Section 1

Introduction

PREAMBLE

This section introduces the Proposal to extend the Stage 1 extraction and overburden emplacement areas within the Austen Quarry and in turn increase the operational life of the Austen Quarry and reviews:

- *the format of the document;*
- *the Applicant and the Application Area;*
- *the relevant background to the Proposal;*
- *the existing operations;*
- *the approvals required and the approval process;*
- *the ongoing environmental management and documentation applicable to the Austen Quarry; and*
- *the team involved in the preparation of the Environmental Impact Statement and supporting documentation.*

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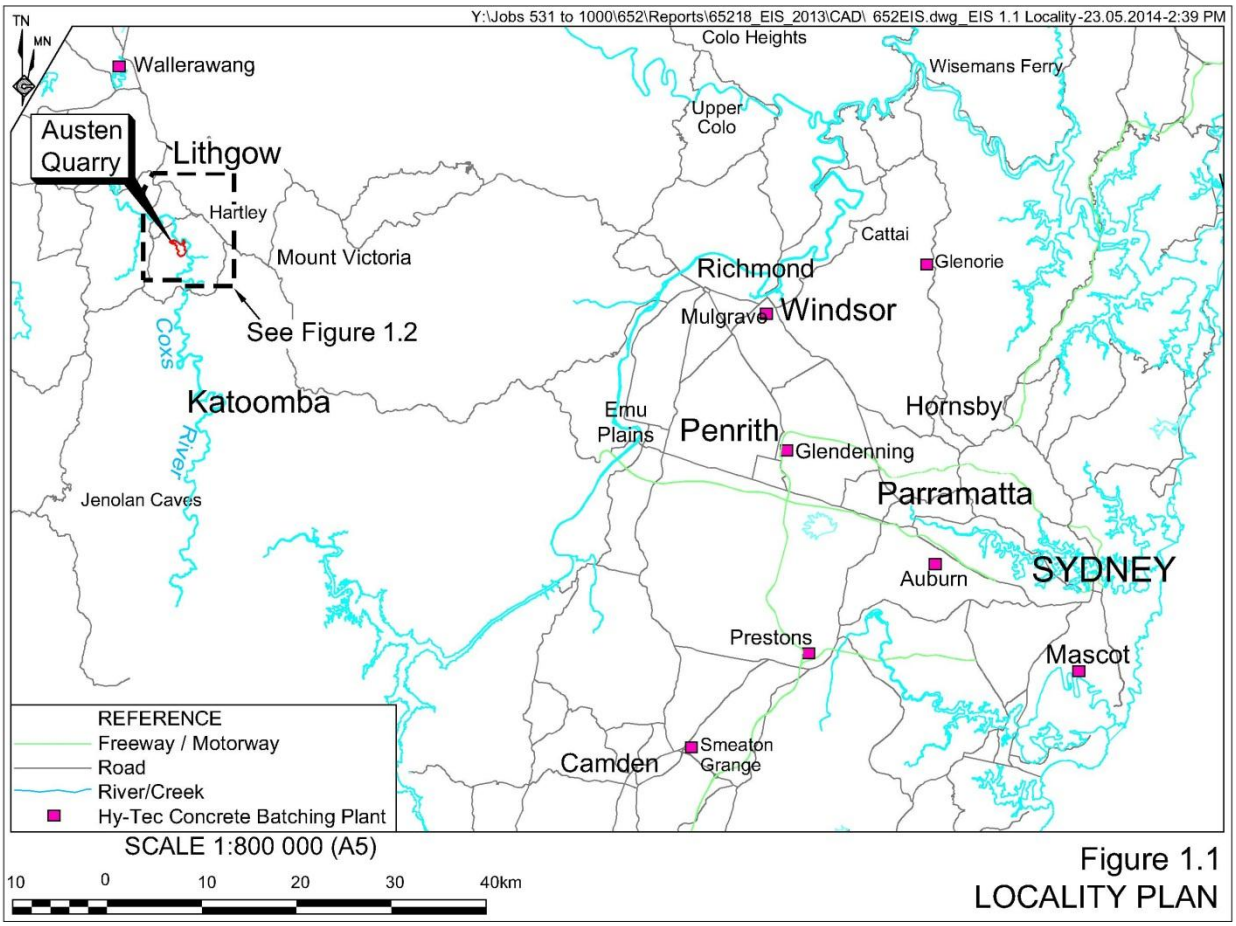
1.1 SCOPE

This *Environmental Impact Statement* (EIS) has been prepared by R.W. Corkery & Co. Pty Limited to support a development application by Hy-Tec Industries Pty Limited ("the Applicant") to extend the extraction area and overburden emplacement within the existing Austen Quarry ("the quarry") and to extend the operational life of the quarry. The extension of these quarry components and ongoing operation of the quarry until 2050 is referred to as "the Proposal".

The quarry is located on rural land, owned by the Hartley Pastoral Corporation Pty Ltd (HPC), approximately 3.5km south-southwest of the village of Hartley and 10km south of Lithgow (see **Figure 1.1**). The quarry is currently operating under Development Consent No. 103/94 (DA 103/94), originally issued by the Council of the City of Greater Lithgow (now Lithgow City Council) in March 1995 for what is referred throughout this document as the "Stage 1 Quarry". A modification to DA 103/94, approved by Lithgow City Council in November 2012, extended the life of the quarry, based on the current quarry design and operations until March 2020.



The Applicant proposes to extend the extraction area and overburden emplacement covering a total area of approximately 25.4ha ("the Stage 2 Extension"). The boundaries of the Stage 1 and Stage 2 extraction areas and overburden emplacements are displayed on **Figure 1.2**. All existing and proposed extraction, processing, stockpiling and transportation operations are undertaken within an area leased by the Applicant from HPC and referred to throughout this document as "the Stage 2 Site" (see **Figure 1.2**).

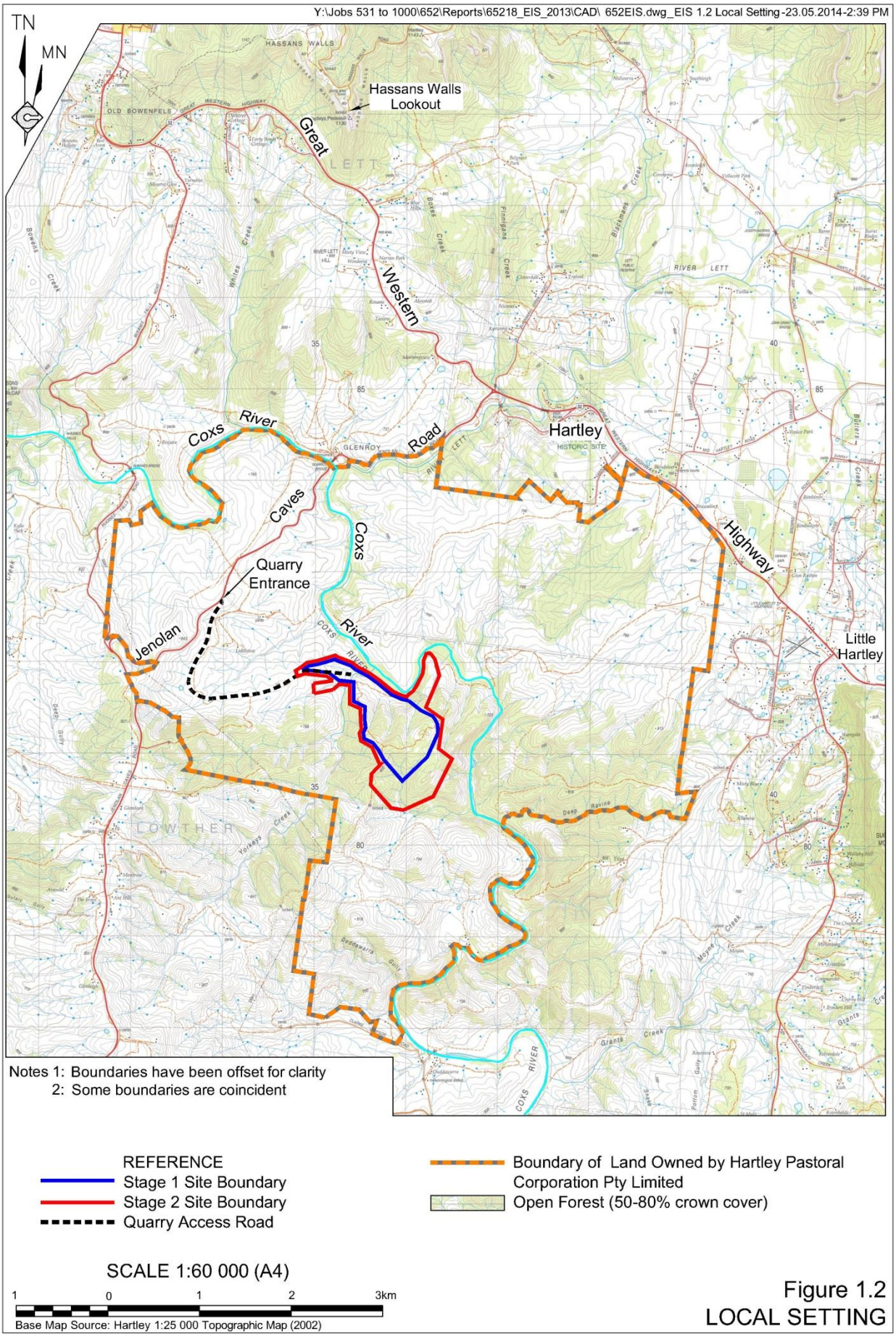


Figure 1.2
LOCAL SETTING

The Proposal is classified as State Significant Development (SSD) under the *State Environmental Planning Policy (State and Regional Development) 2011* for which approval is required in accordance with Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The approval authority is the Minister for Planning or as delegated by the Minister to the Planning Assessment Commission, the Director-General or to another public authority. As the Proposal is for SSD, an *Environmental Impact Statement* is required to be submitted to support the application. This document has been assembled by R.W. Corkery & Co. Pty Limited on behalf of the Applicant in satisfaction of that requirement and in accordance with the requirements of Section 79C of the EP&A Act.

1.2 FORMAT OF THE DOCUMENT

The information presented in this document covers all aspects of the planning, development, operation, rehabilitation and environmental monitoring of the Proposal. The document has been structured to address the assessment requirements nominated by the then Director-General of the former Department of Planning and Infrastructure[1] (the Director-General's Requirements (DGRs))[2] and other Commonwealth, State and local government agencies and/or authorities, together with those issues raised during the community consultation process. A copy of the DGRs is provided in **Appendix 2,** whilst a table recording where the DGRs and other requirements raised by government agencies and where they are addressed in this document is presented in **Appendix 3**.

The document has been compiled in a single volume with six sections of text, as well as a glossary, references section and a set of appendices.

The EIS is structured as follows.

Section 1: introduces the Proposal, the Applicant and Application Area. Background information and an overview of the existing operations are provided together with a review of the approvals process, current environmental performance of the quarry, and the management of investigations.

Section 2: describes the Applicant's objectives and proposed operations of the Proposal. This section provides a description of the existing components within the quarry that would continue to operate in the existing manner, be modified or extended throughout Stage 2. The proposed transportation regime is described together with the proposed rehabilitation and Biodiversity Offset Strategy. A consideration of feasible alternatives to some components of the Proposal is also included in this section.

Section 3: provides a description of the process used to identify and prioritise the key issues for assessment with reference to the DGRs, the range of matters raised by other government agencies, stakeholder consultation throughout the project planning stages, a review of the relevant legislation, planning issues, policies and guidelines and an assessment of the relevant risk associated with each of the environmental issues identified as being relevant to the Proposal.

[1] Now the Department of Planning and Environment.
[2] The issuing of these Environmental Assessment Requirements is now undertaken by the Secretary of the Department of Planning and Environment.

Section 4: provides an overview of the environmental setting and reviews the key environmental issues identified in Section 3. This section includes a description of the existing environment, the outcomes of assessment by various specialist consultants, proposed management and mitigation measures and a summary assessment of any residual impacts and identified requirements for maintenance and monitoring for each issue.

Section 5: provides a draft statement of commitments identifying the actions the Applicant proposes to implement with respect to environmental management and monitoring for the Proposal.

Section 6: provides a conclusion to the document which evaluates and justifies the Proposal in terms of biophysical, economic and social considerations, the goals and guidelines of Ecologically Sustainable Development and through consideration of the consequences of not proceeding with the Proposal.

Section 7: presents a glossary of acronyms, symbols and units, and technical terms, used throughout the EIS.

Section 8: lists the various source documents referred to for information and data used during the preparation of the EIS.

Appendices: present the following additional information.

1. A copy of the Applicant's development application.
2. The DGRs in full.
3. A summary of the coverage of the DGRs and matters identified for consideration in the correspondence submitted to Department of Planning & Infrastructure (DP&I) (now the DP&E) by other NSW government agencies, the commonwealth Department of the Environment and Lithgow City Council (as provided with the DGRs), and where they are addressed in this document and/or the supporting *Specialist Consultant Studies Compendium*.
4. A report prepared by Pells Sullivan Meynink providing the design sequence for the overburden emplacement.
5. A series of progressive images of the likely visibility of the Stage 2 Extension from three key vantage points (Hassans Walls within the Lithgow City LGA, Mt York and "The Peak at Mt Kanimbla" within the Blue Mountains City LGA).

The EIS is supported by a two volume *Specialist Consultant Studies Compendium* incorporating ten stand-alone reports prepared by nine specialist environmental consultancies engaged by R.W. Corkery & Co. Pty Limited on behalf of the Applicant to assess specific aspects of the Proposal. The contents of these reports are summarised into the appropriate section(s) of the EIS.

1.3 THE APPLICANT AND THE APPLICATION AREA

1.3.1 The Applicant

Hy-Tec Industries Pty Limited (Hy-Tec) is a fully owned subsidiary of Adelaide Brighton Ltd (Adelaide Brighton), a leading integrated construction materials and lime producing group of companies focused on the engineering, infrastructure and resource sectors. The group's principal activities are the production and marketing of clinker, cement and lime products, pre-mixed concrete and aggregates, and concrete products.

Adelaide Brighton originated in 1882 and is an S&P/ASX200 company with 1 600 employees and operations in all Australian States and Territories. Adelaide Brighton has a modest position in the pre-mixed concrete markets through Hy-Tec in Victoria, New South Wales and southeast Queensland. The Company has an emerging position in aggregate supply with strategic reserves at the Austen Quarry, in northern New South Wales and southeast Queensland.

The Applicant operates seven concrete batching plants throughout the Sydney metropolitan area and one plant at Wallerawang (see **Figure 1.1**).

1.3.2 The Application Area

The Application Area for the Proposal corresponds to those areas of:

- the Stage 1 extraction area, overburden emplacement and processing area within Lot 1 DP1005511;
- the Stage 2 extension to the extraction area (15.6ha) and overburden emplacement (9.8ha) within Lots 1 and 2 DP1005511;
- miscellaneous stockpiles and water management infrastructure on Lot 31 DP1009967;
- the Quarry Access Road on Lot 31 DP1009967 and Lot 4 DP876394; and
- a range of buffers to surrounding undisturbed areas on the lots noted above.

These areas are leased by the Applicant from HPC. **Figure 1.3** displays the above lots and the boundary of the Stage 2 Site.

It is noted that while the Application Area displayed on **Figure 1.3** includes the sealed Quarry Access Road and the processing and stockpiling areas, no modification to these components of the quarry are proposed as part of the Proposal.

The approved transport route from the quarry, which would not be modified, would include Jenolan Caves Road, between the sealed Quarry Access Road and the Great Western Highway, with product distribution via the Great Western Highway depending on customer locations.

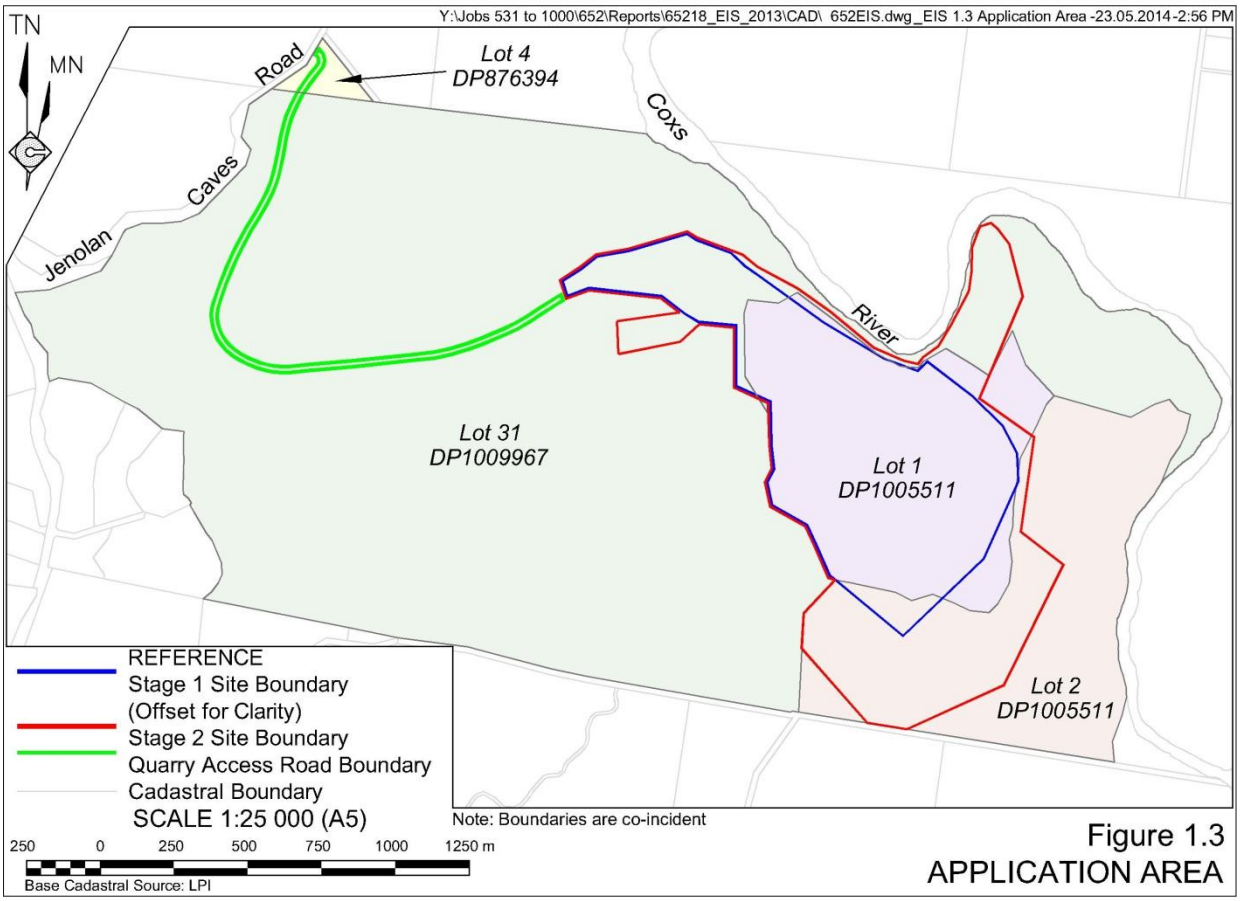


Figure 1.3
APPLICATION AREA

1.4 BACKGROUND TO THE PROPOSAL

In 1994, AUS10 Rhyolite Pty Ltd sought and obtained development consent for a hard rock quarry within the "Liddleton" property owned by HPC. That application for development consent was accompanied by an EIS prepared by Sinclair Knight Merz (SKM, 1994). The Council of the City of Greater Lithgow (now Lithgow City Council) issued development consent (with a deferred commencement) for DA 103/94 on 24 November 1994 for the development and operation of the quarry and ultimately endorsed the development consent on 22 March 1995 for a term of 20 years. The Applicant entered into a lease to become the operator of the quarry in early 2002 and commenced the sale of aggregates and other quarry products in 2005. As noted in Section 1.1, the term of DA 103/94 was extended for a further 5 years (to March 2020) following of a modification to DA 103/94 approved by Lithgow City Council in November 2012.

The resource extracted, rhyolite, is an extrusive, volcanic rock which is blasted, crushed and screened to produce high quality aggregates and road pavement products for sale to regional and Sydney markets. The rhyolite resource of the quarry has inferred total reserves of approximately 100 million tonnes (Mt) of which DA 103/94 approved the extraction of 12.5Mt of rhyolite and overburden to yield approximately 9.6Mt of rhyolite and product sales at a rate of up to 1.1 million tonnes per year. It is noted that approximately 15% of the rhyolite and associated non-rhyolitic dyke material is unsuitable for the production of saleable products and is referred to as "overburden". These materials are disposed of within the overburden emplacement located immediately adjacent to the Stage 1 extraction area.

Approximately 3 million tonnes of rhyolite remains available for extraction within the Stage 1 extraction area, although it is noted that approximately two-thirds of this resource is located within the ridge on the northern side of the extraction area which has been retained as a visual barrier to reduce visual impacts of the extraction area when viewed from Hassans Walls. It remains the Applicant's intention not to extract this ridge provided the Stage 2 extraction area is approved prior to mid 2015.

The quarry is currently despatching approximately 750 000t of products annually to supply the construction markets and roadwork requirements within the greater Sydney metropolitan area, Blue Mountains and surrounding region. Between 50% and 75% of current production from the quarry is supplied to the Applicant's seven concrete batching plants in the Sydney metropolitan area (see **Figure 1.1**). The demand for these products, used in the manufacture of concrete, preparation and management of construction sites, road construction, rail works and landscaping is unlikely to decrease in the foreseeable future. In fact, as existing quarry operations within and surrounding Sydney exhaust current resources, demand for these materials from quarries with long-term resources is expected to increase, potentially to the current approved level of 1.1Mtpa.

Noting the increasing demand and diminishing supply of quarry products for the Sydney market, the Applicant recently completed an exploration program to confirm the continuation of the rhyolite resource beyond the approved extent of the Stage 1 extraction area. As a result of this exploration program, the defined proven reserves within the Stage 2 Site are now approximately 44 million tonnes, of an equivalent quality to that of the Stage 1 extraction area and which can be economically extracted (Source: Don Reed & Associates/Groundwork Plus).

On the basis of the confirmed resource and growing demand for the products produced at the quarry, the Applicant considers that the Stage 2 Extension would allow for a significant increase in the operational life of the Austen Quarry and provide for continued supply of the construction materials to Sydney and surrounding regions.

1.5 EXISTING APPROVED OPERATIONS

1.5.1 Existing Approvals

The quarry is operated with the following development consent and licence.

1. Development Consent DA 103/94 issued by the Council of the City of Greater Lithgow (now Lithgow City Council) on 22 March 1995, and most recently modified by Lithgow City Council on 27 November 2012 to allow the approved activities to continue to 22 March 2020[3].
2. Environment Protection Licence 12323 issued by the NSW Environment Protection Authority (EPA). This licence is renewed annually with the anniversary date being 1 July.

[3] A separate application to modify DA 103/94 under Section 96(2) of the EP&A Act is currently being assessed by Lithgow City Council.

In mid 2013, the Applicant lodged on application with the NSW Office of Water (NOW) for a Controlled Activity Approval under the *Water Management Act 2000* for the ongoing activities within 40m of the Coxs River. As of May 2014, a determination of this application has not been completed[4].

1.5.2 Extraction Operations

1.5.2.1 Extraction Area and Overburden Emplacement

Extraction Area

Figure 1.4 presents the approved extraction limit and other activities areas within the Stage 1 Quarry. The Stage 1 extraction area is approved to an elevation of 730m AHD and covers approximately 12.1ha. Benches have been developed at between 10m and 15m vertical intervals with the extraction faces generally 70° or steeper (see **Plate 1.1**).

Overburden Emplacement

The Stage 1 overburden emplacement has been developed immediately adjacent to the extraction area (to the south), partially in-filling the head of a gully between the 730m AHD and 780m AHD elevations (see **Figure 1.4**). It is noted that the volume of overburden contained within the emplacement is currently greater than originally forecast due to the identification in 2004 of a series of dykes of non-rhyolitic material through the middle of the Stage 1 extraction area. Covering an area of approximately 6.8ha, the outer slopes of the overburden emplacement have been progressively rehabilitated through direct seeding and tube stock planting. **Plate 1.2** displays the form of the overburden emplacement and the extent of progressive revegetation completed to date.

1.5.2.2 Extraction Activities

Extraction of the rhyolite is undertaken using conventional drill and blast, load and haul methods. Surface vegetation is first cleared by bulldozer and/or hydraulic excavator and stockpiled for placement over sections of the quarry to be rehabilitated. Any available soil resources are then stripped and stockpiled for spreading over rehabilitated slopes of the overburden emplacement, or other areas of the quarry to be rehabilitated. Any weathered rock below the soil and above the fresh rhyolite is classified as overburden and is excavated, loaded to haul trucks and placed within the overburden emplacement.

Non-rippable overburden and rhyolite is blasted to fragment the material such that it can either be loaded and hauled to either the overburden emplacement or the primary crusher located on the 750m AHD level within the extraction area for crushing and delivery (by conveyor) to the remaining crushing and screening operations within the secondary processing area. Current blast sizes vary according to the location within the extraction area but generally vary from 10 000t through to approximately 100 000t (with an average of approximately 60 000t).

[4] It is noted that as State Significant Development, a Controlled Activity Approval is not required by virtue of Section 89J of the EP&A Act.

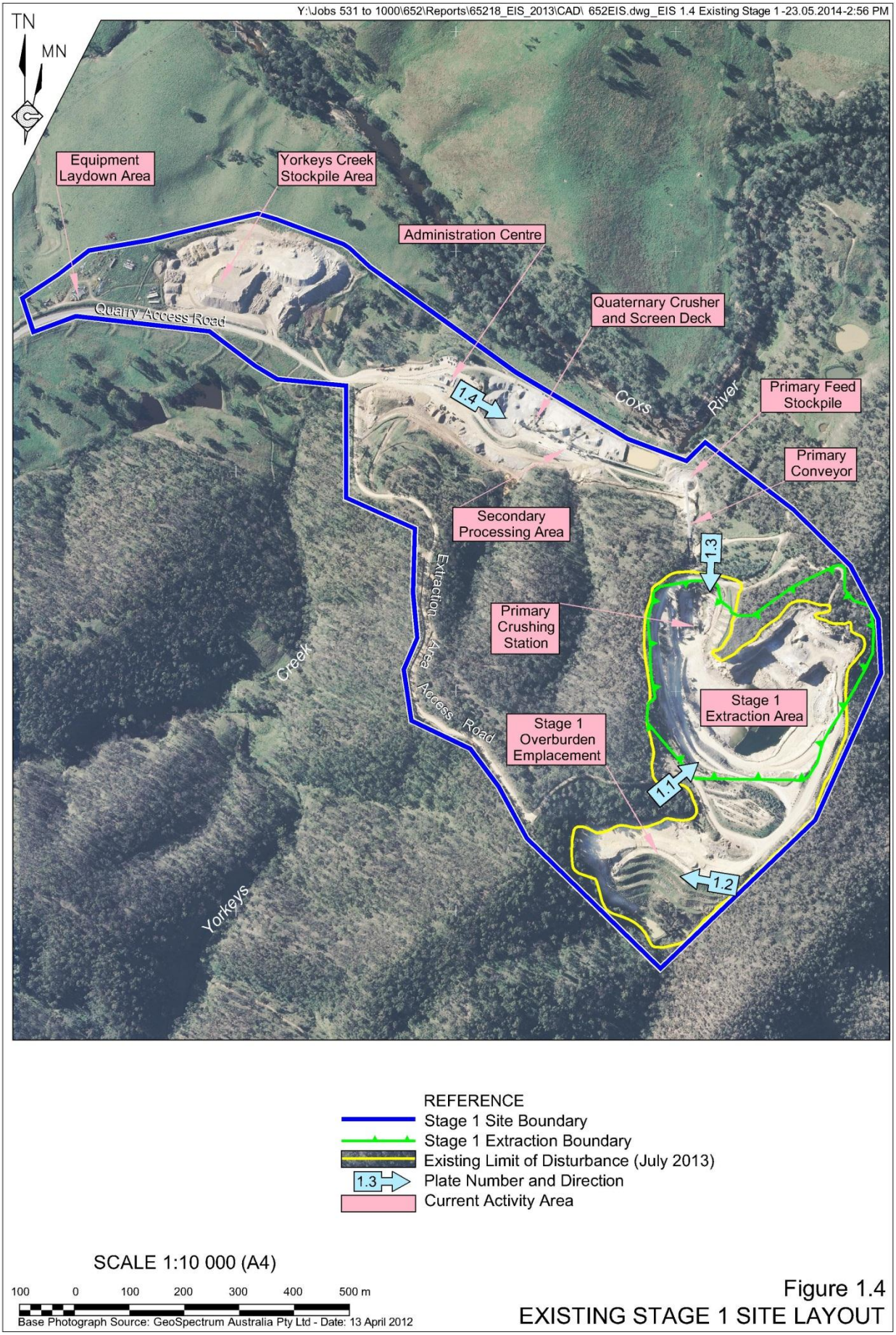


Figure 1.4
EXISTING STAGE 1 SITE LAYOUT

Plate 1.1: View in a north-easterly direction across the Stage 1 Extraction Area (Ref: E652S_001)

Plate 1.2: View in a westerly direction across the existing revegetated overburden emplacement (Ref: E652P_026)

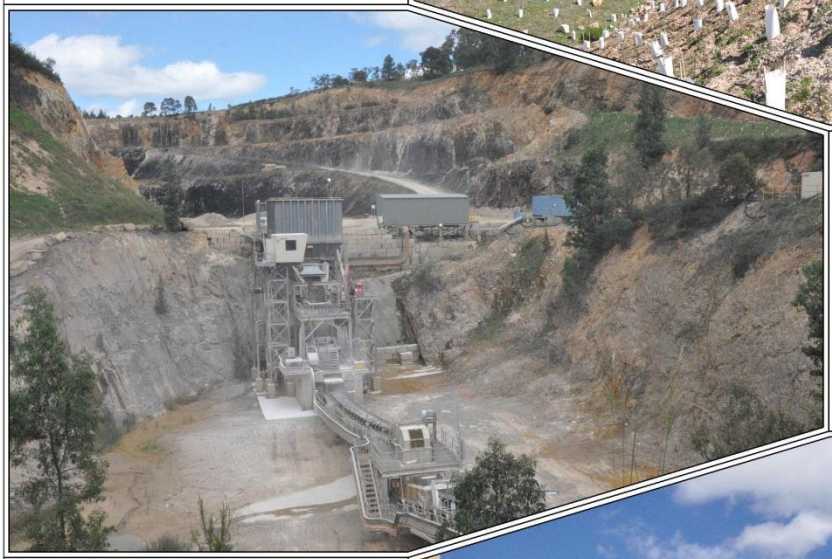


Plate 1.3: View in a southerly direction towards the Primary Crushing Station and Conveyor to the Primary Feed Stockpile (Ref: E652S_033)

Plate 1.4: Section of the Secondary Processing Plant - Quaternary crusher is located in the right background (Ref: E652S_041)

1.5.2.3 Mobile Equipment

The Applicant currently operates the following mobile equipment within the extraction area and on the overburden emplacement.

- 1 x 85t excavator;
- 1 x 15t stockpile truck;
- 1 x water cart.
- 2 x 40t haul trucks;
- 1 x bulldozer; and

Two front-end loaders are also operated at the quarry with their use shared between the extraction area, processing area and various stockpiles.

Depending on production rates, the above mobile equipment is supplemented by the hire of a second excavator and up to two additional haul trucks, as required.

1.5.2.4 Extraction Sequence

In response to initial concerns over the visibility of the Stage 1 extraction area from locally significant lookout points within Lithgow City LGA, particularly Hassans Walls lookout (see **Figure 1.2**), the western-most benches within the extraction area were generally developed in a north-south orientation, behind a retained slope along the western and northern side of the Stage 1 extraction area. Should the Stage 2 Extension not proceed, this retained ridge would become the final area of the approved extraction area to be quarried.

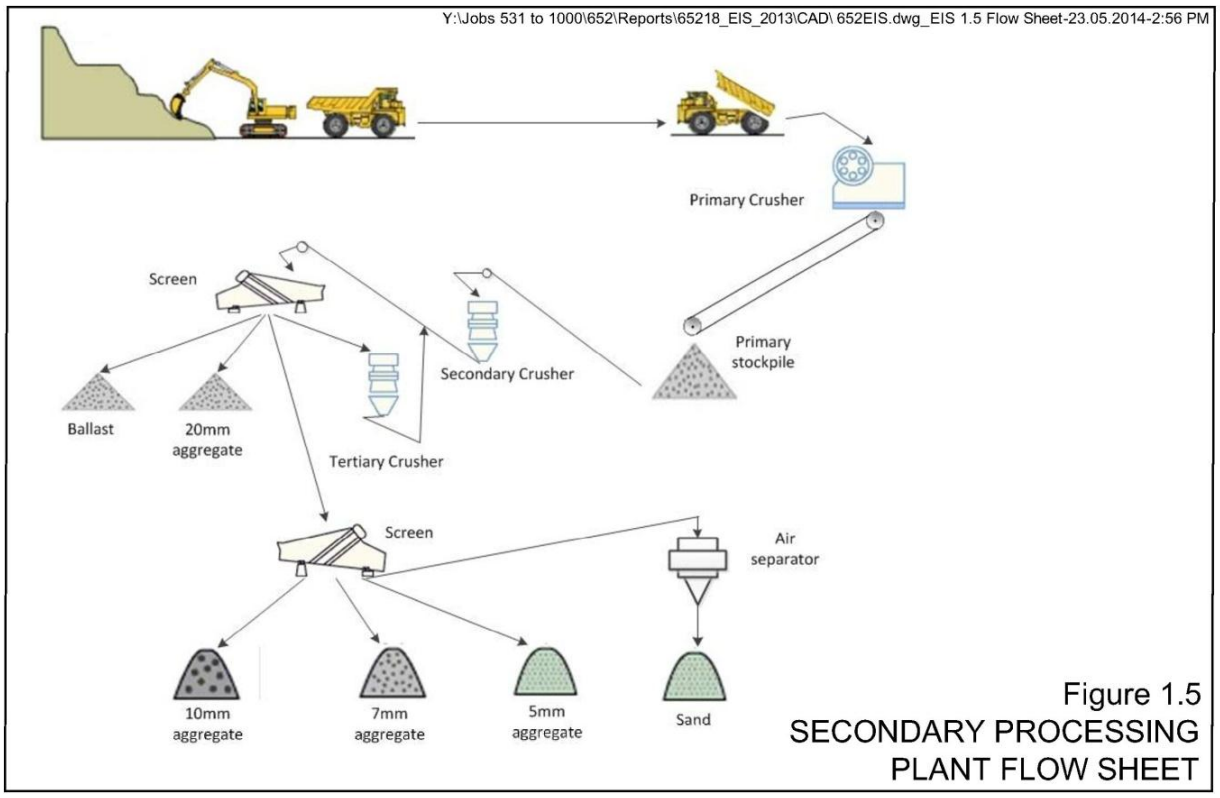
As the Stage 1 extraction area has been developed progressively deeper, these south-north benches have been expanded to the east towards the eastern perimeter of the approved extraction area. The current floor of the Stage 1 extraction area is at approximately 750m AHD, i.e. approximately 20m above the current approved 730m AHD depth limit.

1.5.3 Processing Operations and Stockpiling

1.5.3.1 Processing Operations

The processing operations involve the use of a series of crushers and screens to crush and separate the rhyolite into various size aggregates and to blend some products to produce customised road pavement products.

The blasted or fragmented rock is transported by haul truck to the primary crushing station located on the northern side of the Stage 1 extraction area at approximately 750m AHD (**Plate 1.3**). After crushing to <250mm, the rhyolite is conveyed from the primary crusher, to the primary feed stockpile within the secondary processing area. The further three stages of crushing and screening are undertaken in a 4ha area on the southern side of the Coxs River. A 1.5m high bund is maintained on the northern side of the processing area to clearly define the area for trucks entering the area and to contain all runoff within the area. **Figure 1.5** presents the process flow sheet illustrating the movement of the extracted rock from the extraction area to the various product stockpiles.



Within the secondary processing area, the primary crushed rhyolite is reclaimed from the base of the primary feed stockpile, and conveyed to secondary and tertiary crushers to further reduce the size of the rock. Scalps removed following primary crushing are conveyed to a temporary stockpile located on the southern edge of the processing area and periodically transported to the Yorkeys Creek Stockpile Area to the west of Yorkeys Creek (see **Figure 1.3**). Normally the crushed rhyolite is conveyed to a screen deck where oversize rock is re-circulated and re-crushed to make products of 20mm size or smaller. All <14mm crushed rock that passes through the screens is conveyed to a vertical shaft impactor where this product is further shaped before being separated into smaller aggregate sizes and manufactured sand.

1.5.3.2 Products and Stockpiles

The Applicant produces a wide range of aggregates (40mm, 20mm, 14mm, 10mm 7mm and 5mm), rail ballast, gabion material, blended road pavement products, manufactured sand, select fill, and drainage materials. A number of these and other products are customised to meet the customers' individual specifications. Hence, a number of smaller stockpiles are maintained for these products.

Stockpiles of the various aggregates and blended products are maintained within the secondary processing area from where road trucks are loaded by front-end loader and despatched. Up to approximately 80 000 tonnes of products can be stored within the secondary processing area.

The bulk of excess products including manufactured sands, select fills, drainage materials and road pavement materials are stockpiled within the Yorkeys Creek stockpile area (see **Figure 1.3**). The Applicant estimates that between 600 000t and 700 000t of products are currently retained within the Yorkeys Creek stockpile area.

1.5.4 Product Despatch

The Austen Quarry has approval to despatch up to 1.1 million tonnes per annum (Mtpa) of products via the public road network, although it is currently operating below this approved maximum limit, despatching an average of approximately 750 000tpa. The maximum despatch level was confirmed in correspondence from Lithgow City Council to the EPA following an application by the Applicant to increase the activity threshold of EPL 12323 (to 500 000tpa – 2 000 000tpa). Products are despatched between 5:00am and 10:00pm Monday to Friday and 5:00am to 3:00pm on Saturdays, public holidays excluded.

For the despatch of approximately 750 000tpa, the quarry generates an average of approximately 83 truck loads[5] per day and a maximum of up to 150 truck loads, per day. It is anticipated that at the maximum of 1.1Mtpa, two transport scenarios will occur.

Scenario 1: Predominantly Sydney Customers.
Average: 125 loads / Maximum 180 loads.

Scenario 2: Local and Sydney Customers.
Average: 150 loads / Maximum 250 loads.

The trucks delivering products to Sydney customers are generally articulated truck and dog trailer combinations (within an average load of 32.5t) with trucks delivering a local project, particularly highway upgrades and associated road works, commonly being rigid trucks (with an average load of 15t). All trucks pass over the departure weighbridge before travelling the 3.1km distance on the sealed Quarry Access Road (see **Plates 1.5** to **1.7**) to Jenolan Caves Road. At the priority-controlled intersection with the Quarry Access Road, Jenolan Caves Road is widened to provide an auxiliary right turn (AUR) treatment from the Quarry Access Road and auxiliary left turn (AUL) treatment, which allows through traffic on Jenolan Caves Road to pass vehicles slowing to turn into the quarry (see **Plate 1.8**).

All trucks travelling to and from the quarry use Jenolan Caves Road, a state controlled road which is an approved 24 hours per day, 7 days per week, B-Double truck route with a single travel lane in each direction, marked centre lines and edge lines. Jenolan Caves Road joins the Great Western Highway at a four-way priority-controlled intersection. A left turn deceleration lane and a right turn bay are provided on the Great Western Highway for vehicles turning into Jenolan Caves Road. The majority of laden trucks turn right at the Great Western Highway and travel towards Sydney. All trucks destined for Sydney customers travel only via the Great Western Highway.

1.5.5 Hours of Operation

Table 1.1 presents the current approved hours of operation.

Table 1.1
Approved Quarry Operating Hours

	Monday to Friday	Saturday	Sundays / Public Holidays
Extraction and Processing	6:00am to 6:00pm	7:00am to 3:00pm	No Activity
Blasting	10:00am to 3:00pm	No Activity	No Activity
Product Loading and Transportation	5:00am to 10:00pm	5:00am to 3:00pm	No Activity

[5] 1 truck load generates two trips or truck movements.

Plate 1.5: View westward along the Quarry Access Road immediately west of Yorkeys Creek
(Ref: E652S_083)

Plate 1.6: View westward along the Quarry Access Road
(Ref: E652S_086)

Plate 1.7: View in a northerly direction along the Quarry Access Road towards the Quarry Entrance
(Ref: E652S_089)

Plate 1.8: Deceleration lane on Jenolan Caves Road approaching the Quarry Entrance
(Ref: E652P_063)

1.5.6 Infrastructure and Services

Figure 1.3 displays the key infrastructure within the quarry which includes the following.

1. A hardstand area located to the immediate west of the secondary processing area or bottom plant on which the following has been constructed.
    a) An administration centre incorporating demountable offices, amenities block and weighbridge.
    b) An enclosed workshop constructed over a concrete floor.
    c) An enclosed fuel storage building, constructed over a concrete bunded floor. Separate bunds are maintained within the structure for fuel, oils and lubricants.
    d) A laboratory.
    e) Parking facilities for employees and visitors.
    f) A meteorological station.
2. A network of unsealed roads, tracks and erosion and sediment control structures.
3. A sealed private Quarry Access Road from the Jenolan Caves Road to the quarry weighbridges (see **Plates 1.5** to **1.7**). This includes both centre-line and edge line markings along the length of the road between the intersection with Jenolan Caves Road and the substantial culvert crossing of Yorkeys Creek to the immediate west of the weighbridge.
4. Electrical power for all quarry operations and the administration centre is supplied by diesel-powered generators. One large generator (1 000kVA) provides power to the primary crushing station, two large generators (1 000kVA) provide power to the secondary and tertiary crushing and screening operations and a fourth smaller generator provides power to the offices, workshops and amenities.

1.5.7 Employment

A total of 16 people are currently directly employed at the Austen Quarry. It is estimated that indirect employment, i.e. through transport operations, maintenance and other supply industries, of at least 40 people is also generated by the quarry.

1.6 APPROVALS REQUIRED AND APPROVALS PROCESS

1.6.1 Approvals Required

Based upon the current design and understanding of relevant environmental issues, the Proposal would require the following approvals.

1. Development consent under the EP&A Act. As the Proposal is an extractive industry that would continue to produce more than 500 000 tonnes of products per year and is a resource of greater than 5 million tonnes, it is recognised as State Significant Development under *State Environmental Planning Policy (State and Regional Development) 2011* for which approval is required (in accordance with Division 4.1 of the EP&A Act) from the Minister for Planning or as delegated by the Minister to the Planning Assessment Commission, the Secretary or to another public authority.

   Subject to the receipt of a satisfactory development consent, covering the entire Stage 2 Site, the Applicant would relinquish DA 103/94.

2. Modification to Environment Protection Licence 12323 under the *Protection of the Environment Operations Act 1997*. The issuing authority would be the EPA. The modification would relate only to the lots on which the approved activities are undertaken.

3. A Water Access Licence issued by the NSW Office of Water (NOW) in accordance Part 2 of the *Water Management Act 2000* for extraction and use of groundwater intercepted by the quarry or surface water extracted from the Coxs River[6]. The Applicant currently holds Water Access Licence (WAL) 25616 for the Coxs River and has made application for a zero allocation WAL for the Coxs River Fractured Rock Aquifer groundwater source. An allocation against this WAL would be obtained either by:

   - permanent or temporary transfer of an existing WAL from one of the eight WAL holder within the groundwater source; or
   - as a controlled allocation from the Minister for Natural Resources, Lands and Water.

4. The Proposal was referred to the Commonwealth Department of the Environment (DoE) (formerly the Department of Sustainability, Environment, Water, Population and Communities) and determined to be a controlled action based on potential impacts to the threatened plant *Eucalyptus pulverulenta* (Silver-leaved mountain gum) on and surrounding the Stage 2 Site. As such, assessment and approval is required from the Commonwealth Minister for the Environment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Further discussions relating to *Eucalyptus pulverulenta* is included in Section 4.7.3.

[6] By virtue of Section 89J of the EP&A Act, Water Supply Work and Use Approvals are not required for State Significant Development that is approved under Division 4.1 of the EP&A Act.

As noted in Section 1.5.1, an application for a Controlled Activity Approval has been sought for the quarry under the *Water Management Act 2000*. It is noted that should the Proposal be approved, a Controlled Activity Approval would not be required by virtue of Section 89J of the EP&A Act.

1.6.2 The Approvals Process

Table 1.2 presents the 12 component stages of the overall approvals process for a "*State significant development"* concluding with the determination of the Application by the Minister for Planning or her delegate (*Stage 11* of **Table 1.2**).

Table 1.2
Approvals Process for the Stage 2 Extension Project

Stage	Activity	Status
1	An application for Director-General's Requirements is prepared and submitted to the DP&I accompanied by a document entitled "*Documentation Supporting an Application for Director-General's Requirements for the Austen Quarry Stage 2 Project, Hartley*".	Completed (August 2013)
2	A referral is submitted to DSEWPaC for consideration under the EPBC Act for matters of national environmental significance.	Completed (August 2013))
3	DP&I receives the written requirements of the government agencies consulted and issues the Director-General's Requirements for the Proposal.	Completed (September 2013)
4	DoE provides requirements for assessment under the EPBC Act and DP&I issue supplementary DGRs.	Completed (November 2013)
5	The Applicant commences consultation with the local and wider community – which continues throughout the entire process.	Ongoing
6	An *Environmental Impact Statement* is provided to Department of Planning & Environment (DP&E) for consideration and assessment of adequacy by the Department (prior to it being placed on public exhibition).	June 2014
7	DP&E place all documents on public exhibition and notify neighbours and other stakeholders about the Proposal and the exhibition period.	*
8	Review of the *Environmental Impact Statement* by the community and government agencies during the exhibition period.	*
9	DP&E requests from the Applicant a response/clarification of issues raised in the submissions from government agencies and the community.	*
10	The Applicant provides a response to the issues raised in submissions and, if necessary, a revised Statement of Commitments.	*
11	DP&E prepares its assessment report based on all documentation submitted by the Applicant, government agencies and the community. The Minister will refer the application to a Planning Assessment Commission with a direction of whether a hearing should be held.	*
12	Determination by the Minister for Planning, his/her delegate, or the Planning Assessment Commission, i.e. either approval or refusal.	*
Note: * Timing beyond the control of Applicant.		

1.7 ENVIRONMENTAL MANAGEMENT AND DOCUMENTATION

1.7.1 Quarry Environmental Management

Environmental management at the Austen Quarry will continue in a manner consistent with current practices and incorporate requirements of any additional conditions of the development consent being sought. The majority of environmental management at the quarry is the responsibility of the Quarry Supervisor. This includes all environmental monitoring, implementation of environmental safeguards and preparation of environmental documentation such as monitoring records. Ultimate responsibility for quarry environmental management rests with the Quarry Manager, currently Mr Lee Attard, whose functions include the implementation of existing licence or development consent conditions and day-to-day supervision of the quarry. Specialist consultants are contracted to assist with environmental management procedures where needed such as for flora and fauna monitoring or to provide input on water management structures.

Adelaide Brighton is committed to sustainability based on the continuous improvement of the social, environmental, and economic performance of its group of companies including Hy-Tec Industries. This is applied to operations at the Austen Quarry by ensuring all extraction, processing, transportation and associated activities are undertaken in a responsible and pro-active manner which:

i) enables the co-existence of the various land uses in the area;

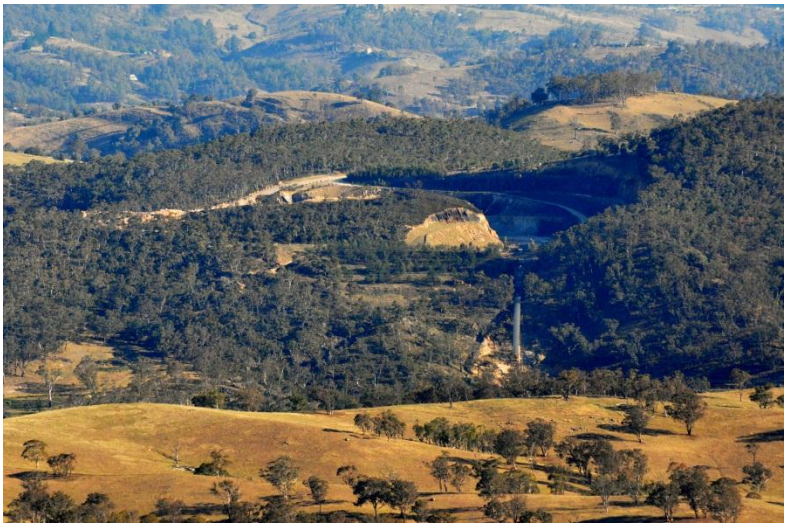
ii) is environmentally and socially responsible; and

iii) minimises any real or perceived impacts on other members of the community. Central to this approach is the regular contact with neighbours and members of the local community and a willingness to openly discuss actual or perceived problems and to implement appropriate changes to operational procedures.

Operations at the Austen Quarry have included progressive rehabilitation and management of nurseries incorporating the threatened *Eucalyptus pulverulenta*. Progressive rehabilitation has required the purchase and planting of approximately 12 000 tubestock grown in local nurseries from seed collected within the Stage 2 Site, including approximately 3 000 *E. pulverulenta*. These plants are used to revegetate exposed areas, manage the visual impacts of extraction, stabilise areas around the Stage 1 overburden emplacement and comply with the conditional requirements of DA 103/94 related to the management and conservation of *E. pulverulenta*.

The Stage 1 extraction area has also been managed to limit visual impacts when viewed from distant vantage points. It is planned that the extant ridge on the northern side of the Stage 1 extraction area will remain for the life of the quarry to conceal a number of the extraction benches from vantage points at Hassans Wall, a key lookout and tourist site in the Lithgow Local Government Area. Periodic applications of a bituminous film on the exposed extraction faces further reduce the visual impact of the extraction area (see **Plates 1.9** and **1.10**).

In 2006-2007, the Applicant prepared a series of site-based management plans to guide operations across the quarry (refer to Section 1.7.2). The Applicant also complies with all existing monitoring requirements and retains all monitoring results to ensure these are available upon request and to assist reviews of long term trends. Environmental monitoring for the quarry is discussed further in Section 1.7.3.

	**Plate 1.9** **Extraction Face pre-Bituminous Film re-application (20/9/2013)** Source: E652U_001b
	**Plate 1.10** **Extraction Face following re-application of Bituminous Film (31/10/2013)** Source: E652X_009

1.7.2 Environmental Documentation

The Applicant has prepared a series of documents to ensure that, irrespective of personnel changes, there is a clear record of management commitments, guidelines for quarry planning, environmental controls, monitoring and response protocols. Existing documentation associated with the Austen Quarry would be reviewed and updated to account for the additional conditions (and commitments) provided following the receipt of development consent, should it be granted.

Existing documentation includes the following.

- *Environmental Management Strategy 2006.*
- *Air Quality Management Plan 2006.*
- *Blast Management Plan 2006.*
- *Environmental Monitoring Program 2007.*
- *Soil and Water Management Plan 2007.*
- *Road Truck Traffic Management Plan 2011.*

- *Rehabilitation and Environmental Management Plan.*
- *Mine Safety Management Plan.*

These documents are reviewed annually and assessed in relation to quarry conditions and requirements.

In addition to the above documents, the Applicant operates the quarry in accordance with a series of Procedures Manuals that have guided the original quarry establishment, construction, operations and monitoring. These documents would also be reviewed and, where appropriate, updated to incorporate any commitments of conditions of the development consent that may be required. The Procedures Manuals in use at the quarry include the following.

- Procedure No. 1 Road Construction 2006.
- Procedure No. 2 Land Preparation and Soil Management 2006.
- Procedure No. 3 Erosion and Sediment Control Structure Design and Construction 2006.
- Procedure No. 4 Erosion and Sediment Control Maintenance 2006.
- Procedure No. 5 Site Stabilisation and Short Term Rehabilitation 2006.
- Environmental Monitoring Procedure No. E1 Surface Water Monitoring 2006.
- Environmental Monitoring Procedure No. E2 Dust Monitoring 2006.
- Environmental Monitoring Procedure No. E3 Noise Monitoring 2006.
- Environmental Monitoring Procedure No. E3 Visual Amenity Monitoring 2006.

The Applicant also prepares Annual Environmental Management Reports (AEMRs). Each AEMR provides an overview of the activities in each preceding year with an assessment of compliance for the various conditional requirements in DA 103/94. The document also reports on any specific requirements nominated in the conditions. All monitoring data collected during the preceding year is presented and evaluated.

1.7.3 Environmental Monitoring

As described in Section 1.7.2, the Applicant currently monitors a range of environmental features within and surrounding the Austen Quarry in accordance with the existing conditions of DA 103/94 and EPL 12323. Existing monitoring includes the following.

- Meteorological monitoring through an on-site meteorological station.
- Ground vibration and air blast overpressure monitoring at every blast.
- Noise monitoring is monitored during each blast incidence and in response to noise complaints.
- Monthly dust monitoring including total insoluble solids and ash fraction is measured at the three locations listed in EPL 12323.

- Monthly water monitoring including measurement of pH, electrical conductivity, turbidity, total dissolved solids, total suspended solids, BOD and oil and grease is undertaken at three approved water monitoring locations on Coxs River. Monitoring at Yorkeys Creek and existing water management structures occurs in response to environmental incidents such as flooding or other significant rain events.
- Fauna and flora monitoring is completed annually through surveys by suitably qualified specialist consultants. Survey results are recorded and compared to results to previous surveys.
- Macro-invertebrate monitoring is completed through aquatic surveys completed annually by suitably qualified specialist consultants. Results are recorded and compared to results from previous surveys.
- Erosion and sediment and control structures are monitored on an on-going basis across the quarry to ensure they remain functional and impacts are minimised.
- The visibility of quarry components are periodically reviewed from Hassans Walls Lookout to establish the need/effectiveness of on-site mitigation measures.

Monitoring data is recorded for future reference and provided in the AEMR with an overview of results and trends for the reporting period of the report. A review of previous monitoring data and annual reports suggests very few instances where trigger levels were exceeded. There were two recorded environmental incidences in 2005 and 2010 that resulted from extreme rain events. These are described in further detail in Section 1.7.4.

1.7.4 Environmental Performance

Environmental management at the Austen Quarry has ensured the Applicant has met the requirements of DA 103/94 and EPL 12323 and resulted in progressive rehabilitation, measures to stabilise exposed areas and mitigation of any visual impacts from operations. It is estimated approximately 3 000 threatened *E. pulverulenta* plants have been successfully cultivated within a designated nursery area of the quarry.

The existing environmental performance across the quarry is considered by the Applicant to be meeting requirements and in some areas exceeding these requirements. Some examples of the quality of environmental management at the Austen Quarry and company-wide are provided below.

- Following the approval of the management plans in 2006, it was identified that the Soil and Water Management Plan had not been implemented to the appropriate standard. A Soil and Water Management Strategy was prepared in June 2007 to guide the implementation of management measures to ensure that erosion and sediment controls were appropriately executed.
- In 2009, the Austen Quarry was recognised in the Cement Concrete and Aggregates Australia (CCAA) annual awards with a highly commended result in the Environmental Performance category and won the OH&S Practical Innovation Award for the quarry's Driver Vehicle Check procedures.

- The Applicant was further recognised at the CCAA NSW 2013 Environmental Health and Safety Awards with an OH&S Best Performance Award for NSW Extractive Industries for the Chain of Responsibility: Driver Vehicle Check system.

In February 2005, a 1 in 150 ARI storm event resulted in construction works at the Yorkeys Creek Crossing being washed out. A report on the event prepared by Parsons Brinckerhoff (2005) provided recommendations to ensure the long-term geotechnical stability of the crossing. These recommendations were progressively implemented and the current crossing was finally constructed in early 2007. Another extreme rainfall event in November 2010 caused an overflow of water management structures in the vicinity of the secondary processing area and subsequent failure of a section of the dam wall causing sediment-laden discharge to the Coxs River. After reporting the incident to the EPA, quarry management commissioned Northrop Engineers to provide technical advice on strengthening the dam and providing overflow relief measures. These recommendations were implemented and Northrop Engineers have since confirmed that all dams at the quarry are structurally sound and in good condition.

During the period from 2009 – 2013, only four complaints were received at the quarry and recorded in the quarry's complaints register. A single complaint in 2009 referred to excessive dust visible from the plant. Upon investigation this was found to be caused by start up disturbance and appropriate measures were taken to ensure appropriate dust suppression was being maintained. Further complaints have referred to traffic or road-based incidences with complaints regarding near accidents (2010), products falling from trucks (2011) and irresponsible driving by a transport contractor (2012). Each instance was investigated and actions taken in response to the complaints have been appropriate for each complaint including one instance where permanent measures were put in place that aimed to reduce the risk of repeat incidences. Communication was maintained with the complainant in each case.

The Austen Quarry has remained compliant with the conditions of its existing approval, except for some instances determined through monitoring and as a result of significant rainfall events. Complaints to the quarry have been minimal and quarry management has ensured these are recorded and responded to appropriately. The quarry has also been recognised for its environmental performance on site and for the procedures in place to manage product transport from the quarry and more broadly across the company. This illustrates the importance with which the Applicant treats environmental management and the success they have had with their existing and continuing operations at the Austen Quarry.

1.8 MANAGEMENT OF INVESTIGATIONS

The preparation of this document has been managed by Mr Alex Irwin, B.Sc. (Hons), Senior Environmental Consultant with R.W. Corkery & Co Pty Limited, Mr Rob Corkery, M.Appl.Sc., B.Sc (Hons), Principal of R.W. Corkery & Co Pty. Limited and Mr Nicholas Warren B.Sc., M.Bus (Marketing), M. Env. Sc., Environmental Consultant with R.W. Corkery & Co Pty Limited.

Details of the Austen Quarry have been provided by Messrs Darryl Thiedeke and Lee Attard of the Applicant. Mr Don Reed of Don Reed and Associates Pty Ltd has provided assistance in the development of a quarry extraction plan and Mr Rod Huntley of Groundwork Plus Pty Ltd has provided the detailed extraction sequence presented in this document and on which the

assessment is based. Input to the design of the overburden emplacement has been provided by Mr Tim Sullivan, M.Sc., B.A. (Geol), and Ms Irene Chan, M.Eng.Sci., B.Eng. (Civil) Hons, B.A., of Pells Sullivan Meynink.

A range of environmental investigations have been undertaken to assess the potential environmental impacts, and identify operational safeguards and measures. These studies were being undertaken by a team of specialist consultants managed by R.W. Corkery & Co Pty Ltd including the following key individuals and companies.

- Mr Ken Hollyoak and Ms Penny Dalton of GTA Consultants (GTA): Traffic Impact Assessment.
- Mr Richard Benbow, B.Sc. (Eng.), and Mr Daniele Albanese, M.Eng. (Hons), B.Eng. (Hons), of Benbow Environmental: Noise Impact Assessment.
- Mr Richard Benbow, B.Sc. (Eng.), Mr Duke Ismael, B.Eng., and Ms Louise Temple, B.Eng, of Benbow Environmental: Air Quality and Greenhouse Gas Assessment.
- Dr Frank Lemckert, PhD, M.Sc., B.Sc., Dr Rhidian Harrington, PhD, M.Sc., B.Sc., and Mr Nathan Smith, B.Sc., of Niche Environment and Heritage (Niche): Terrestrial Ecology Assessment.
- Mr Max Best, M.Env.Eng, B.Env.Eng, and Mr Brendan Alderson, B.Sc. (Hons), of Cardno Ecology Lab (CEL): Aquatic Ecology Assessment.
- Ms Amanda Atkinson, M.Arch, B.A., and Mr Cameron Harvey of Niche Environment and Heritage (Niche): Cultural Heritage Assessment incorporating both Aboriginal and European heritage elements.
- Mr Mark Passfield, B.Sc. (Hons), of Strategic Environmental and Engineering Consulting (SEEC) - Soil and Land Capability Impact Assessment.
- Mr Shane Stuart, B.App.Sc., and Mr Prasanna Rao, M.Eng.Env., B.Env.Eng., of Groundwork Plus – Surface Water Impact Assessment.
- Mr James Morrow, B.Eng.Env. (Hons), of Ground Doctor: Groundwater Impact Assessment.

Section 4 of this document incorporates a review of the assessments of these consultancies in order to satisfy the requirements of the DGRs. The complete impact assessment reports supplied by these consultants are included in a separate volume titled the *Specialist Consultant Studies Compendium* which accompanies this document.

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