal access road.

The construction of the safety bund and channel would be undertaken progressively throughout the life of the quarry with temporary safety fences used in the interim.

It is estimated that these activities would be completed within approximately 2 months. The existing quarrying activities would continue to occur during the site establishment phase.

4.2.4 Extraction Operations

The proposed limit of extraction is presented on **Figure 1.2**. The proposed extraction area encompasses the existing approved area and extends approximately 150m to 200m to the north and east. Extraction would continue from within the existing extraction area, progressing to the north and east. Land preparation activities, involving using a bulldozer to remove vegetation and an excavator to strip the topsoil and overburden, would be limited to areas required for extraction-related activities during the subsequent 6 to 12 months.

Vegetation would be used for rehabilitation and excess timber sold. Where possible, the soil and overburden would be stripped separately, though the soil is naturally thin and skeletal, occasionally containing large boulders. Soil would be either directly transferred for rehabilitation or stockpiled for future rehabilitation.

The weathered and partially weathered granite (generally the upper 6m of material) would then be extracted, generally using a combination of an excavator and drill and blast methods. The underlying unweathered, hard rock resource would then be extracted using drill and blast methods. On average, each production blast would remove approximately 20 000t of material, resulting in up to approximately 12 production blasts per year. A number of smaller development blasts would also occur to restructure areas for rehabilitation or prepare areas for production blasts. Small charge popping blasts for the fragmenting oversize blasted rock may also occur if required, however, the oversize rock would generally be reduced in size by a hydraulic hammer on the floor of the extraction area.

The following quarry design criteria would generally be adopted.

- Operational Face Height: 15m
- Final Face Height: 10m
- Operational Bench Width: 20m
- Final Bench Width: 5m
- Face Angle: ..... max 90°

The proposed maximum 90° face angle would be subject to further geotechnical investigation throughout the life of the Project to ensure a safe and stable landform.

Extraction would commence at an annual rate of approximately 100 000tpa ramping up to 250 000tpa over a period of approximately 5 years.

4.2.5 Processing Operations, Products and Stockpiles

Blasted material would generally be in the order of a maximum of approximately 300mm in diameter and, where possible, would be directly loaded to the crusher using a 30t excavator.

Processing would be undertaken by a mobile or static crusher and screening unit. The unit would consist of a primary jaw crusher and secondary cone crusher and multiple screens. A range of aggregate products would be produced generally ranging in size from <2mm to 100mm gabion. Products would be stockpiled separately within the extraction area or within the stockpile area adjacent the office and amenities and managed using a front-end loader and 30t dump truck.

Generally up to 40 000t of product would be stockpiled at any one time to allow for periods of poor weather.

4.2.6 Earthmoving and Mobile Equipment

Table 4.1 presents an indicative list of the typical types and numbers of items of mobile equipment which would be used throughout the life of the quarry. Any decommissioned equipment would be replaced with equipment of similar capacity. The number of items of earthmoving and mobile equipment would vary depending upon the rate of extraction and the prevailing market requirements.

Table 4.1
Indicative Earthmoving and Mobile Equipment

Page 1 of 2

Equipment	Number	Use	Duration/Frequency
D9 Bulldozer	1	• Clearing of vegetation.	• On a contract basis (less than 15% of operational hours).
WA 500 or Cat 980 Front-end loader	1 - 2	• Stockpile management and loading raw material and product.	• Continuous during operational hours.
Hitachi 30t Excavator (with rock hammer attachment)	1	• Removal of soil/overburden. • Removal of weathered granite. • Loading of material to crusher. • Reduction of oversize.	• Operational hours.

Table 4.1 (Cont'd)
Indicative Earthmoving and Mobile Equipment

Equipment	Number	Use	Duration/Frequency
Cat 769 30t Dump Truck	1	• Transportation of products to stockpiles.	• Operational hours.
Cat 12G Grader	1	• Maintenance of access road. • Ancillary activities.	• On a contract basis (approximately 20% of operational hours).
10 000L Water truck	1	• Dust suppression.	• Operational hours – as required.
5 000 Mini tanker	1	• Refuelling of mobile and fixed plant.	• Operational hours – as required.
Ingersoll Rand 660 Hydraulic Drill Rig	1	• Drilling of granite for blasting.	• Operational hours Mon to Fri.

4.2.7 Product Transportation

All products would be loaded into road registrable trucks within the extraction area by the front-end loader. Trucks would access the extraction area using the proposed long term internal access road. All trucks would exit the Project Site onto Ferndale Road with approximately 20% of product trucks then travelling westwards along Hampton Road towards Oberon and 80% eastwards along Hampton Road towards Sydney. All product trucks would be weighed using the on-site weighbridge prior to exiting the site with any overweight vehicles directed to unload a portion of their load prior to being permitted to leave the Project Site.

Product trucks entering and leaving the Project Site would typically range from 2 axle rigid trucks, truck and dog trailers and 6 axle semi-trailers. The average pay load capacity would be approximately 28t. At full production, there would be an average of 25 truck loads despatched daily (50 movements).

Generally, peak truck movements would occur between 6:00am and 8:00am and 2:00pm and 4:00pm Monday to Friday. It is estimated that up to 12 truck loads (24 movements) or 6 loads per hour would occur between 6:00am and 8:00am and 6 truck loads (12 movements) or 3 loads per hour between 2:00pm and 4:00pm. During the remaining transportation hours, there would be an average of 1 truck load (2 movements) per hour.

4.2.8 Waste Management

No processing wastes would be produced from the operation.

All paper and general wastes originating from the office, amenities, and weighbridge, together with routine maintenance consumables from the servicing of the processing equipment and mobile equipment, would be disposed of in appropriate containers, placed adjacent to each building. The waste containers would be collected by a licenced waste disposal contractor on an as-needs basis. All wastes capable of being recycled eg. paper/cardboard, oil, and metals would be separately stored and removed by a licenced contractor.

4.2.9 Infrastructure and Services

Buildings

The Proponent proposes to install the following infrastructure in a designated area approximately 160m north of the proposed extraction area (**Figure 1.2**).

- Workshop (30m x 10m x 8m)
- Demountable Office (11m x 7m)
- Demountable amenities / facilities building (11m x 4m)
- Wash down bay.
- Water storage tanks.
- Fuel and oil store (bunded and rooved area adjacent to the workshop).

A defined parking area for light vehicles would be constructed adjacent to the office and a second adjacent the workshop. A weighbridge would also be installed adjacent the office, amenities and stockpiling area connecting with the approved transport route via a short road loop.

The existing storage sheds to the southeast of the office, amenities and stockpiling area would be retained for future use.

Internal Access Road

The proposed long term access road would be an unsealed graded road constructed to an all weather standard with a width of approximately 6m. Minor cut and fill works would be required to ensure a consistent and appropriate grade is achieved. Runoff from the northern part of the Project Site would be directed beneath the access road using a piped culvert or similar and directed to the natural drainage line running adjacent the western boundary of the extraction area. Additionally, spoon drains would be constructed along the access road, where necessary to reduce the concentration of runoff water from the road.

Power and Diesel Consumption

Power to the site would initially be supplied using a diesel generator, however, the Proponent is investigating potential upgrades to the mains power to supply the site, particularly once production levels exceed 150 000tpa. Without the use of mains power, it is estimated that up to 100 000L of diesel would be required per year at full production to run the crushing plant, mobile equipment and generators.

Communications

Telephone cables for telephone, facsimile and internet services would be required for the site office. A total of four lines would be required. On-site communications would also utilise mobile phone and 2-way radio.

Water

Potable water would be supplied from the rainwater storage tanks collecting water from the office and amenities buildings. When required, potable water would be trucked to site.

Sewage

A Council-approved biocycle treatment system would be installed adjacent to the amenities / facilities buildings for use by all site personnel and truck drivers. The system would provide water for a landscaped area around the office and amenities / facilities buildings.

4.2.10 Hours of Operation and Project Life

Table 4.2 records the proposed hours of operation for all activities. It is noted that non-audible maintenance activities may need to be undertaken outside the nominated hours, 7 days per week.

Table 4.2
Proposed Hours of Operation

Activity	Monday to Friday*	Saturday*	Sunday*
Drilling	6:30am to 6:00pm	-	-
Blasting	9:00am to 5:00pm	-	-
Processing	6:00am to 6:00pm	6:00am to 6:00pm	-
Transportation	6:00am to 6:00pm	6:00am to 6:00pm#	8:00am to 6:00pm#

#The majority (estimated 85%) of truck movements would occur during Monday to Friday. Generally only small volumes of material would be transported on Sundays, primarily for contingency purposes.
*Excludes public holidays

Taking into account the proposed rate of extraction of 250 000tpa and anticipated 7Mt resource, the overall operational life of the quarry would be approximately 30 years.

4.2.11 Employment

It is expected that up to 10 tradesmen, labourers and engineers would be employed during the site establishment period. Once fully operational and at full production, the operation would employ between six and ten full time persons on site (see **Table 4.3**). A range of other contractors would also be engaged from time to time.

Table 4.3
Indicative Direct Employment

Position/Function	No. Employed
Production Manager	1
Loader Operator	1
Drill Rig Operator	1 to 2
Processing Plant Operator	1 to 4
Office/Administration	1
Mechanic/Fitter/Maintenance	1
Total	**6 to 10**

Additionally, the operation would provide employment for approximately 15 to 20 contract truck drivers for transportation of quarry products.

4.2.12 Safety and Security

The Proponent would erect a standard rural fence along the eastern side of the right of carriageway (complimenting the existing fence on the western boundary) and lockable gates to the office, amenities and stockpiling area and on the southern boundary of the carriageway to prevent unauthorised access into the site. Appropriate signage would also be placed at the entrance to, and along, the right of carriageway providing information on authorised entry and clearly directing quarry related vehicles entering the site and any private vehicles utilising the right of carriageway.

The northern, eastern and southern perimeter of the extraction area would be surrounded by a 1.5m high safety bund and 1m deep channel to provide a substantial physical barrier to prevent inadvertent / accidental vehicular access into the quarry. The toe of the safety bund would be located approximately 5m from the edge of the quarry. Temporary safety fencing would be used in the interim whilst the bund is constructed. The safety bund would be constructed around the perimeter of the pit at the earliest practical time throughout the life of the quarry. The bund would be constructed using existing oversize material located in the southern part of the approved extraction area and overburden. The western perimeter of the extraction area, being adjacent a natural gully would be fenced with a substantial rural style fence. Appropriate warning signs such as “Deep Excavation” would also be installed around the perimeter of the extraction area.

4.2.13 Rehabilitation and Final Land Use

An important part of the Project would be the progressive rehabilitation of terminal quarry faces and benches. Terminal faces would essentially be formed through the reduction of operational faces to a maximum 10m face height and 5m bench width. Overburden and topsoil would be spread across the bench to allow revegetation. Wherever possible, topsoil and seeded tree branches would be directly transferred to finalised areas. Where required, additional seeding with an appropriate mix would be undertaken to establish trees and shrubs on the final benches. The quarry floor would also have overburden and soil spread and would be vegetated in a manner similar to the quarry benches.

Other than the safety bund and channel, the Proponent intends to remove all buildings and structures, not intended for the final land use, from the Project Site at the end of the quarry life and any concrete footings would be ripped up and removed for recycling. All internal access roads would be ripped and revegetated unless required for the final land use.

It is intended that the final landform would be a large open amphitheatre with vegetated stepped sides. The final land use would be a combination of long-term nature conservation and agriculture. It is the Proponent’s intention, at this stage, to return to an essentially free draining landform with a small water storage in the southwest corner of the proposed extraction area.

4.2.14 Project Timetable

Table 4.4 provides an indicative Project timetable currently being followed by the Proponent, from submission of the Preliminary Assessment in June 2007, through to the commencement of activities under Project Approval in about September 2008.

Table 4.4
Indicative Timetable for Project Progression

ACTIVITY	INDICATIVE TIMING
Planning Focus Meeting	23 August 2007
Submission of a Preliminary Assessment	7 September 2007
Receive Director-General's Requirements.	Early October2007
Submit Environmental Assessment (for adequacy assessment)	November 2007
Submit Final Environmental Assessment (for exhibition)	Early January 007
Application / Environmental Assessment exhibition period	January February 2007
Compilation of submissions and preparation of response	February / March 2007/08
Make application to for Environment Protection Licence	March 2008
Review of submissions and lodgement of revised Statement of Commitments and Preferred Project Report (if necessary)	April 2008
Compilation of Director-General's Environmental Assessment Report	April / May 2008
Issue Planning Approval	May 2008
Prepare required management plans and monitoring programs	May / June 2008
Commence extended quarrying activities	July 2008

5.0 ISSUE IDENTIFICATION AND ANALYSIS

5.1 INTRODUCTION

The environmental issues requiring coverage and assessment within the *Environmental Assessment* will be identified and prioritised as follows.

- A comprehensive list of all relevant environmental issues will be assembled through consultation with the local community and local and State government agencies, completion of preliminary environmental studies and a review of relevant legislation, planning documents and environmental guidelines.
- A review of the Project design and local environment will be undertaken to identify risk sources and potential environmental impacts for each environmental issue identified.
- An analysis of risk for each potential environmental impact will be completed with a risk rating assigned to each impact based on likelihood and consequence of occurrence.
- Through a review of the allocated risk ratings and the frequency with which each issue was identified, the relative priority of each issue will be determined. This priority will be used to provide an order and breadth of coverage of assessment within the *Environmental Assessment*.

A preliminary analysis of risk has been completed to assist readers understand the key environmental issues, however, the details of the full risk analysis would be included in the *Environmental Assessment* for the Project and the relative priority of each issue reviewed.

5.2 ISSUE IDENTIFICATION

Identification of environmental issues relevant to the development and operation of the Project is not complete, however, based upon previous consultation undertaken as part of the previous development application, the operational experience gained to date at the Oberon White Granite Quarry, the results of preliminary environmental studies in the fields of ecology and Aboriginal heritage, and the issues highlighted in the planning documents, the following potentially relevant environmental issues have been identified.

1 Ecology
2 Noise
3 Traffic
4 Surface Water
5 Groundwater
6 Aboriginal Heritage
7 Air Quality
8 Soils and Land Capability
9 Visibility
10. Impacts on socio-economic setting

5.3 PRELIMINARY ANALYSIS OF ENVIRONMENTAL RISK

A preliminary analysis of environmental risk has been undertaken and is presented in **Appendix 1**. In summary, environmental risk is the chance of an unplanned event occurring which may impact upon the environment. Risk is measured in terms of consequence (severity) and likelihood (probability) of the event happening. For each environmental issue identified in Section 5.2, the potential environmental impacts have been allocated a risk rating based on the potential consequences and likelihood of occurrence.

The risk associated with each environmental impact was assessed without the inclusion of any operational controls or safeguards in place and based on the qualitative assessment of consequence and likelihood, a risk ranking of either; low, medium, high or extreme was assigned to each potential impact.

5.4 ENVIRONMENTAL ISSUE PRIORITISATION

Based on the issues identified and the preliminary risk ratings allocated to the potential environmental impacts of these, the following order of priorities have been determined for each environmental issue.

1. Surface Water
2. Visual Amenity
3. Flora and Fauna (Ecology)
4. Noise
5. Soil and Land Capability
6. Air Quality
7. Traffic and Transport
8. Social Impact
9. Groundwater
10. Aboriginal Heritage

These priorities will be reviewed within the *Environmental Assessment* and will provide a basis for the level of assessment completed for each environmental issue.

6.0 ENVIRONMENTAL FEATURES AND PRELIMINARY ASSESSMENT

6.1 SOIL RESOURCES AND LAND CAPABILITY

6.1.1 Project Site Soils

Soils within the densely vegetated parts of the Project Site have been identified as sandy loams with a moderate organic content. The soil profile is poorly developed and, within the proposed extraction area, are usually thin (often less than 0.2m thick) or skeletal. The soils are also characteristically well drained with low to moderate fertility. Their texture and the moderate slopes indicate that the soil profile could be sensitive to erosion when exposed unless appropriate surface water and erosion management practices are implemented.

6.1.2 Land Capability and Agricultural Suitability

In view of the soil types and slopes, the land capability of the extraction area is determined as Class VI. Class VI land is land that is: "*not capable of being cultivated but suitable for grazing; and application of soil conservation practices including limitation of stock, broadcasting of seed and fertilizer, prevention of fire and destruction of vermin".* The cleared northern part of the site is used for grazing and, aside from past selective timber removal, there is no evidence the site has been extensively cleared.

The land capability classification most applicable to the plateau areas upslope of the extraction area is determined as Class IV. Class IV is land that is: "*not capable of being regularly cultivated but suitable for grazing with occasional cultivation; and requiring soil conservation practices such as pasture improvement, application of fertilizer and minimal cultivation for the establishment or re-establishment of permanent pasture"*.

6.1.3 Soil and land Capability Management Issues and Preliminary Assessment

As the soils within the Project Site have been identified as potentially being susceptible to erosion and of a land capability not capable of being cultivated, appropriate erosion and surface water management measures would need to be implemented. The primary issues relate to the minimisation of soil erosion and off site sedimentation and the management of soil for progressive and future rehabilitation.

Currently, soil is stripped and stockpiled away from drainage lines for use in future rehabilitation. During the extended operations, appropriate measures including the minimisation of topsoil stockpile heights, use of silt-stop fencing down slope of stockpiles and seeding stockpiles to be retained for greater than 3 months with a native or non-persistent grass cover would be used to reduce the potential for erosion of the soil stockpiles and preserve the structure of the stockpiled soil.

Regular inspections of the effectiveness of the soil-related controls implemented would be undertaken and additional measures implemented as necessary. Further details relating to erosion and surface water controls are provided in Section 6.2 and will be detailed within the *Environmental Assessment*.

6.2 SURFACE WATER

6.2.1 The Existing Environment

6.2.1.1 Drainage

The Project Site lies within the eastern most portion of the Macquarie River Catchment in central eastern NSW, a basin that covers an area of approximately 73 300km^2 and encompasses a number of major centres including Bourke, Dubbo, Orange, Bathurst and Oberon. The Macquarie and Bogan Rivers are the primary rivers within the catchment of which the Bell, Talbragar, Cudgegong, Turon, Fish and Campbells Rivers are major tributaries.

At a local scale, the Project Site is located within the catchment of the Duckmaloi River which forms part of the Fish River Catchment. The Duckmaloi River is located approximately 800m south of the Project Site and generally follows an easterly course.

The topography within the Project Site slopes to the south, with resulting drainage also generally to the south. A south flowing drainage line that forms an ephemeral tributary to the Duckmaloi River is evident immediately south of the existing Approved Extraction area.

6.2.1.2 Surface Water Sources

Other than Duckmaloi River, a number of small farm dams on surrounding properties and a small secondary sediment retention basin located near the southern boundary of the Project Site, no major surface water sources are located near the Project Site.

6.2.2 Key Surface Water Management Issues and Preliminary Assessment

Due to the erosion potential of the soils within the Project Site, appropriate erosion and surface management controls would be required to prevent discharge of sediment laden water from the site.

Currently, runoff from undisturbed areas of the Project Site is diverted around the extraction area, whilst all runoff from the active extraction area is contained within a sedimentation pond formed within the southern part of the extraction area and a secondary sediment retention basin to the south of the extraction area. A range of erosion and surface water controls would be implemented, including, but not limited to the following.

- The continued diversion of “clean” water away from disturbed areas and the capture of “dirty water”.
- Use of silt-stop fences down slope from stockpile areas or temporary areas of disturbance.
- Use of appropriate roadside drainage along the access road.
- Minimisation of areas of disturbance through progressive clearing for extraction and progressive rehabilitation.
- Installation of scour protection and other erosion control measures as required.

It is proposed that the existing sedimentation pond within the southern part of the extraction area would be redesigned so as to provide the primary means for capture and treatment of “dirty water” runoff within the extraction area. The design of all surface water and erosion control structures would be undertaken using a simple water balance and in accordance with the Soils and Construction handbook (Landcom 2004).
It is assessed that surface water quality could be appropriately controlled so as not to result in any adverse off site impacts.

As the final landform would be designed to be predominantly free draining with a small water storage area within the southern part of the final extraction area, and considering the small catchment area of the extraction area, it is not expected that there would be any significant management issues relating to reduction in water flows to Duckmaloi River.

6.3 GROUNDWATER

6.3.1 Existing Hydrogeological Status

Limited groundwater was intersected in several of the 29 exploration bores drilled in May 2003. These holes were drilled to a maximum of 20m. It is understood from Waratah Scientific Services (2003) that the water intersected was representative of shallow and unconnected perched aquifers rather than a significant groundwater resource. Limited data is also available from eleven registered bores within a 3km radius from the closest point of the proposed extraction boundary (see **Table 6.1**).

The closest bore, GW801330 is located approximately 570m to the southwest of the closest point of the proposed extraction area. The bore is located on the fringe of the Alaskite resource at an elevation of approximately 1 065m AHD. The elevation of the recorded standing water level is approximately 1 058m AHD. The bore log confirms that the water bearing zone is located within granite. The next closest registered bores to the south (GW056745) and to the northwest (GW801754) are located approximately 1.9km and 2.3km respectively from the proposed extraction area. An inspection of the bore logs and geological map confirms that these bores are located in geological units separate from the Oberon Alaskite, namely basalt and shale.

Table 6.1
Registered Groundwater Bores

Page 1 of 2

Bore*	Usage	Elevation (m AHD)	Distance to closest point of proposed extraction area (m)	Final Bore Depth (m, below surface)	Water-bearing Zones (mbgl)
801326	Domestic Stock	1150	2480	40	18 – 18.3 27.1 – 27.4 35.5 - 36
070870	NA	1170	2520	NA	NA
801754	Domestic Stock	1140	2360	50	45.2 – 45.5
801330	Domestic Stock	1070	620	36m	30 – 30.3
800135	Domestic Stock	1155	1930	58	36.3 – 36.4 51 – 51.3
056745	Domestic Stock	1140	1910	38.1	18.2 – 18.5 24.3 – 24.6 32.9 – 33.2
801331	Domestic Stock	1130	2360	42	34 - 36
801718	Domestic Stock	1090	3440	45	18.3 – 18.6
033430	Domestic	1100	3320	27.4	18.3 – 25.6
801530	Domestic Stock	1150	2870	88	NA
050377	Domestic Stock	1150	3170	31.4	15.2 – 15.8 25.3 – 25.6
801443	Domestic Stock	1150	3090	75	72 – 72.1
801662	Domestic Stock	1140	3120	54	51.1 – 51.5

Source: DNR Groundwater Database. NA – Not Available mgbl = metres below ground level *See **Figure 6.1**

Table 6.1 (Cont'd)
Registered Groundwater Bores

Bore*	Usage	Elevation (m AHD)	Distance to closest point of proposed extraction area (m)	Final Bore Depth (m, below surface)	Water-bearing Zones (mbgl)
802327	Domestic Stock	1130	3170	42	25 - 26
801585	Domestic Stock	1150	2940	43	40.1 – 40.4
801173	Domestic Stock	1150	2840	42	33 – 33.5 39 – 39.5
070273	NA	1160	2970	46	31 – 33.2 41 - 43
802007	Domestic Stock	1110	3620	60	47.1 – 47.4
802718	Domestic	1140	3950	104	12 – 12.5 31 – 31.5 83 – 84 90.5 - 91

Source: DNR Groundwater Database. NA – Not Available mgbl = metres below ground level *See **Figure 6.1**

6.3.2 Key Groundwater Management Issues and Preliminary Assessment

As significant groundwater is not expected to be intersected during the extraction operation, it is considered that no specific groundwater management measures are required. However, best practice surface water controls would be implemented which would limit potential contamination of groundwater from hydrocarbons, chemicals or other hazardous materials. Any minor seepage into the extraction area would be collected within the sedimentation pond and would be managed with the surface water.

Based on the available information, it is considered unlikely that, in the event that groundwater was intersected, there would be any adverse effects upon surrounding groundwater users. As the water level within the closest registered bore located within the Oberon Alaskite is approximately 1058m AHD and the proposed extraction depths would not go below 1 130m AHD, it is highly unlikely that the groundwater levels or availability within this bore would be affected by the Project. As the remaining bores are located in sperate geological units, it is considered that these would also be unaffected. Further assessment of potential impacts upon groundwater will be detailed within the *Environmental Assessment*.

6.4 ECOLOGY

6.4.1 Introduction

A preliminary ecological assessment of the Project Site and its surrounds has been undertaken by Central West Environmental Services. The assessment involved a review of previous studies completed, including the assessment completed for the approved quarry and additional field work undertaken between 6 and 8 March 2007. The assessment included a summary of the existing environment and identification of any potential constraints to the Project. A concise summary is provided within the following subsection. A complete ecological assessment will be undertaken as part of the Specialist Studies to be undertaken for the Environmental Assessment.

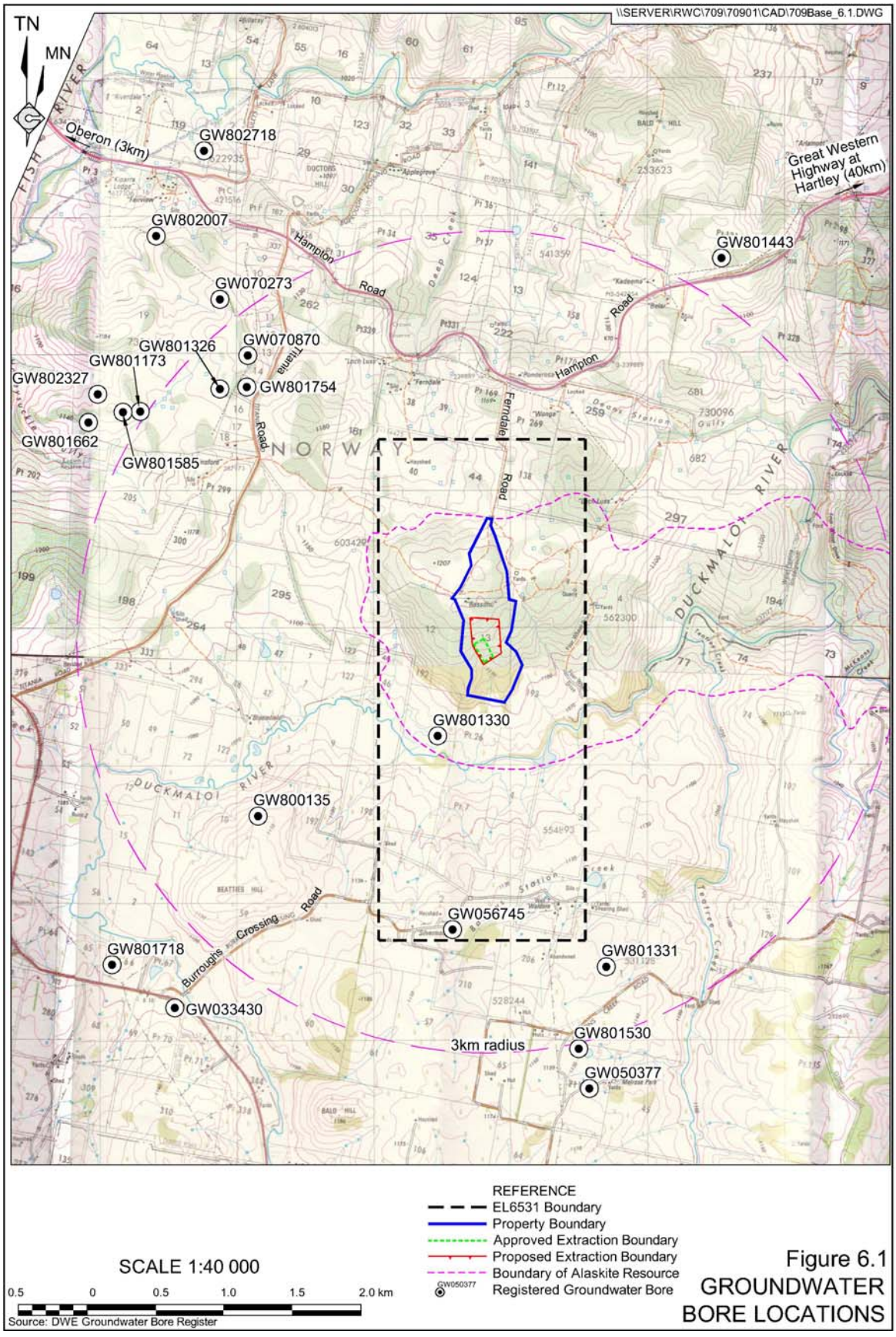


Figure 6.1
GROUNDWATER BORE LOCATIONS

6.4.2 Existing Environment

6.4.2.1 Regional and Local Setting

The Project Site lies within the South Eastern Highlands Bioregion which extends along the western slopes of the Great Dividing Range from the outskirts of Melbourne to approximately 10km southwest of Rylstone. The Jenolan State Forest, approximately 5km east of the Project Site is the closest significant patch of native vegetation to the Project Site. The Project Site however is located within a 85ha patch of remnant native vegetation which extends to the east and west (**Figure 1.2**).

6.4.2.2 Project Site Flora

The vegetation within the Project Site lies at the centre of an 85ha patch of remnant native vegetation. The vegetation communities within the Project Site consist of open grassland adjacent the existing right of carriageway, transitioning into a multi-aged modified open woodland (originally open forest eM3Z, as classified by AUSLIG 1990).

Vegetation within the open grassland consists predominantly consists of grasses and clovers, flatweed and areas of bracken fern. A number of isolated White Sally (*E. pauciflora)* and Mountain Gum (*E. dalrympleana)* are also located throughout the grassland area.

Within the northern part of the Project Site, the open woodland has been partially cleared and consists predominantly of White Sally (*E. pauciflora)* and Mountain Gum (*E. dalrympleana)* with an understorey of native herbs and grasses including Bears Ear (*Cymbonotus lawsonianus*), Native Violet (*Viola betonicifolia*), Twining Glycine (*Glycine clandestina*), Prickly Starwort (*Stellaria pungens*), Sheeps Burr (*Acaena agnipila*) and Kidney Weed (*Dichondra repens*). A number of introduced species are also present, including the small sedge *Juncus articulatus*, Capeweed (*Arctotheca calendula*) and a number of pasture improvement species (*Paspalum dilatatum, Terrifolium subterranean*). There is a considerable amount of regeneration, particularly eucalypt saplings, throughout the clearing, together with Bracken Fern (*Pteridium esculentum*).

Within the southern part of the Project Site, the dominant Eucalypt species include Narrow-leaved Peppermint (*E. radiata*) and Ribbon Gum (*E. viminalis*) with Blackwood (*Acacia melanoxylon*) also being prominent. The area within the proposed extraction area is characterised by a grassy understorey that includes very few small shrubs with Silver Wattle (*Acacia dealbata*) being the only significant midstorey shrub present. Native grasses such as Snow Grass (*Poa sieberiana*) together with species such as Native Violet (*V. betonicifolia*), Prickly Starwort (*S. pungens*), Bears Ear (*C. lawsonianus*), Spiny Mat-rush (*Lomandra longifolia*) and Woodruff (A*sperula conferta*) are widespread within this area.

In total 47 native and 20 introduced flora species were identified by Central West Environmental Services within the Project Site. No threatened species were recorded during the previous assessment for the approved quarry or during the current survey.

6.4.2.3 Project Site Fauna

A wide range of terrestrial fauna species were recorded within the Project Site during both the previous and current survey. In total, 15 native mammals, including the Brushtail and Ringtail Possum, Sugar Glider, Eastern Grey Kangaroo, Swamp Wallabies, Wombat, Brown Antechinus and seven bat species, one monotreme, the Echidna, six reptile species, including four skink and two snake species and a total of 30 bird species were identified.

None of the species observed in either survey are classed as Threatened.

In addition to the observed native species, three pest mammal species were sighted, namely, the Feral Cat, Rabbit and European Hare.

6.4.3 Conservation Significance

No Endangered Ecological Communities (EEC), Critical Habitat, Endangered Populations or Threatened flora or fauna species were observed during surveys of the Project Site. A search of NSW National Parks and Wildlife Service ROTAP database indicated that one Threatened flora species, *Calotis glandulosa*, is located within a 20km x 20km search area around the Project Site. The closest recorded sighting is located 6km from the Project Site within the Jenolan State Forest, though the Project Site does contain potential habitat for this species.

No Threatened species were identified within the Project Site, twenty-three Threatened fauna species are known to occur within the Oberon Local Government Area. The majority of the records are for locations within the nearby National Parks and State Forests. The Project Site does, however, contain potential habitat for a number of the listed species, in particular, the Diamond Firetail (*Stagonopleura guttata*), Grey-crowned Babbler (*Pomatostomus temporalis*) Hooded Robin (*Melanodryas cucullata*), Squirrel Glider and three bats.

One migratory fauna species, the Wedge-tailed Eagle (*Aquila audax)*, listed under the Commonwealth *Environment Protection and Biodiversity Act 1999,* was identified during the survey.

The Project Site contains “Potential Koala Habitat” as defined by SEPP 44.

6.4.4 Key Ecological Management Issues and Preliminary Assessment

Considering the existing ecological setting and the proposed design of the Project, a number of key issues for detailed consideration during the preparation of the *Environmental Assessment* have been established. These are presented below, along with a preliminary assessment of the possible impacts.

Native Vegetation Clearing

Clearing of native vegetation is a key threatening process as defined by the *Threatened Species Conservation Act 1995* (TSC). A total of an additional 8ha of native vegetation would be cleared as part of the proposed extension of the quarry area. This does not include any EEC’s or the removal of any Threatened species.

Vegetation within the Project Site, has been identified as Potential Koala Habitat. One tree species identified within the Project Site, Ribbon Gum, is a known Koala food tree and exists in sufficient numbers to qualify the vegetation as Koala Habitat. However, the preliminary site investigations indicate that the Project Site does not contain “Core Koala Habitat” as no Koalas were observed and no scats or scratchings were found within the Project Site. Furthermore, there were no responses to Koala call play back.

As no Threatened species, EEC's or critical habitat has been identified, and considering the comparatively small additional area of native vegetation that would be removed, a biodiversity offset has not been deemed necessary. However, it is noted that the quarry would be revegetated with appropriate species, including known Koala food trees.

Impacts on Threatened Species

The preliminary assessment undertaken by Central West Environmental Services did not identify any Threatened species within the Project Site. However, a number of Threatened species have been identified within the region with potential habitat within the Project Site.

It is noted that areas of habitat exist for these Threatened species in the area surrounding the Project Site, and thus the Project would not be likely to place them at risk of extinction within the vicinity of the Project Site. Therefore, as no Threatened species were identified within the Project Site itself and the Project Site would be rehabilitated to native vegetation, the preliminary flora and fauna assessment indicating that the Project would not put any Threatened species at immediate risk of extinction and the level of impact on Threatened species is considered to be acceptable and manageable.

The Proponent would adhere to the recommendations of Central West Environmental Services in managing flora and fauna on the Project Site. As the complete assessment of flora and fauna for the extended operation has yet to be completed, these recommendations are not available for inclusion in this preliminary assessment.

The implementation of recommendations provided by Central West Environmental Services notwithstanding, the Proponent has endeavoured through the design of the proposed extension to minimise impacts on Threatened species which may potential inhabit the Project Site though the following.

- Locating the office, amenities and stockpiling area within the previously cleared, open grassland area.
- Locating the extended extraction area to the north, avoiding the more ecologically sensitive drainage gully to the south of the existing extraction area.
- Planning for rehabilitation using native vegetation to create habitat for Threatened species (eg. Koala food trees).

A more comprehensive assessment of the likely impacts of the Project will be undertaken and included as part of the *Environmental Assessment*. This will include a full assessment of the likely impact(s) of the Project in accordance with the DECC's Threatened Species Assessment guideline.

6.5 NOISE AND VIBRATION

6.5.1 Existing Noise Climate

The existing noise environment would be described as typically rural with the principal sources of noise in the vicinity of the Project Site including traffic on Titania and Hampton Roads, wind in the trees and birds. The existing extraction, processing and transportation operations within the Project Site also contribute to the ambient noise levels.

Noise measurements were undertaken in September 2003 at Residence A approximately 650m southwest of the existing extraction operations. The Rating Background Level of noise

(L_{A90}) varied between 26.4dB(A) during the day (7:00pm to 6:00pm) up to 30.9dB(A) in the evening (6:00pm to 10:00pm) (Atkins Acoustics, 2003).

Operational noise monitoring and blast monitoring have indicated that noise emissions for the existing quarry operations are well below the approved levels and accepted criteria.

6.5.2 Noise and Vibration Management Issues and Preliminary Assessment

Project Site operations for the proposed quarry extension would not differ significantly from those of the existing quarry operations, although the proposed increase in production would result in a small increase in the number of mobile equipment used and frequency of use of the processing plant and the number of blasts. The extension would also involve the use of a rock hammer and/or small charge popping to reduce oversize material. The number of traffic movements will also increase proportionally with the increase in production. This is likely to increase the level of noise generated by the Oberon White Granite Quarry operation.

The proposed extension of the existing extraction area is towards the north, away from the closest surrounding residences. The extraction area would be shielded and would essentially work into a natural gully to the north, east and west. Existing noise controls including use of silencing equipment including mufflers and low frequency modulated reversing alarms, timing of 'noisy' activities preferentially during less noise sensitive times of the day and the existing noise bund located on the southern boundary of the extraction area would assist in reducing noise impacts at surrounding residences particularly those to the south of the Project Site. Furthermore, based on the experience gained to date, blasts would be designed to limit the air blast overpressure and ground vibration experienced at surrounding residences.

As such it is considered noise and vibration could be effectively managed through the incorporation of controls similar to those used by the existing operation.

Noise and blast monitoring would be undertaken by the Proponent at the closest potentially affected residences. Noise monitoring would also be undertaken should a legitimate noise-related complaint be received. In the event of non-compliant noise levels being measured at a residence surrounding the Project Site, the Proponent would initiate a noise management protocol which would include procedures for notification, corrective actions, reassessment and potentially land acquisition.

A complete noise and vibration assessment will be completed for the Project, to be undertaken by an appropriately qualified acoustic consultant in accordance with the *NSW Industrial Noise Policy* and *Environmental Criteria for Road Traffic Noise* (Department of Environment and Conservation).

6.6 TRAFFIC

6.6.1 Existing Conditions

6.6.1.1 Road Network

Access to the Project Site is provided via Ferndale Road which intersects with Hampton Road (MR 558) approximately 1.1km north of the Project Site. Ferndale Road is a continuation of the approved transport route and was upgraded by the Proponent in 2004 to a 6m wide bitumen sealed road with 1m wide gravel shoulders and guide posts. Hampton Road, connecting Oberon (via Duckmaloi Road) and Hartley (via Jenolan Caves Road), is a generally 6m wide sealed road with centre line and shoulder markings and gravel shoulders. All existing Project related traffic travels via Ferndale and Hampton Roads.

The Ferndale-Hampton Road intersection has been sealed using hot mix asphalt (a more durable surface) and widened to provide pull in, pull out lanes for left turning vehicles. Beginning at the intersection, the east bound lane of Hampton Road migrates into a dual lane overtaking facility.

Assessment of intersection visibility and driver reaction times has previously been assessed with average reaction times of 11 seconds determined for both east and west bound traffic.

6.6.1.2 Traffic Levels

Traffic data from the RTA for Hampton Road indicates that the 2002 Annual Average Daily Traffic (AADT) levels between the Project Site and Oberon at the Duckmaloi River Bridge are 1 041 movements per day, whilst between the Project Site and Jenolan Caves Road AADT are 1 043 movements per day. The predicted traffic generation from the proposed Project is discussed in Section 4.3.7.

6.6.2 Management Issues and Preliminary Assessment

Key management issues relating to traffic include potential impact on the road pavement, traffic congestion and road safety.

A range of safeguards and management procedures would be adopted by the Proponent to ensure that its vehicles and any sub-contractors' vehicles continue to operate in a manner that does not cause unacceptable impacts. These safeguards may include, but not necessarily be limited to the following.

- Requirement for all drivers to adhere to a "code of conduct" or similar during the delivery of materials.
- Implement a 40km/hr speed limit for trucks whilst travelling along the right of carriageway.
- Installation of appropriate signage such as "Trucks Turning" with a supplementary distance sign located in consultation with the RTA.
- All loaded trucks would exit the site via the weighbridge to ensure trucks comply with RTA loading requirements and ensure overloading does not occur.

The impact of the increased volume of trucks entering and exiting the Project Site on traffic flows and noise levels is to be considered in greater detail as part of the *Environmental Assessment* for the Project. This assessment will be undertaken in accordance with the *Guide to Traffic Generating Development* and *Road Design Guide* (Roads & Traffic Authority), and/or relevant Austroad standards.

However, considering the recent upgrade work along Ferndale Road and the adequacy of the Ferndale-Hampton Road intersection, it is considered that the Project would be unlikely to significantly affect existing traffic or road network conditions.

6.7 AIR QUALITY

6.7.1 Existing Environment

The air quality in the vicinity of the Project Site is expected to be typical of a rural area where the main air contaminant is dust. The principal sources of dust would be from agricultural activities and the movement of vehicles on unsealed roads. The approved quarrying activities would also contribute to the existing dust levels. Quantitative deposited dust data will be obtained during the compilation of the *Environmental Assessment*.

6.7.2 Key Air Quality Issues and Preliminary Assessment

The key air quality management issues relate to deposited dust and suspended particulate levels received at surrounding residences.

The Proponent would include regular watering of exposed surfaces and highly trafficked areas of the Project Site, particularly the unsealed section of the access road and loading area, to reduce dust levels. Product stockpiles would also be watered as required should these become major generators of dust in adverse weather conditions.

Dust monitoring gauges would be established at three to four surrounding locations to measure existing dust levels and monitor any increases in deposited dust levels resulting from the Project.

6.8 VISIBILITY

6.8.1 Existing Visual Environment

The existing visual environment reflects that of a rural environment consisting predominantly of grassed fields and stands of native vegetation. The approved extraction area is surrounded by established native vegetation and is not visible from the north, west or east due to topographic obstruction.

The visual assessment completed for the approved quarry (Waratah Scientific Services, 2003) indicated that views of exposed quarry faces would be limited to the south and south-southeast and to exposed areas above elevations of 1 170 to 1 180m AHD. Within this arc, it is anticipated that views will be possible from the eastern end of Burrough Crossing Road in the vicinity of “Waldara” (Residence ‘O’ – see **Figure 2.1**) and McKeons Creek Road.

6.8.2 Key Management Issues and Preliminary Assessment

The key management issue would be the minimisation of additional visual exposure of the extraction operation.

The Proponent would retain vegetation surrounding the extraction area in order to maintain the visual screening currently afforded by the vegetation. Progressive rehabilitation of the site would assist in reducing the visual intrusiveness of the site. No further management controls have been deemed necessary at this stage.

Based on the visual assessment undertaken for the approved quarry, the upper faces of the proposed extraction area would extend to an elevation of 1 190m AHD though most views of the quarry faces would be partly obscured by tall trees, It is expected, however, that there would continue to be limited distant views of the upper working face of the quarry from areas to the south. Considering the small size of the potential viewing "window" and the small number of people who would access this view, the potential impact of the Project on the visual amenity of the area are considered to be very small and would not pose a constraint.

In order to monitor the visibility of the site over time, the Proponent would photograph the quarry from vantage points to the south, such as from Burrough Crossing and McKeons Creek Roads, on an annual basis.

6.9 ABORIGINAL HERITAGE

6.9.1 Project Site Survey and Investigations

Two inspections of the Project Site have been undertaken by the Pejar Local Aboriginal Land Council (LALC), one as part of the assessment for the approved operations and one on 28/11/06 for the proposed extension. Neither inspection identified any items of Aboriginal heritage significance. A copy of the most recent letter is attached as **Appendix 3**.

The site is considered unlikely to host artefacts or to be a site of cultural significance to indigenous peoples.

6.9.2 Key Heritage Issues, Management Issues and Preliminary Assessment

No key Aboriginal heritage issues have been identified and it is considered that there would be no impact on Aboriginal heritage. However, the Proponent is aware of its obligations under the *National Parks and Wildlife Act 1974* and should any item of suspected Aboriginal heritage significance be uncovered during extraction-related activities, work in the area surrounding the suspected relic would cease and the DECC and Pejar LALC contacted for advice. If appropriate, a management strategy for the relic would then be devised in consultation with the DECC and Pejar LALC.

6.10 SOCIO-ECONOMIC CLIMATE

Although a number of surrounding residents are aware of the existing operations, it is expected that potential amenity impacts from the proposed extension, particularly those related to noise, air quality and increased traffic levels would not decrease the existing amenity levels. The visibility of the quarry would also be increased from some vantage points to the south, however, activities would remain screened from the north, east and west.

Based upon experience of other quarrying and mining Projects, there may be a perceived decrease in property values in the local area in the short term. However, as the existing quarry has been operating with limited impacts on the surrounding community, following a comparatively short period after Project Approval has been granted, and in which the effectiveness of the proposed safeguards have been demonstrated, it is deemed that any perceived decrease in property values would diminish.

With respect to potential noise and blasting impacts, the Proponent would continue to notify surrounding residents that are predicted to be potentially affected by quarry operations and ensure that they are kept informed about the operations at the quarry including the continued use of the blast notification board at the entrance to the Project Site.

Economically, the contribution of the quarry to the local area would continue for a period of at least 25 to 30 years with provision of direct employment and associated flow on effects from employment and purchase of equipment and equipment maintenance. The proposed extension would result in an additional four to eight people directly employed on site and employment of additional truck drivers. In the event that approval for the Project was not granted, these economic benefits would not be attained.

Considering the employment benefits, together with the additional economic activity that the quarry would provide, the relatively sparse population surrounding the quarry, relatively large distances to surrounding residences and the short term or minor nature of impacts on local amenity, the socio-economic benefits of the Project are expected to exceed the perceived adverse impacts.

7.0 PROJECT JUSTIFICATION AND CONCLUSION

The Proponent has identified and secured a number of ongoing supply agreements, including the supply of material to the State significant tile plant at Rutherford. In addition, demand for road base material and aggregates for concrete, anti-slip surfacing material and decorative gravels has increased. The existing development consent for the quarry does not provide the opportunity for the Proponent to supply these market demands. This has resulted in the Proponent seeking an extension to the existing operations.

The Preliminary Assessment undertaken, including a preliminary environmental risk analysis, for the Project has identified a number of key environmental issues. The Preliminary Assessment of each environmental aspect indicates that, through effective management, the environmental impacts could be adequately mitigated, though it is acknowledged that further assessment is required. The key environmental issues requiring consideration include the following.

Soils and Land Capability

- Preparation of adequate soil erosion management controls.
- Preparation of soil balance and appropriate planning for soil stripping and replacement.

Surface Water

- Preparation of adequate surface water controls, particularly reduction in creation of “dirty water” and capture and treatment of all resulting “dirty water”.
- Preparation of a simple water balance for the Project Site, considering applicable design criteria as specified by Landcom, 2004.

Groundwater

- Clarification of potential groundwater drawdown impacts and surface water – groundwater interaction.

Ecology

- Further assessment of the impacts of the proposed removal of native vegetation on Threatened species occurring within the Oberon Local Government Area with a potential to occur within the Project Site and on Koala habitat.
- Further consideration of rehabilitation activities to ensure most appropriate habitat re-instated.

Noise and Vibration

- Undertake noise and vibration modelling and, based on this, design suitable noise and blasting controls to ensure noise levels remain compliant with DECC nominated criteria.

Traffic

- Assessment of the potential impact of increased truck movements upon traffic flow and safety.

Air Quality

- Undertake an air quality assessment and design suitable measures to control dust and other particulate matter concentrations to ensure levels remain compliant with DECC nominated criteria.

Visual Amenity

- Review the design of the proposed extraction area and visual controls to minimise impacts on visual amenity at surrounding vantage points, particularly to the south.

Aboriginal Heritage

- A further review of previous Aboriginal heritage assessments and the development of an Aboriginal Heritage Management Plan to ensure compliance with the *National Parks and Wildlife Act 1974*.

Socio-economic

- Review Project design to minimise the impacts of the Project, actual or perceived, upon by members of the local community.
- Confirmation of residence locations and assessment of potential amenity impacts.

It is concluded, based upon the outcomes of the preliminary assessment, that it would be possible to present a fully designed and assessed proposal, focusing upon the key environmental management issues identified for the Project, for determination by the Minister for Planning.

8.0 REFERENCES

Landcom, 2004, *Managing Urban Stormwater: Soils and Construction – Volume 1, 4th Edition (the "Blue Book")*.

Waratah Scientific Services, 2003. *Statement of Environmental Effectgs – Oberon White Granite Quarry*. Prepared on behalf of Mudgee Stone Company Pty Ltd.

Appendix 1

Analysis of Unmitigated Environmental Risk

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Appendix 1
Analysis of Unmitigated Environmental Risk

Potential Environmental Impacts	Level / Scale of Impact (if applicable)	Consequence of Occurrence if not Mitigated	Likelihood of Occurrence if not Mitigated	Unmitigated Risk Rating
Groundwater				
Groundwater Pollution by leaking/spilt hydrocarbon	Contamination requiring minor recovery works.	**2**	**D**	**L**
	Contamination requiring major recovery works.	**3**	**E**	**M**
Drawdown of groundwater levels	Drawdown resulting in reduction of bore yields of <15%.	**2**	**D**	**L**
	Drawdown resulting in reduction of bore yields of >15%.	**3**	**E**	**M**
Air Quality				
Nuisance - deposited dust	Deposited dust levels attributable to the Project occasionally (for one or two months every year) above DEC guideline, affects only adjacent landholders.	**2**	**B**	**H**
	Deposited dust levels attributable to the Project regularly (exceedances greater than DEC guideline for >5 months per year) affects landholders some distance from the Project Site.	**3**	**D**	**M**
Health - PM_{10}	PM_{10} levels attributable to the Project occasionally (once every 1 to 2 years) above the Project goal, affects only adjacent landholders.	**2**	**C**	**M**
	PM_{10} levels attributable to the Project occasionally (>5 times per year) above the Project goal, affects landholders some distance from Project Site.	**3**	**D**	**M**
Greenhouse Gas Emissions.		**1**	**B**	**M**
Surface Water				
Altered drainage on Project Site		**2**	**A**	**H**
Reduced quality of downstream waters	Isolated and minor event resulting in temporary degradation of water quality in local creeks and tributaries.	**2**	**B**	**H**
	Continuing discharge of dirty water resulting in ongoing degradation of water quality in local creeks and tributaries.	**3**	**C**	**H**
	Isolated and major event resulting in temporary but wider spread degradation of water quality.	**3**	**C**	**H**
	Repeated major event resulting in long-term and wide spread degradation of water quality.	**4**	**D**	**H**

Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic
Likelihood of Occurrence: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare
Risk Rating: E = Extreme; H = High; M = Moderate; L = Low

Appendix 1
Analysis of Unmitigated Environmental Risk

Potential Environmental Impacts	Level / Scale of Impact (if applicable)	Consequence of Occurrence if not Mitigated	Likelihood of Occurrence if not Mitigated	Unmitigated Risk Rating
Soil Erosion and Land Capability				
Soil erosion	Minor erosion within Project Site.	2	B	H
	Minor erosion external to the Project Site.	2	C	M
	Major erosion external to the Project Site.	3	E	M
Decreased viability of surrounding land uses	For the life of the Project	3	C	H
	Beyond the life of the Project	3	D	M
Decreased land and agricultural capability of the final landform		2	C	M
Threatened Flora and Fauna				
Loss of, or alteration to, existing habitats.	Disturbance to native vegetation / habitat within nominated areas.	2	A	H
	Disturbance to native vegetation / habitat outside nominated areas.	3	D	M
Direct adverse impact on threatened species.	Disturbance to Threatened flora / fauna and endangered communities.	3	C	H
	Disturbance leading to local population reduction.	4	D	H
	Disturbance leading to local extinction(s).	5	E	H
Reduced biodiversity	Local biodiversity.	3	D	M
	Regional biodiversity.	4	E	H
Noise				
Increased noise levels associated with Project Site activities causing annoyance, distractions, ie. amenity impacts.	Occasional minor exceedance of noise criteria (1-2dB(A)).	2	B	H
	Regular minor exceedance of noise criteria (1-2dB(A)).	3	C	H
	Occasional marginal exceedance of noise criteria (3-5dB(A)).	2	C	M
	Regular marginal exceedance of noise criteria (3-5dB(A)).	3	D	M
	Occasional major exceedance of noise criteria (>5dB(A)).	2	C	M
	Regular major exceedance of noise criteria (>5dB(A)).	4	D	H
Increased noise levels associated with Project related road traffic activities causing annoyance, distractions, ie. amenity impacts.	Occasional minor exceedance of noise criteria (1-2dB(A)).	2	C	M
	Regular minor exceedance of noise criteria (1-2dB(A)).	3	D	M
	Occasional marginal exceedance of noise criteria (3-5dB(A)).	2	C	M
	Regular marginal exceedance of noise criteria (3-5dB(A)).	3	D	M
	Occasional major exceedance of noise criteria (>5dB(A)).	2	C	M
	Regular major exceedance of noise criteria (>5dB(A)).	4	D	H
Maximum noise levels resulting in sleep disturbance.		3	D	M

Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic

Likelihood of Occurrence: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare

Risk Rating: E = Extreme; H = High; M = Moderate; L = Low

Appendix 1
Analysis of Unmitigated Environmental Risk

Potential Environmental Impacts	Level / Scale of Impact (if applicable)	Consequence of Occurrence if not Mitigated	Likelihood of Occurrence if not Mitigated	Unmitigated Risk Rating
Traffic and Transport				
Increased traffic congestion.		**2**	**D**	**L**
Road pavement deterioration.		**3**	**C**	**H**
Elevated risk of accident/incident on local roads	Minor accident - no injury.	**2**	**C**	**M**
	Minor accident - minor injury.	**3**	**D**	**M**
	Major accident -moderate injuries requiring hospitalisation.	**4**	**E**	**H**
	Severe accident - severe injuries or death injury.	**5**	**E**	**H**
Aboriginal Heritage				
Impact on unidentified sites and/or artefacts of Aboriginal cultural heritage as a result of soil stripping and extraction activities.		**3**	**D**	**M**
Visual Amenity				
Reduced amenity of altered Project Site landform	Temporary disturbance to landform	**1**	**A**	**H**
	Marginally identifiable change to landscape from external vantage point	**2**	**A**	**H**
	Highly identifiable change to landscape from external vantage point	**3**	**C**	**H**
Socio-Economic Impacts and Property Values				
Reduced quality of life (actual or perceived).		**3**	**D**	**M**
Reduced property values	Temporary (<5 years) decrease in property values.	**2**	**C**	**M**
	Moderate term (<15, <30 years) decrease in property values.	**3**	**C**	**H**
	Long term (>30 years) decrease in property values.	**3**	**D**	**M**

Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic

Likelihood of Occurrence: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare

Risk Rating: E = Extreme; H = High; M = Moderate; L = Low

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Appendix 2

S117(2) Direction

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GEOLOGICAL SURVEY OF NEW SOUTH WALES
DEPARTMENT OF MINERAL RESOURCES

Resource Assessment & Section 117(2) Direction No. G28 Notification Oberon Shire LGA

by

JT Pienmunne, GR Burton
Geologists

and

GP MacRae
Senior Geologist

Geological Survey Report: GS2003/450 **Dated**: December 2003

Department File: L95/0232

Map Reference:	1:250,000 sheets	1:100,000 sheets
	Bathurst	Oberon
	Sydney	Katoomba
	Goulburn	Taralga
	Wollongong	Burragorang

Accompanying Plans: Oberon_S117_V2.jpg

SUMMARY

Section 117(2) Direction No. G28 – Coal, other Minerals, Petroleum and Extractive Resources of the Environmental Planning and Assessment Act 1979 was gazetted by the Minister for Planning on the 6th of December 1994.

The Direction requires that local councils consult with the Department of Mineral Resources when preparing Local Environmental Plans (LEPs) which are likely to prohibit or restrict the mining of mineral and extractive resources. The Direction makes it incumbent upon the Department to notify local government agencies of the locations of known and potential mineral resources.

Section 117 Direction No. G28 advice to Oberon Shire Council was provided on 14/10/1996. This advice was reviewed on 02/03/1998 when a number of sites originally identified were deleted and some new ones added.

The current revision of the advice was triggered by a request by Council for accurate up-to-date data on mineral resources to be used as input in Oberon Shire Local Environmental Study.

This revision has resulted in a number of sites originally identified being deleted from the advice as well as in the addition of some new sites. Some of the sites retained in this identification have been slightly modified. In the interests of consistency, the original site numbers have been retained as far as possible.

CONTENTS

FIGURES

INTRODUCTION

Section 117(2) Direction No. G28 – Coal, other Minerals, Petroleum and Extractive Resources of the Environmental Planning and Assessment Act 1979 was gazetted by the Minister for Planning on the 6th of December 1994.

The Direction requires that councils consult with the Department of Mineral Resources if proposed Local Environmental Plans (LEPs) are likely to prohibit or restrict the mining of mineral and extractive resources. The Direction makes it incumbent upon the Department to notify local government agencies of the locations of known and potential mineral resources.

The purpose of the Direction is to make local councils aware of the mineral resources within their Local Government Areas (LGAs) and to prevent the unnecessary loss of important resources. The advice issued to councils by the Department of Mineral Resources informs councils of operating mines and quarries, and identified and potential mineral resources within their LGA. It is intended that the advice should provide a basis for better informed land use planning which will steer development away from areas containing important mineral resources where possible so as not to sterilise them unnecessarily.

ROLE OF THE DEPARTMENT OF MINERAL RESOURCES

The Department of Mineral Resources is the principal Government agency responsible for the administration of the State's mineral resources. Under the Mining Act 1992 mineral resources are those mineral commodities which are listed in Schedule 1 Mining Amendment Regulation 2001 of the Act. Although most mineral commodities are classified as 'mineral resources' under the Mining Act 1992, extractive resources such as sand, gravel, hard rock aggregate are generally not administered under that Act.

Because most extractive resources are not minerals in terms of the Mining Act 1992, the Department of Mineral Resources does not have a formal, statutory role in their development, except for the mine safety role flowing from the Mines Inspection Act 1901. However, the Department has an accepted role amongst State Government agencies of assessing extractive resources, and providing advice pertaining to their development and management.

The Department has been involved in the assessment of extractive resources since at least the 1950s. This work has concentrated on the coastal regions where pressure on extractive resources from other land uses is the greatest.

The Department has been developing databases on known mineral and extractive resources as a basis for better informed land use planning, and to encourage further exploration. However, changing concepts and knowledge of the geology of the State mean that this process is a continuing one.

Comprehensive inventories of resources, concentrating on areas of greatest land use pressures (essentially the eastern part of the State), are being developed through updating of mineral occurrence databases and knowledge of mineral resource potential.

RESOURCE ASSESSMENT PROCEDURES

DATA SOURCES

Identification of sites for Section 117(2) Direction No. G28 notification is based on data obtained from a number of sources.

The main data sources are the Geological Survey's mineral occurrence databases Indmin and Metmin. Data in these databases is derived from sources such as:

- technical reports of the Geological Survey and the Department of Mineral Resources;
- environmental impact statements for quarrying and mining operations;
- data held by local and State government authorities;
- mineral exploration reports; and,
- other sources including newspapers, periodicals, annual company reports and prospectuses.

Other important data sources are:

- local councils which provide information on current quarrying/mining operations or proposals within their LGA; and
- quarry/mine operators who provide information on annual production, resources and expected life of quarry/mine operation.

SITE IDENTIFICATION

Sites Identified in the Section 117(2) Direction No. G28 are either significant operating quarries or mines, significant quarrying or mining proposals, identified mineral resources or areas containing potential mineral resources.

For operating quarries, mines or proposals, the Section 117(2) Direction No. G28 notification identifies the mine or quarry site and an adjacent area ("buffer zone") where development may conflict with current or future mining or quarrying operations. For identified and potential resources the notification identifies the land containing resources and in some cases a buffer zone.

NOTIFICATION PROCEDURES

After gazettal of the Section 117(2) Direction No. G28, in December 1994, all LGAs in the State were assigned a high, medium or low priority rating for notification (figure 1) based on the following criteria:

- Degree of development in the LGA;
- Density of known mineral development and potential in the LGA; and,
- Nature and extent of information available to the Department.

To date, Section 117(2) Direction No. G28 notification advice has been provided to all high and most medium priority LGAs. In addition, notifications have been prepared for some low priority LGAs at the request of council.

Initial notifications have been provided to 137 councils (figure 2). Of these, the notification has been revised or amended at least once for 70 councils since the initial notification.
Initially notifications consisted of maps of identified sites and tabular data about each site.

In an effort to make the Section 117(2) Direction No. G28 notifications more relevant and 'user friendly' they will be accompanied by more detailed information in the future. The data is also available in digital form.

OBERON LGA SECTION 117(2) DIRECTION No. G28 REVISION

The initial Section 117 Direction No. G28 advice to Oberon Shire Council was provided on 14/10/1996 (see appendix for listing). This advice was reviewed on 02/03/1998 when a number of original sites were deleted.

The current revision was triggered by a request by Council for accurate up-to-date data on mineral resources to be used as input in Oberon Shire Local Environmental Study.

This revision has resulted in sites 9, 10, 20 and 21 originally identified in 1996 being deleted from the advice, and the addition of sites 24 - 31. In addition, the areas of some of the sites retained in this identification have

been slightly modified. In the interests of consistency the original site numbers have been retained.

Figure 1: Priority Status December 1994

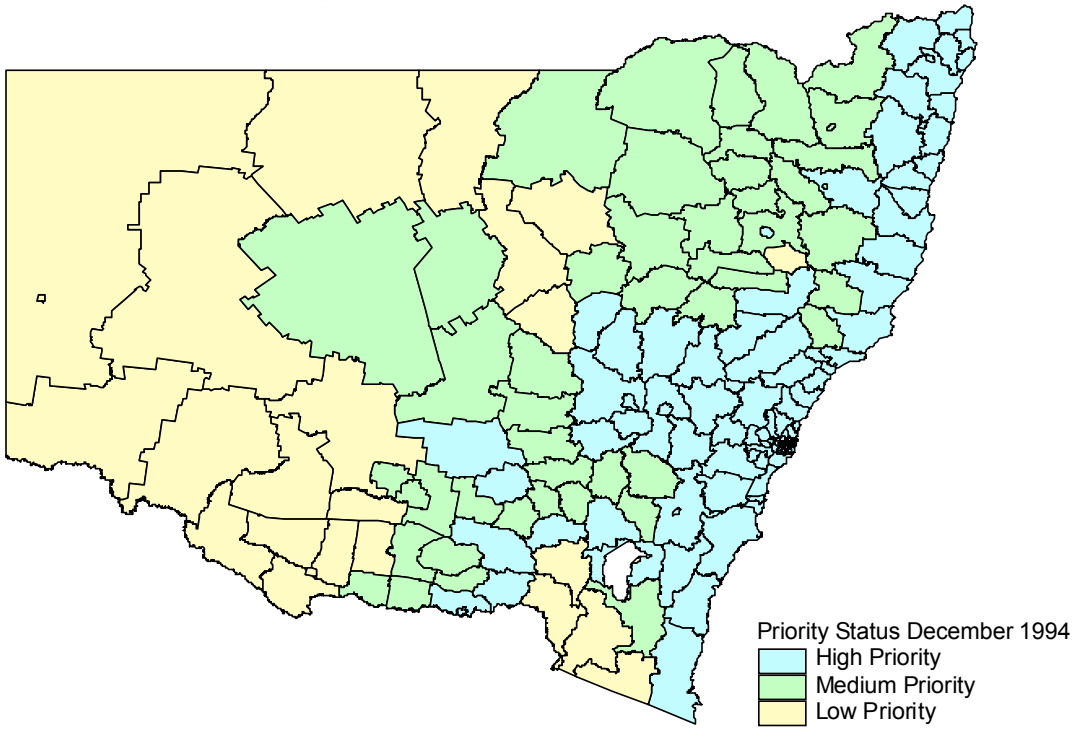
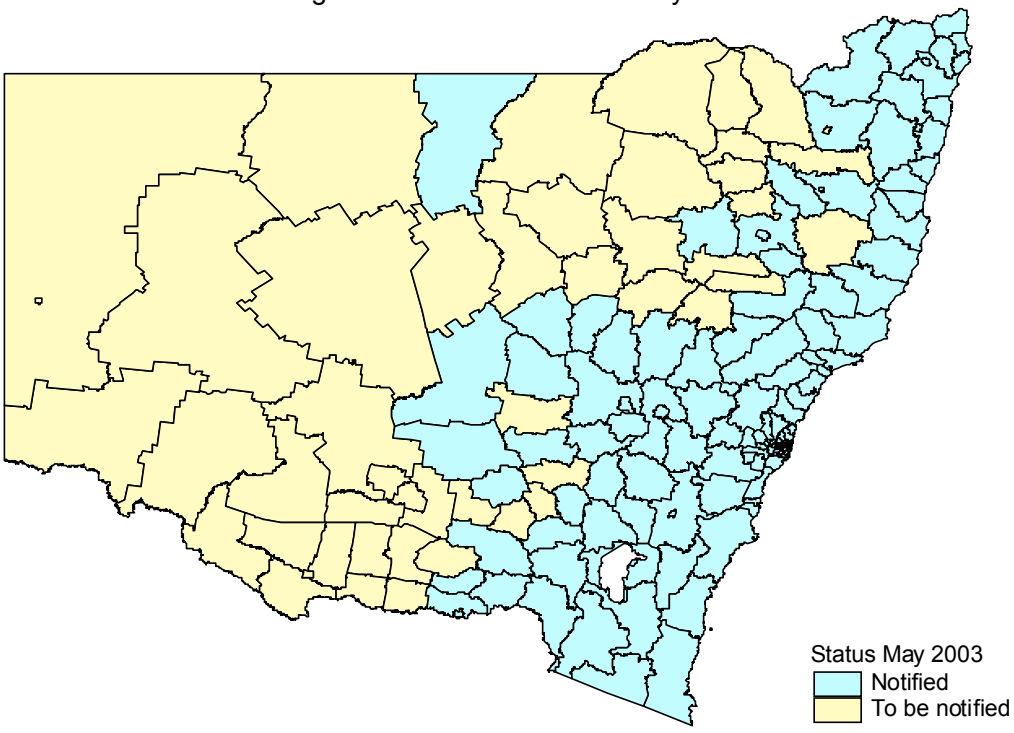


Figure 2: Notification Status May 2003



All draft Local Environmental Plans which propose a change in zoning in the identified areas should be referred to the Department of Mineral Resources for comment.

The Department would object to any proposed change in zoning in areas containing operating quarries/mines and/or identified mineral resources which may prohibit mining/quarrying in these areas.

The Department will endeavour to ensure that Council is kept informed of mineral and extractive resource developments in the district.

The retained sites are listed below and shown on plan 1.

Site 5: Oberon Alaskite

Operator: none

Commodity: feldspar, mica, silica

Rock Type: alaskite

Status: identified resource

Production: minor in the 1960s

Resources: extensive

Comment: The Oberon Alaskite (or Rosdhu Granite) is a leucocratic (= white) granite comprised mainly of feldspar, muscovite mica and quartz. Studies by the previous owner of the mineral rights, Minerals Corporation Ltd, have identified a large resource from which commercial grade feldspar, mica and silica can be extracted. Unimin Australia Ltd currently hold Exploration License over the area. A development application to quarry granite in a small part of the area was lodged by Mudgee Stone Company in July 2003. Some feldspar for glass making was extracted from portion 193 Parish Norway in the mid 1960s.

Site 7: Duckmaloi Limestone

Operator: none

Commodity: limestone

Rock Type: limestone

Status: identified resource

Production: unknown

Resources: > 100 000 tonnes

Comment: Quarried in the past for high purity limestone for industrial applications. The remaining deposit is contaminated by cherty intervals but is suitable for production of agricultural lime.

Site 8: Black Bullock

Operator: none

Commodity: gold, silver

Ore Type: hydrothermal mineralisation in sheared siltstone

Status: potential resource

Production: over 40 000 ounces of silver and 2 000 ounces of gold in 1899-1902 and 1905

Resources: unknown

Comment: The area has moderate potential for hosting gold and silver mineralisation.

Site 11: Wisemans Creek Mine

Operator: none

Commodity: talc

Rock Type: talc-mica schist

Status: potential resource

Production: few thousand tonnes in the late 1960s and early 1970s.

Resources: moderate

Comment: Mined in the late 1960s and early 1970s, initially underground and later as an open cut. Moderate reserves probably remain.

Site 15: Racecourse Hill

Operator: Oberon Quarries P/L

Commodity: hard rock aggregate

Rock Type: basalt

Status: operating quarry

Production: about 130 000 tonnes per annum

Life of Operation: > 20 years

Resources: > 30 000 000 tonnes

Comment: An important producer of aggregate products in the region.

Site 16: Tarana Pink

Operator: Gosford Quarries P/L

Commodity: dimension stone

Rock Type: granite

Status: operating quarry

Production: currently none

Resources: moderate

Life of Operation: unknown

Comment: Dimension stone quarry with good potential for further extraction. Area held under Mining Lease 1329 (1992).

Site 17: Kendale

Operator: none

Commodity: dimension stone

Rock Type: granite

Status: potential resource

Production: currently none

Resources: moderate

Life of Operation: unknown

Comment: Quarried in the past. Area has potential for further quarrying of dimension stone.

Site 22: Mining Leases 1114 & 1115

Operator: Camiex Mining P/L

Commodity: sapphire

Rock Type: sand and gravel

Status: operating mine

Production: currently none

Resources: unknown

Life of Operation: unknown

Comment: Area held under Mining Leases 1114 and 1115 (1973).

Site 23: Mining Lease 1031

Operator: R.E. Woellner

Commodity: sapphire, gold

Rock Type: sand and gravel

Status: operating mine

Production: currently none

Resources: unknown

Life of Operation: unknown

Comment: Area held under Mining Lease 1031 (1973).

Sites 24 – 27: Rockley Volcanics

Operator: none

Commodity: copper, gold,

Rock Type: Ordovician mafic volcanics and sediments

Status: potential resource

Resources: unknown

Comment: Areas have potential for porphyry copper-gold mineralisation.

Site 28: Bells Creek Volcanics

Operator: none

Commodity: base metals, gold,

Rock Type: Silurian volcanics

Status: potential resource

Resources: unknown

Comment: Area has potential for Volcanic Hosted Massive Sulphide type deposits.

Site 29: Triangle Formation

Operator: none

Commodity: copper, gold,

Rock Type: Silurian mafic volcanics and sediments

Status: potential resource

Resources: unknown

Comment: Area has potential for porphyry copper-gold mineralisation.

Site 30: Diamond Hill Skarn

Operator: none

Commodity: base metals

Rock Type: metamorphosed Ordovician intermediate to basic volcanics and sediments.

Status: potential resource

Resources: unknown

Comment: Area has potential for base metal skarn mineralisation.

Site 30: Duckmaloi Skarn

Operator: none

Commodity: base metals

Rock Type: metamorphosed Silurian sediments.

Status: potential resource

Resources: unknown

Comment: Area has potential for base metal skarn mineralisation.

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APPENDIX

Listings of Section 117(2) No. G28 Direction sites identified in October 1996 and March 1998

OBERON LGA

ATTACHMENT 1

MINERAL RESOURCES

Site No	Figure No	Location/Description	Operator	Material
1	1	Tuglow	Inactive	Copper, lead
2	1	Tuglow River	Undeveloped	Limestone
3	1	Hollanders River,South	Undeveloped	Limestone
4	2	Hollanders River,North	Undeveloped	Limestone
5	4	MLs 129,130,132,134,136	Australian Feldspar p/l	Feldspar
6	5	Duckmaloi	Inactive	Bismuth, tungsten
7	5	Duckmaloi,McGills	Marble Aggregates p/l	Limestone
8	7	Black Bullock	Inactive	Gold, silver
9	8	Copperhill	Inactive	Copper
10	11.	ML 790,Phoenix Mine	PGH p/l	Pigment/lead, zinc
11	11	Wisemans Creek Mine	Industrial Minerals Australia p/l	Talc
12	11	North Wisemans Mine	Inactive	Copper, lead, zinc

EXTRACTIVE RESOURCES

Site No	Figure No	Location/Description	Operator	Material
13	3	Bayardo,Goulburn Road	B T Hoolihan	Fill/granite
14	4	Oberon	Gosford Quarries p/l	Dimension stone/granite
15	6	Racecourse Hill	Oberon Quarries p/l	Hard rock aggregate/basalt
16	9	Tarana Pink	Melocco p/l	Dimension stone/granite
17	9	Kendale	Western Granites p/l	Dimension stone/granite
18	9	North Oberon	Australian Granite p/l	Aggregate/granite
19	10	Isabella Deposit	Inactive	Decorative aggregate/silica
20	12	Fish River,Oberon Road	CSR Readymix p/l	Construction sand/gravel

KEY TO ALL FIGURES

Areas containing existing quarries/mines and identified resources. The Department of Mineral Resources would object to any proposed change in zoning which may prohibit mining or quarrying in these areas.

Development in these areas could adversely affect or be affected by future quarrying/mining operations. Any proposed LEP which proposes a change in zoning which may restrict or prohibit mining or quarrying should be referred to the Department of Mineral Resources for comment.

OBERON LGA (March 1998)

ATTACHMENT 1

MINERAL RESOURCES

Site No.	Figure No	Location/Description	Operator	Material
1	1	DELETED	DELETED	DELETED
2	1	DELETED	DELETED	DELETED
3	1	DELETED	DELETED	DELETED
4	2	DELETED	DELETED	DELETED
5	4	Oberon Alaskite	Australian Feldspar p/l	Feldspar
6	5	DELETED	DELETED	DELETED
7	5	Duckmaloi Limestone	Inactive	Limestone
8	7	Black Bullock	Inactive	Gold, silver
9	8	Copperhill	Inactive	Copper
10	11.	ML 790, Phoenix Mine	PGH p/l	Copper
11	11	Wisemans Creek Mine	Industrial Minerals Australia p/l	Talc
12	11	DELETED	DELETED	DELETED
21	13	Mining Lease 806	Fraser Mining Co. P/L	Sapphire
22	14	Mining Leases 1114 & 1115	Summit Motors P/L	Sapphire
23	15	Mining Lease 1031	R. E. Woellner	Sapphire, gold

EXTRACTIVE RESOURCES

Site No	Figure No	Location/Description	Operator	Material
13	3	DELETED	DELETED	DELETED
14	4	DELETED	DELETED	DELETED
15	6	Racecourse Hill	Oberon Quarries p/l	Hard rock aggregate/basalt
16	9	Tarana Pink	Melocco p/l	Dimension stone/granite
17	9	Kendale	Australian Dolomite	Decorative aggregate/granite
18	9	DELETED	DELETED	DELETED
19	10	DELETED	DELETED	DELETED
20	12	Fish River	J. Bourke	Construction sand, gravel

KEY TO ALL FIGURES

Areas containing existing quarries/mines and identified resources. The Department of Mineral Resources would object to any proposed change in zoning which may prohibit mining or quarrying in these areas.

Development in these areas could adversely affect or be affected by future quarrying/mining operations. Any proposed LEP which proposes a change in zoning which may restrict or prohibit mining or quarrying should be referred to the Department of Mineral Resources for comment.

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Appendix 3

Pejar Local Aboriginal Land Council Correspondence

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25 Jan 07 11:05a Delise Freeman 02 - 48223551 p.1

RECORD OF FINAL SITE ASSESSMENT – INCLUDING RECOMMENDATIONS

Date: 25/1/07

Pejar LALC Representative: Justin Boney

Owner/Developer/Council or other Representative: Scott Murdoch – Mudgee Stone Company

Date of Inspection	28/11/06	**Comments**
DA Number		
Lot Number		
DP Number		
REF Number		
Other	Stone Quarry – Oberon area	

Has a Site Assessment been carried out by Pejar LALC? (Yes) No

Inspection carried out with: DEC Archaeologist (other)

Aboriginal Heritage identified during Pejar LALC Inspection Yes (No)

Comments: Recommendations following

25 Jan 07 11:05a Delise Freeman 02 - 4[illegible]55 08/01/2007 13:11
SER.# : L5K490374 P.2

THE ELECTRICITY FAILED.
THE FOLLOWING DATA WAS LOST

FAX JOURNAL
TRANSMISSION MEMORY
RECEPTION MEMORY

Archaeological Report: Yes No

By Who:

Aboriginal Protocol Condition to be applied to DA: Yes No

Condition:
That a Pejar LALC representative is on site before and during any work, at least 7 days notice in writing will be required and a fee will be charged to the developer/owner or their representative of $100 per hour plus GST.

Authorised Pejar LALC Representative Signature: Delise Freeman

Recommendations (if any):

Pejar LALC was contacted to carry out further investigations on a new area approximately 4 hectares in measurement, including a new access road. During this inspection nothing of Aboriginal Cultural Heritage was located, however, if any previously undetected Aboriginal site or relic is uncovered or unearthed during any activity within this new area, then work at that location must cease immediately and advice on appropriate action be obtained from the Pejar LALC in conjunction with NSW Department of Environment and Conservation