

Multiquip Quarries

ABN: 44 101 930 714

Annual Environmental Management Report

for the

Ardmore Park Quarry

Prepared by:



R.W. CORKERY & CO. PTY. LIMITED

August 2015

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Ardmore Park Quarry

Prepared for:

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FOREWORD

This represents the first Annual Environmental Management Report (AEMR) prepared for the Ardmore Park Quarry in accordance with Schedule 5, Condition 5 of Project Approval MP 07_0155.

It is noted that this report is for the initial 19 month period of operations under MP 07_0155, commencing in November 2013 through to 21 August 2015. This reflects the relatively minor nature of operations undertaken to date, limited to the construction of a by-pass road of the village of Bungonia, basalt extraction to supply these works and some minor preparatory works on the Quarry Site in the form of hardstand and laydown areas, internal road access and amenity bund construction. 21 August is also the anniversary date of Environment Protection Licence (EPL) 13213 issued for the activities of Land-based Extraction and Crushing, Grinding or Separating at the Ardmore Park Quarry.

Future AEMRs will be prepared on an annual basis for the period 22 August to 21 August.



LIST OF ACRONYMS

AEMR	Annual Environmental Management Report
AHD	Australian Height Datum
CCC	Community Consultative Committee
DPE	Department of Planning and Environment
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
LCC	Larry Cook Consulting Pty Limited
RWC	RW Corkery & Co Pty Limited
SCA	Sydney Catchment Authority (now Water NSW)
SEEC	Strategic Engineering & Environmental Consultants



Section 4: Complaints and Environmental Incidents

Provides a summary of the complaints received and the environmental incidents occurred during the AEMR Period, and the measures taken to address the complaints and resolve the environmental incidents.

Section 5: Summary of Monitoring Results

Provides a summary of the results of the monitoring undertaken at the Quarry during the AEMR Period and identifies any monitoring trends and/or non-compliances.

1.3 THE PROPONENT

CEAL Limited (ABN 44 101 930 714) is the proponent of Ardmore Park. CEAL operates two divisions:

- Multiquip Quarries the owner and operator of Ardmore Park Quarry ;and
- Multiquip Aggregates a Civil Construction, Quarry Operator and Transport Company.
- CEAL has extensive experience in all aspects of quarry operation, including quarry extraction, crushing and screening and transport of all construction material products. The company currently operates out of 3 separate quarries producing a range of different materials to meet customer demand.

1.4 BACKGROUND TO THE PROJECT

Development on "Ardmore Park" was initially intended as a poultry farm, however, following an investigation of the availability of groundwater resources to supply the proposed poultry farm, a significant sand and basalt resource was identified on the property. Further exploration drilling and resource analysis confirmed the presence of commercially recoverable quantities of sand and basalt of a quality satisfactory for use in the manufacture of concrete and for road construction activities.

Based on the results of the drilling and resource analysis, further resource definition and environmental studies were commenced culminating in a development application being lodged with the then Department of Infrastructure, Planning and Natural Resources (DIPNR) in January 2005 to develop and operate the "Ardmore Park" Quarry. The Minister for Planning refused that development application with the decision was upheld in the NSW Land and Environment Court on 19 June 2007 by Justice Jagot J (Hearing 10245 of 2006). Justice Jagot J focussed on two principal issues when forming her opinion to refuse development consent, namely:

- i) the proposed transport route through Bungonia Village would undermine important aspects of the amenity of the village; and
- ii) the environmental impacts of the upgrading of Jerrara Road were not adequately covered.



Multiquip subsequently reviewed the transportation component of the Quarry proposal and lodged a new development application, under (the now repealed) Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act), providing for:

- a private by-pass road of Bungonia; and
- additional upgrades to the public roads of the proposed transport route to the desired road standard of Goulburn Mulwaree Council.

The approved layout of the Project Site is presented in **Figure 2**, and includes the following.

- A site establishment phase during which an acoustic bund wall, internal access roads, buildings, fixed plant and hardstands would be constructed.
- Installation of a range of services, structures and transportable buildings.
- Extraction of sand and hard rock resources from an area of 46.8ha.
- Separate processing areas for sand and basalt, with residual silts generated by sand washing placed within silt cells constructed within the completed sections of the extraction area.
- A product stockpile area.

MP 07_0155 also approves and/or requires the following activities.

- The transportation of quarry products to markets in Sydney, South Coast, Canberra and Goulburn, subject to completion of specified road construction and road upgrade works.
- Construction of the Bungonia By-pass, including a bridge crossing of Bungonia Creek.
- Upgrade of the public road network to provide for a widened pavement and sealed road shoulders (8m), upgrade specified intersections and creek crossings and install additional signage.
- Importation of Virgin Excavated Natural Material (VENM) to provide additional material to backfill completed sections of the extraction area and enable the creation of a final landform with an elevation and slopes consistent with those of the pre-Project environment.
- Progressive rehabilitation of the final landform through final profiling, soil replacement and revegetation with both pasture and native woodland vegetation.

1.5 LICENCES, LEASES AND APPROVALS

Operations at the Quarry are undertaken in accordance with MP 07_0155, which was initially granted on 20 September 2009 and has been modified as follows.

- Modification 1 was approved in October 2010 relocating the Site Entrance and Access Road. Specific requirements with respect to the protection of the locally significant 'Larbert Tree' were also included.

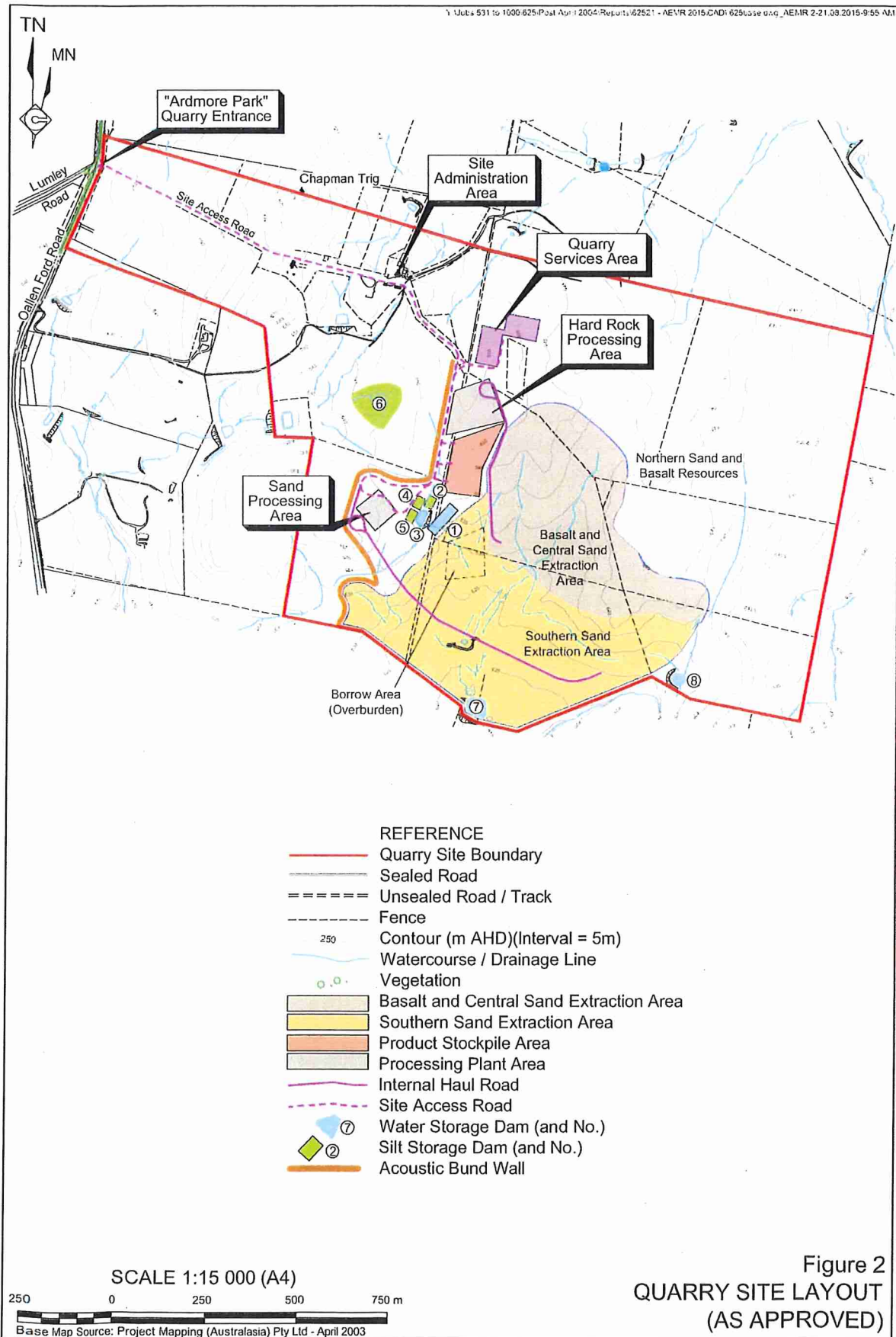


Figure 2
 QUARRY SITE LAYOUT
 (AS APPROVED)

- Modification 2 was approved in November 2013 to allow for the supply of up to 20 000t of quarry products to local customers via roads other than those of the primary transport route.

Environmental Protection Licence (EPL) 13213 has been issued by the Environment Protection Authority with an anniversary date of 21 August.

1.6 CONSULTATION

1.6.1 Community

1.6.1.1 Community Consultative Committee

A Community Consultative Committee (CCC) was established to provide a forum for the local community to be made aware of and raise potential issues with Quarry operations. The CCC meets every six months and is composed of the following representatives.

- Don Elder (Chairman).
- Jason Mikosic (Company Representative).
- Rick Mandelson (Company Representative).
- Steve Mikosic (Company Representative).
- Louise Wakefield (Goulburn Mulwaree Council).
- Mick Ireland (Committee Member).
- Phillip Broadhead (Committee Member).
- Joanne Macey (Committee Member).

A copy of the minutes of the CCC meetings held to date is presented as **Appendix 1**. There have been no major issues raised prior to, at or following these meetings.

1.6.1.2 Neighbours and Local Landowners

The Company maintains an open door policy for neighbouring and local landowners to discuss the development of the Quarry and other issues.

Given there has been only limited activity on the Quarry Site, there has been only minimal contact between the Company and local landowners (outside of the CCC). This has been largely general in nature, i.e. discussions revolved around overall progress of the Quarry, however, it is noted that on one occasion during the reporting period, a neighbouring land owner commented on noise emanating from the Quarry Site. It was subsequently confirmed that no operations were undertaken at that time and the noise was from another source.

It is also noted that prior to the AEMR period (March 2011), the Company discussed possible mitigation measures for reducing the visual impact of the Quarry. A Visual Impact Mitigation Report was subsequently prepared by RW Corkery & Co Pty Limited (RWC, 2011), with the Company to implement measures as relevant on request by affected land owners.

1.6.2 Government Agencies and Public Authorities

1.6.2.1 Goulburn-Mulwaree Council

Communication between Goulburn-Mulwaree Council (“the Council”) has been minimal during the AEMR period. Similar to most years since the Quarry was initially proposed, the Company was contact by the Council regarding complaints received relating to trucks travelling through Bungonia. As in previous years, these trucks were delivering cricket pitch clay from the “Ardmore Park” property in accordance and compliance with a separate development consent issued by the Council for the property.

1.6.2.2 Department of Planning and Environment

The Company was contacted by the Department of Planning & Environment (DPE) in relation to an inspection and audit of Quarry operations against the conditions of MP 07_0155 on 6 July 2015. The inspection and audit was undertaken on 9 July 2015 with correspondence requesting the supply of additional information emailed to the Company on 4 August 2015. Information requested by the DPE relevant to production data/records, monitoring results and general site management is presented within or appended to this AEMR. Additional information is to be supplied to the DPE at a follow-up site meeting held on 26 August 2015.

1.6.2.3 Environment Protection Authority

The Environment Protection Authority (EPA) contacted the Company on 21 July 2015 regarding the Company’s lack of submission of groundwater monitoring results. The groundwater monitoring results were submitted to the EPA on 21 July 2015. Further correspondence determined that the submission of results satisfied the request of the EPA. A copy of this correspondence is presented as **Appendix 2**.

1.6.2.4 Other Government Agency / Public Authority

A representative of the Sydney Catchment Authority (SCA) inspected the site of the Bungonia By-pass on 17 February 2014. It was the opinion of the SCA that effective erosion and sediment controls were not in place to prevent the pollution of Bungonia Creek. A further investigation in June 2014 noted that while structures were now in place, these were not being maintained in accordance with the appropriate guideline for erosion and sediment control (“the Blue Book”). A copy of the correspondence summarising the inspections of SCA (now Water NSW) and consultation is presented in **Appendix 3**.

An inspection of the erosion and sediment control works in question was completed by RWC on 11 August 2015, confirming the structures are in place and effectively maintained.



2. STANDARDS AND PERFORMANCE MEASURES

2.1 INTRODUCTION

Condition 5(a) of Schedule 5 of Development Consent 07_0155 requires this AEMR to identify the standards and performance measures that apply to the Quarry. This section has been prepared in fulfilment of this condition.

Table 1 presents the standards and performance measures for the Quarry, including the justification for their application, how they are measured, and an assessment of compliance during the AEMR Period.

2.2 COMPLIANCE REVIEW

2.2.1 Introduction

In accordance with *Condition 6(d) of Schedule 5*, the Company will conduct a compliance audit to assess whether the Quarry is complying with the relevant standards, performance measures and statutory requirements.

A compliance review has been undertaken for the AEMR Period. The results of this compliance review are presented in **Table 1**.

2.2.2 Compliance Categories

The following compliance categories have been used to assess whether standards and performance measures have been complied with.

- Yes: The Quarry has been in compliance with the standard or performance measure during the AEMR Period.
- No: The Quarry has not been in compliance with the standard or performance measure during the AEMR Period.
- Partial: The Quarry has been partially in compliance with the standard or performance measure during the AEMR Period.
- Not Applicable (NA): The standard or performance measure is not required to be addressed, or there is insufficient data to determine compliance during the AEMR Period.
- Not Reviewed (NR): The performance was not reviewed.

Table 1
Standards and Performance Measures

Page 1 of 4

Parameter	Performance Measure	Justification	Measurement type	Compliance
Approval Limits	Extraction and processing measures do not extend beyond 30 July 2039.	Condition 2(5) of MP 07_0155	-	NA
	Production limited to 400,000tpa.	Condition 2(6) of MP 07_0155	Transportation records	Yes
Infrastructure	All new buildings and structures constructed in accordance with relevant guidelines.	Condition 2(8) of MP 07_0155	Building Code of Australia	NA
	All demolition work carried out in accordance relevant guidelines.	AS 2601-2001 Condition 2(9) of MP 07_0155	Audit / completion report	NA
	All public infrastructure requiring repair or relocation as a result of the Quarry paid for by the Company	Condition 2(10) of MP 07_0155		Yes (Bungonia By-pass – Oallen Ford Road intersection)
Plant and Equipment	All plant and equipment operated and maintained in a proper and efficient condition.	Condition 2(11) of MP 07_0155 Condition O2.1 of EPL 13213	Inspection / audit	Yes
Crown Land	Development on Crown Land approved by the Department of Lands prior to commencement.	Condition 2(12) of MP 07_0155	Correspondence Records	Yes (Crown land of Bungonia By-pass purchased)
Boundaries	Quarry boundaries identified by a registered surveyor, clearly marked and indicated on a survey plan.	Condition 3(1) of MP 07_0155	Survey	Yes (refer to Appendix 4)
Acquisition of Properties	The Company acquires Lot 23 DP 1001312.	Condition 3(1A) of MP 07_0155	Land title records	Yes
Noise	Construction noise <10dB(A) Rating Background Level	Interim Construction Noise Guideline (Table 2)	Noise Monitoring (in accordance with Noise Management Plan [NMP])	NA (Noise monitoring not undertaken)
	Noise generated by the Quarry (including road noise) does not exceed criteria.	Condition 3(2) of MP 07_0155 (Table 1) Condition L3 of EPL13213	Noise Monitoring in accordance with NMP	NA (Noise monitoring not undertaken)
	Traffic noise generated by the Quarry does not exceed relevant criteria.	Condition 3(3) of MP 07_0155 (Table 2)	Noise Monitoring in accordance with NMP	NA (Noise monitoring not undertaken)
	A western earth mound and acoustic barrier constructed prior to the commencement of any extraction.	Condition 3(5) of MP 07_0155	Inspection / Audit	Yes (partial)
	The Quarry is operated to prevent adverse noise impacts at residential and other relevant receivers.	Condition 3(6) of MP 07_0155	Documentation: NMP Monitoring in accordance with NMP	Yes



Table 1 (Cont'd)
Standards and Performance Measures

Page 2 of 4

Parameter	Performance Measure	Justification	Measurement type	Compliance
Operating Hours	Quarry operations restricted to approved operating hours.	Condition 3(4) of MP 07_0155 Condition L4 of EPL 13213	Employee work hour records	NR
Air Quality	Dust emissions generated by the Quarry do not exceed relevant criteria.	Condition 3(7) of MP 07_0155	Deposited dust monitoring in accordance with Air Quality Management Plan [AQMP])	Yes (excluding anomalous results – see Section 5.4)
	Visible air pollution is assessed regularly and operations modified as required to minimise air quality impacts.	Condition 3(8) of MP 07_0155	Complaints Register Inspection / audit	NR (compliance with dust deposition criteria achieved and no complaints logged)
	The Quarry is operated to prevent adverse impacts on local air quality.	Condition 3(9) of MP 07_0155	Documentation: AQMP Deposited dust monitoring in accordance with AQMP	Yes
Meteorological Monitoring	A meteorological station is maintained at the Quarry.	Condition 3(10) of MP 07_0155	Inspection / audit	Yes
	Data is collected in appropriate form and at required frequency.	<i>Approved Methods for Sampling of Air Pollutants in New South Wales</i> guideline	Data download	Yes
Water	Sufficient water is available for quarrying and processing. Scale of operations is adjusted to match water supply.	Condition 3(11) of MP 07_0155	Allocation under Water Access Licence Reporting against Water Access Licence requirements	Yes
	Discharge should not occur unless in accordance with the EPL.	Condition 3(12) of MP 07_0155	Internal reporting for Annual Return	No (discharge to Bungonia Creek)
	The Quarry is to be operated to prevent adverse impacts on ground or surface water.	Section 120 of the Protection of the Environment Operations Act 1994 (POEO Act) Conditions 3(13 to 18) of MP 07_0155	Documentation: Water Management Plan (WMP) Water monitoring in accordance with WMP	Yes No (refer to Section 5.5)

Table 1 (Cont'd)
Standards and Performance Measures

Page 3 of 4

Parameter	Performance Measure	Justification	Measurement type	Compliance
Landscape Management	The Quarry should be rehabilitated to provide at least 14.7ha of Yellow Box – Red Gum Woodland	Condition 3(19) of MP 07_0155	Documentation: Landscape Management Plan Annual inspection and survey	NA
	The Quarry Site is appropriately rehabilitated.	Conditions 3(20 to 22) of MP 07_0155	Documentation: Landscape Management Plan Inspection / Audit	Yes
	A Rehabilitation Bond should be lodged	Condition 3(23) of MP 07_0155	Bank Statement / Records	No
Aboriginal Heritage	Sites or artefacts of Aboriginal heritage are not destroyed or damaged.	Part 6 of the <i>National Parks & Wildlife Act 1974</i> Condition 3(24) of MP 07_0155.	Documentation: Aboriginal Heritage Management Plan Inspection / Audit	Yes
Transport	Payment of a monthly contribution of 4¢/km/t despatched from the Quarry is made to Council. The contribution amount is adjusted every 3 years from September 2009.	Condition 2(13) of MP 07_0155 Mulwree Shire – Development Contributions Plan 2003-2008	Invoice records	NR
	Product transport is restricted until Stage 1 road upgrade works have been completed.	Condition 3(25) of MP 07_0155	Production Records	Yes
	Product transport is restricted to the relevant movement levels.	Condition 3(25) of MP 07_0155	Production Records	Yes
	Upgrades to the Hume Highway and intersections are implemented.	Condition 3(26) of MP 07_0155	Inspection / Audit	NA
	A Traffic Management Plan is implemented.	Condition 3(27) of MP 07_0155	Documentation: Traffic Management Plan	Yes
	A log of the extraction quantities and traffic movement in and out of the Quarry is maintained.	Condition 3(29) of MP 07_0155	Production Records	Partial



Table 1 (Cont'd)
Standards and Performance Measures

Page 4 of 4

Parameter	Performance Measure	Justification	Measurement type	Compliance
Visual	Visual and off-site lighting impacts is minimised.	Conditions 3(31 to 35) of MP 07_0155	Documentation: Visual Impact Mitigation Report (VIMR) Implementation of VIMR on request <i>AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting</i>	Yes
	No advertising structures or signs are displayed on the Quarry Site.	Condition 3(36) of MP 07_0155	Inspection / Audit	Yes
Waste Minimisation	Only VENM should be imported to the Project Site.	Condition 3(37a) of MP 07_0155	Production records	Yes
	Waste generation at the Quarry is minimised as far as practicable.	Condition 3(37b) of MP 07_0155	Inspection / Audit	Yes
Dangerous Goods	The storage, handling and transport of dangerous goods is conducted in accordance with Australian standards.	Condition 3(38) of MP 07_0155	AS1940, AS1596, <i>Dangerous Goods Code</i>	No
Safety	The Quarry is secured to ensure public safety.	Condition 3(39) of MP 07_0155	Lockable Gate	Yes
Bushfire Management	The Quarry is equipped to respond to any fires on-site.	Condition 3(40) of MP 07_0155	Inspection / Audit	NR
Production Data	Production data is provided annually to the DPI and included in the AEMR.	Condition 3(40) of MP 07_0155	Production records	Yes
Independent Environmental Audit	Within 2 years of the date of the commencement of quarrying operations, and every 3 years thereafter, an Independent Environmental Audit is commissioned.	Condition 5(6) of MP 07_0155		NA
Community Consultative Committee	A Community Consultative Committee is established.	Condition 5(9) of MP 07_0155	Minutes	Yes

3. OPERATIONS AND ACTIVITIES

3.1 INTRODUCTION

Commencing in November 2013, operations under MP 07_0155 have been undertaken on a periodic campaign basis. For extended periods, there has been minimal or no operations undertaken for the purpose of MP 07_0155.

This section discusses the operations during the AEMR Period and the operations planned to occur during the 2015/2016 AEMR Period.

3.2 THIS AEMR PERIOD

3.2.1 Construction

Construction activities commenced during the AEMR Period. These activities included the following (**Figures 3 and 4**).

- The Bungonia By-pass was commenced in November 2013 with completion to within 50m of Mountain Ash Road completed by mid-2014. Construction included the clearing, placement of sub-base materials and sealing of a two-lane road. A bridge over Bungonia Creek was installed and erosion and sediment control features were constructed (and remain in place) in accordance with an Erosion and Sediment Control Plan prepared for the road construction project.

Plates 1 to 4 illustrate the status of the Bungonia By-pass construction as at the end of the AEMR period.

- On the Quarry Site itself, construction activities included an upgrade to the Site Access Road, an internal access road from the Site Access Road to the extraction area, a hardstand for the placement of a temporary crushing facility and the partial completion of an earth mound and acoustic barrier to the west of the extraction area.

Plates 5 to 8 identify the various Quarry Site construction activities during the AEMR period.

3.2.2 Extraction and processing

3.2.2.1 Basalt

Figure 3 identifies the location of basalt extraction during the AEMR period. Between 11 November and 13 December 2013 approximately 12,000 tonnes of material was extracted for the purpose of the Bungonia By-pass construction. This included approximately 7,540t of the upper weathered profile for use as select fill.



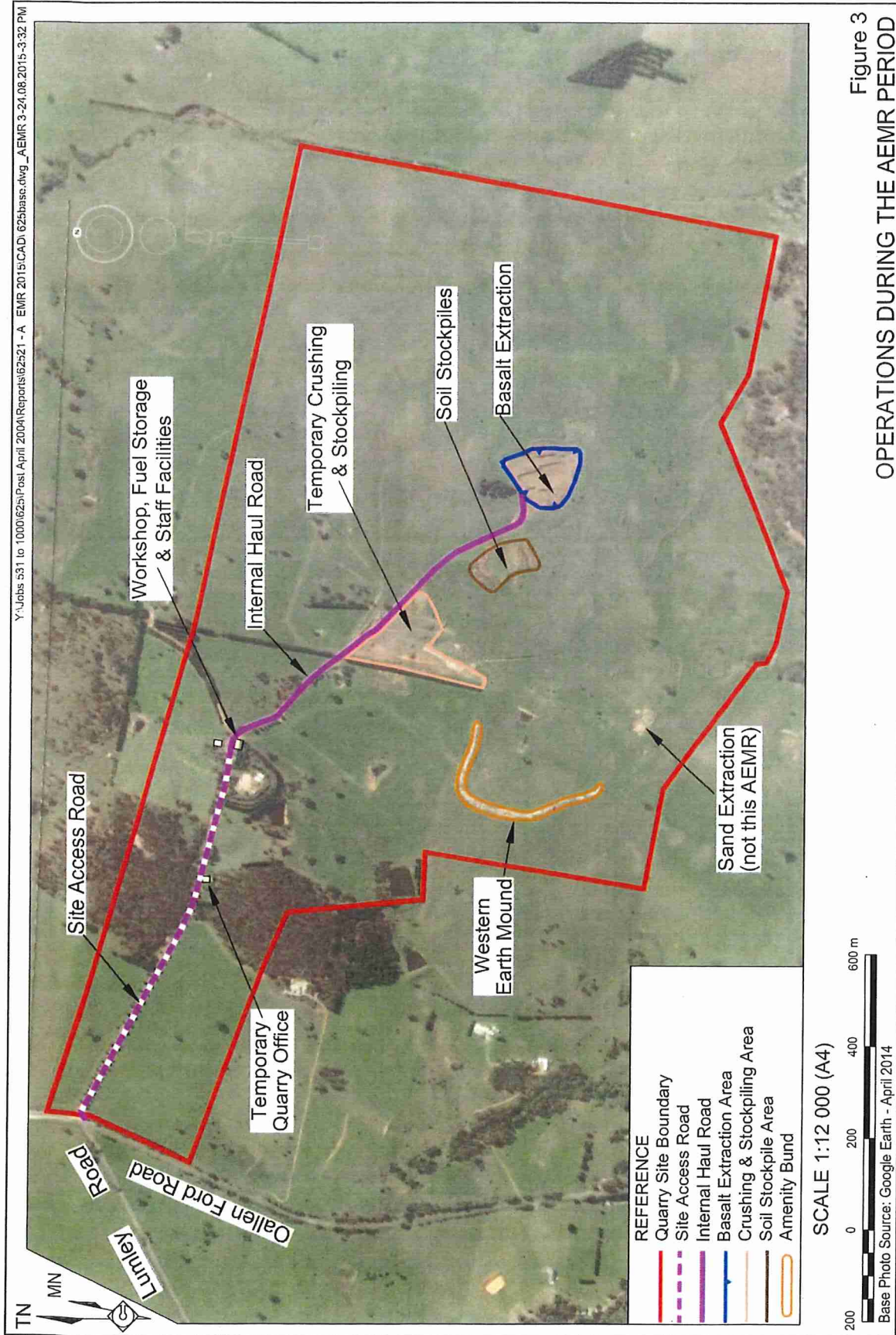
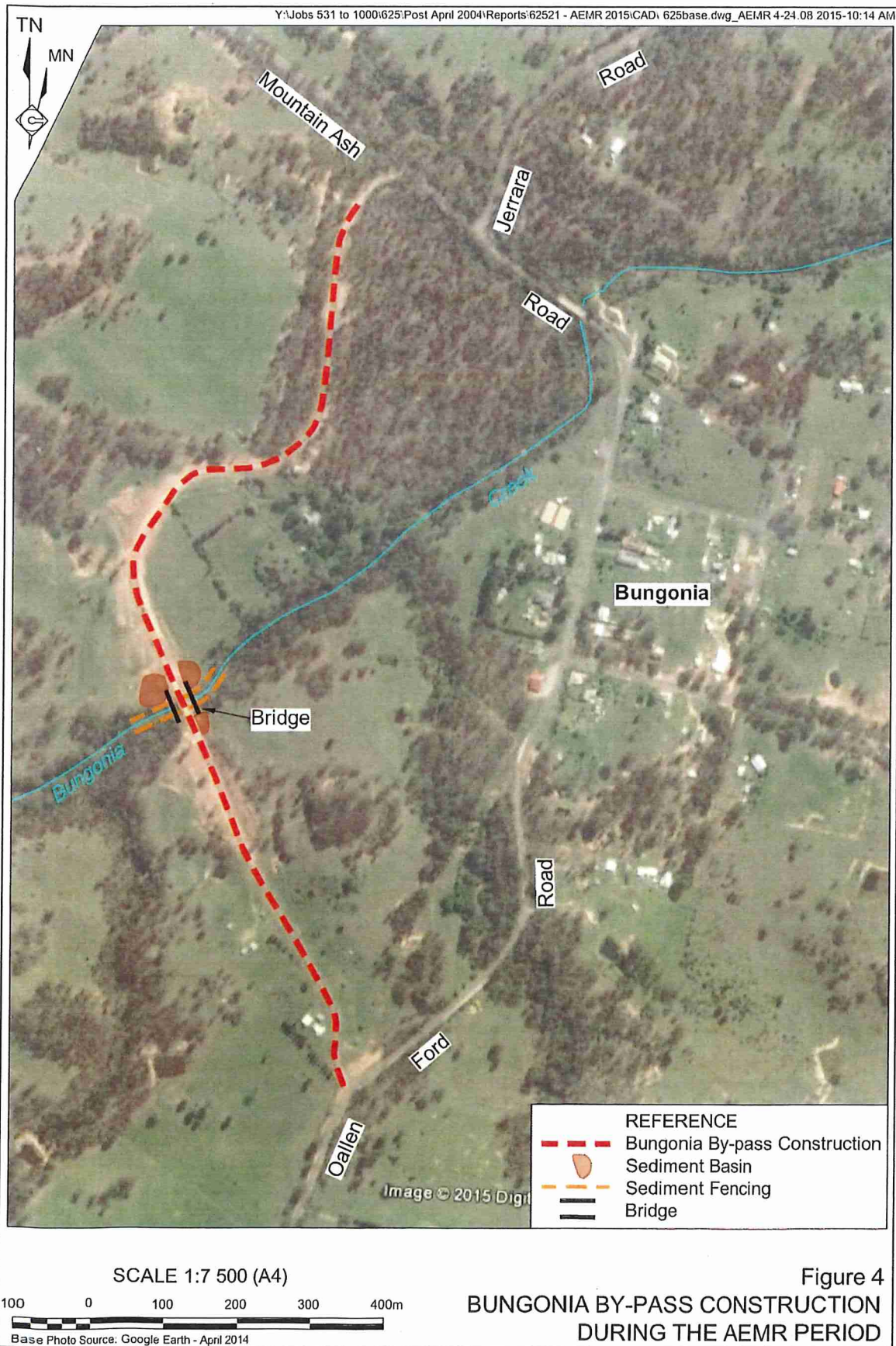


Figure 3
OPERATIONS DURING THE AEMR PERIOD



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Plate 1: Batter revegetation and sediment fencing adjacent to the Bungonia By-pass, looking east (Ref: E625G_016)

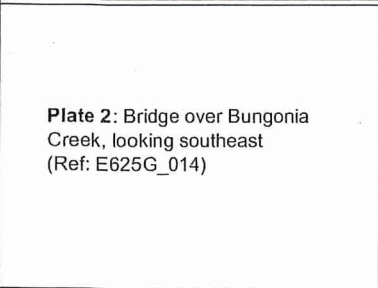


Plate 2: Bridge over Bungonia Creek, looking southeast (Ref: E625G_014)



Plate 3: Bungonia By-pass road surface looking southeast (Ref: E625G_017)



Plate 4: Sediment fencing adjacent to Bungonia Creek, looking northeast (Ref: E625G_013)



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Plate 5: Basalt extraction area looking south
(Ref: E625G_024)

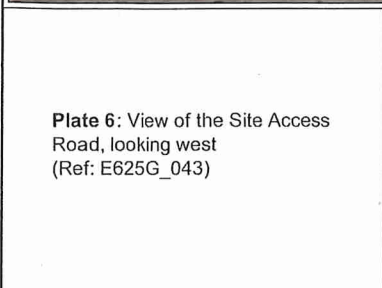


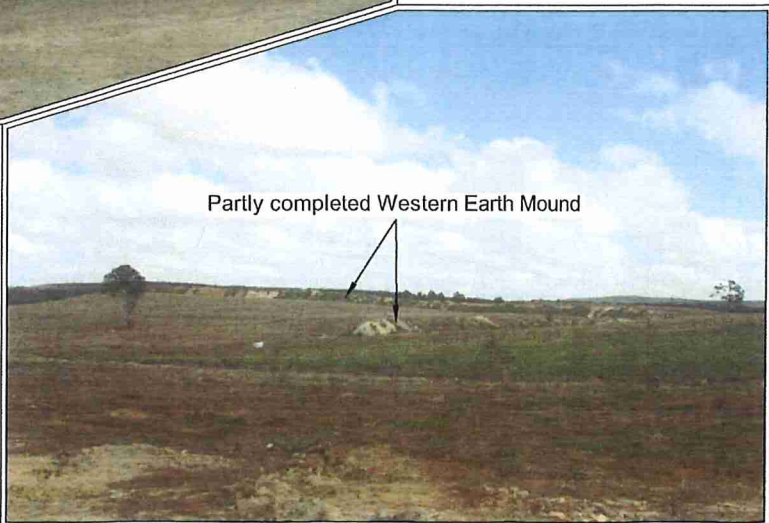
Plate 6: View of the Site Access Road, looking west
(Ref: E625G_043)



Plate 7: Processing and Stockpiling Area looking east
(Ref: E625G_020)



Plate 8: Partial construction of Western Earth Mound
(Ref: E625G_038)



Partly completed Western Earth Mound



All materials were removed by ripping and delivered to the processing area where the hard rock basalt was crushed by a mobile crushing unit, sorted and loaded to trucks for delivery to the Bungonia By-pass. Of approximately 4,500t of basalt extracted and crushed, 4,100t of 40mm and 250t of 20mm aggregates were produced. Undersized material (<5mm), otherwise referred to as scalps remains stockpiled within the Processing and Stockpile Area for future use as a blending product.

The location of the Basalt Extraction Area, the Hard Rock Processing Area and the Product Stockpile Area are presented in **Figure 3**.

3.2.2.2 Sand

No sand extraction or processing was undertaken during the AEMR Period. A test area has previously been excavated, however, no sand has been processed for sale or transport.

3.2.3 Backfill and Rehabilitation

No backfill operations occurred during the AEMR Period. No VENM was imported to the Project Site during the AEMR Period.

With the exception of natural progressive rehabilitation, no rehabilitation occurred within the Quarry Site during the AEMR Period.

The roadside batters of Bungonia By-pass were sown with seed during the AEMR Period and **Plate 1** illustrates the establishment of grass that has occurred.

3.3 2015/2016 AEMR PERIOD

3.3.1 Introduction

This section presents the operations and activities that are anticipated to occur during the 2015/2016 AEMR Period. The locations of the planned activities are identified on **Figures 5 and 6**.

Similar to this AEMR period, the Company does not anticipate production levels greater than that required to supply the completion of road works and local customers (up to 20,000t).

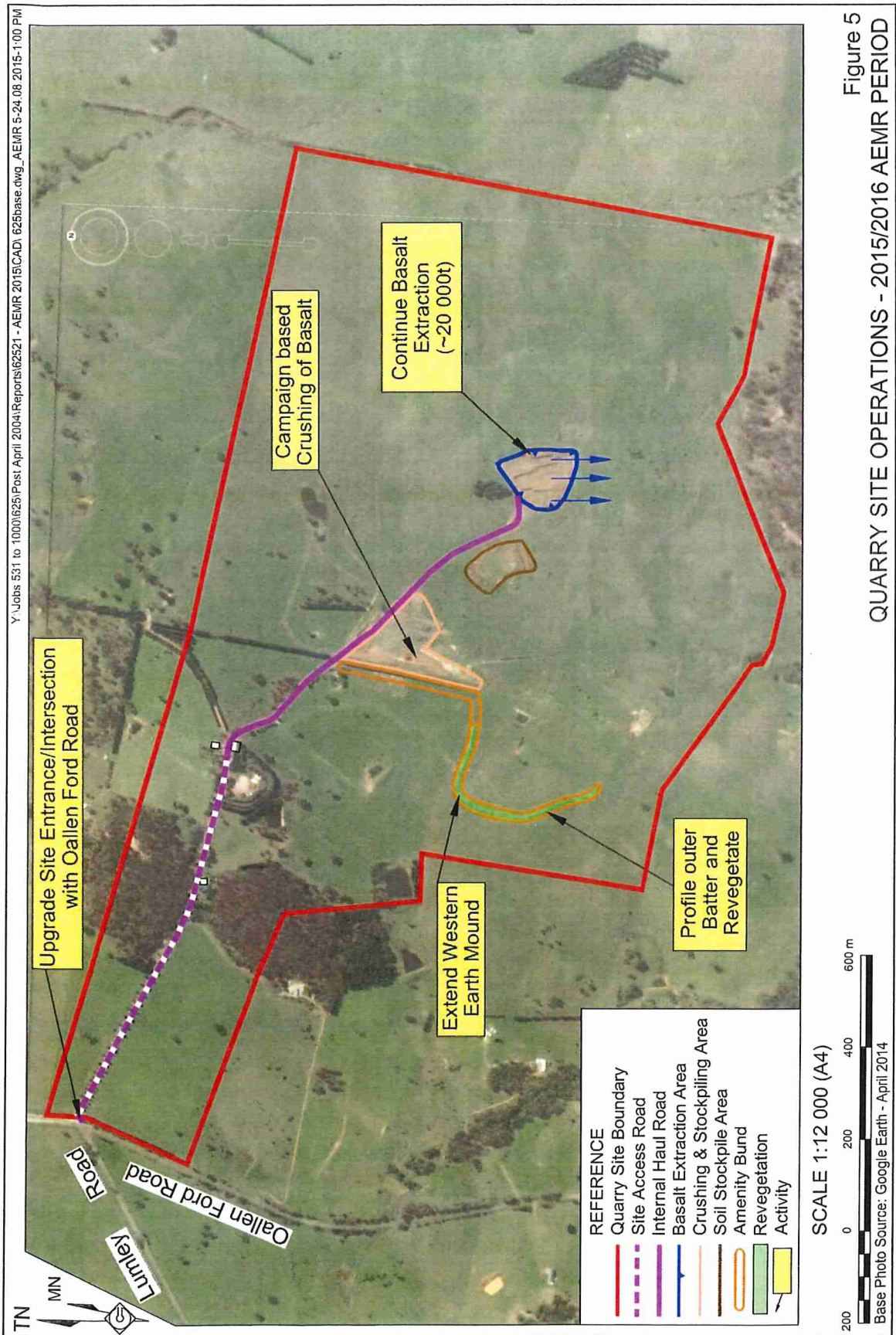
3.3.2 Construction

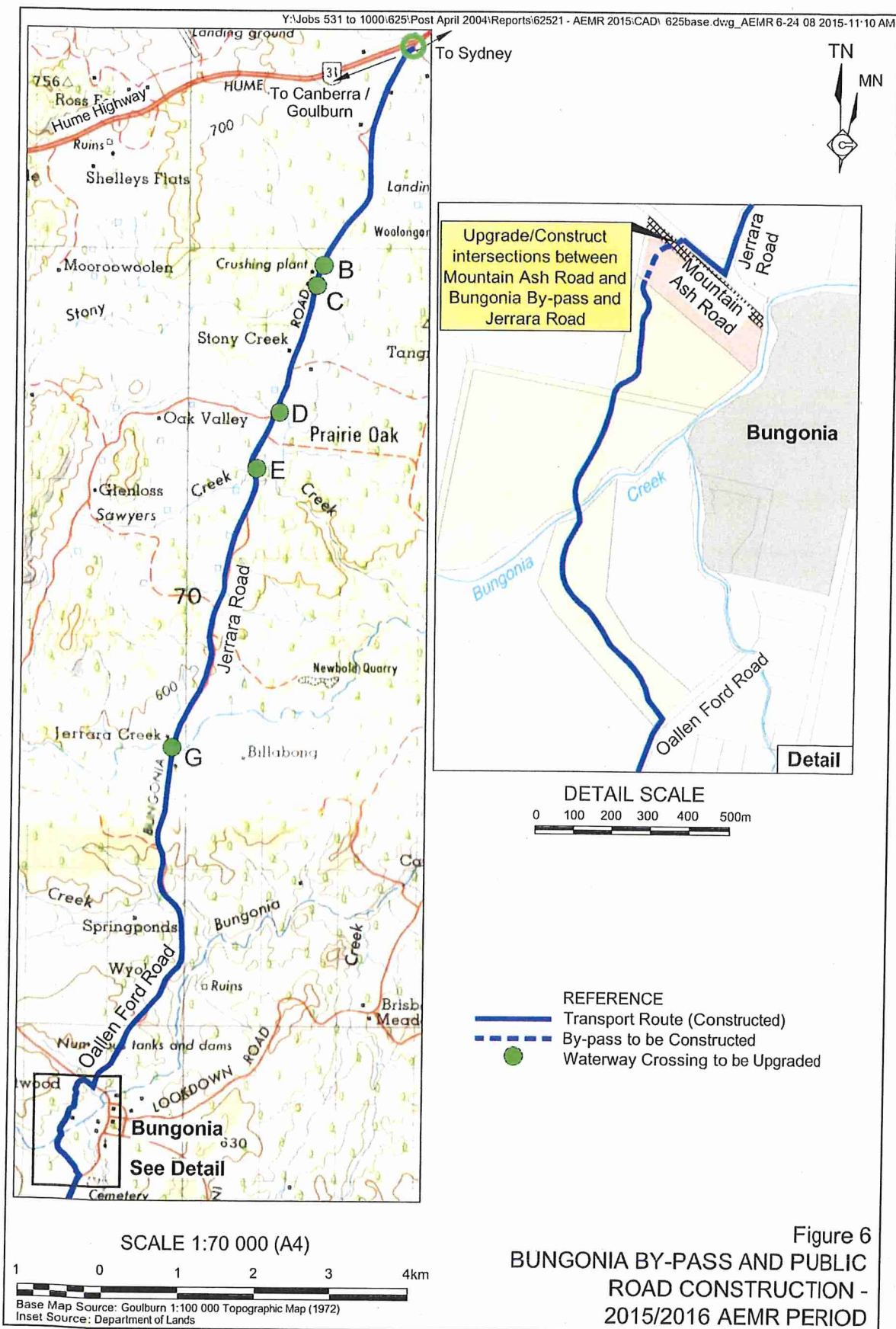
Quarry Site

In accordance with Condition 3(5), the Company intends on completing the western earth mound and acoustic barrier.

An upgraded fuel storage will be installed or constructed which complies with Australian Standard (AS) 1940.

Major works on the Quarry Site, i.e. processing plant and infrastructure, are unlikely to be commenced until at least the 2016/2017 AEMR Period.





Bungonia By-Pass and Public Roads

During the 2015/2016 AEMR Period the Company plans to complete the Stage 1 road and intersection upgrades presented in *Section 3.2* of RWC (2008), namely:

- construct the Quarry Site entrance with Oallen Ford Road;
- complete the Bungonia By-pass, including the intersection with Mountain Ash Road;
- upgrade the Mountain Ash Road - Jerrara Road intersection;
- widen the carriageway of Jerrara Road at Crossing E (which occurs approximately 5.94km from the Hume Highway); and
- install "Give Way" signs on the southbound approach to Crossings B, C, D, E and G (which occur approximately 3.16km, 3.43km, 5.12km, 5.94km and 9.72km from the Hume Highway).

3.3.3 Extraction and Processing

Extraction of basalt is likely to remain concentrated in the area developed during this AEMR period (see **Figure 5**). Sufficient material will be extracted and transferred to the processing and Stockpile Area for campaign crushing by a mobile crushing unit imported to the Quarry Site.

It is not anticipated that sand extraction will commence during the next AEMR Period.

While subject to road construction requirements and local customer demand, the Company does not anticipate crushing more than 20,000t of basalt during the 2015/2016 AEMR Period. It is acknowledged that supply of quarry products, other than for the Stage 1 road works, will not be undertaken until such time as the road works are completed.

3.3.4 Backfill and Rehabilitation

No backfill operations are planned for the 2015/2016 AEMR Period.

Rehabilitation activities planned for the 2015/2016 AEMR Period will include:

- profiling and establishment of grass on the outer batter of the western earth mound and acoustic barrier; and
- General weed management.

3.3.5 Other Activities

As ground is stabilised adjacent to the Bungonia By-pass road surface and Bungonia Creek crossing, sediment fencing will be removed and the sediment basins infilled and revegetated.



3.3.6 Independent Environmental audit

The Company will conduct an Independent Environmental Audit prior to November 2015. A copy of the audit report and a response to the report recommendations to the Secretary of the Environment within 6 weeks of the completion of the audit.

The Independent Environmental Audit will include a compliance audit to assess whether the Quarry is complying with the relevant standards, performance measures and statutory requirements.

4. COMPLAINTS AND ENVIRONMENTAL INCIDENTS

4.1 COMPLAINTS

No complaints were received during the Reporting Period. One enquiry was made by a neighbouring landholder regarding noise, but inspection revealed that the noise was not caused by the Quarry and the neighbouring landholder was satisfied.

4.2 ENVIRONMENTAL INCIDENTS

One environmental incident occurred during the AEMR Period. On 16 February 2014 a rainfall event resulted in the discharge of water from a sediment basin constructed on northern side of Bungonia Creek into the creek. It was the conclusion of the Sydney Catchment Authority (SCA) (now Water NSW), following an inspection of the construction site on 17 February 2014, that this constituted a pollution incident. The Company was also advised in the opinion of the SCA, effective erosion and sediment controls were not installed to prevent sediment from entering Bungonia Creek. It is noted that the NSW EPA were invited to inspect the site of the discharge with the inspecting officer not able to confirm a pollution incident had occurred.

The SCA determined that the Company had breached Section 120 of the *Protection of the Environment Operations Act 1997* (PoEO Act) and issued a clean-up notice to the Company. The written notice included a fine of \$1,500 and a requirement to install and maintain sediment and erosion controls.

The Company subsequently engaged Strategic Environmental and Engineering Consultants (SEEC) to provide recommendations for upgraded erosion and sediment control. These controls were installed, however, following a subsequent inspection of the site on 17 and 20 June 2014 by the SCA, it was determined that these structures were not being adequately maintained, i.e. emptied of accumulated water to maintain effective storage capacity. The SCA determined that the Company has breached Section 91 of the PoEO Act and an additional fine of \$1500 was issued.

In response to this second breach notice, the Company now undertakes regular inspections of the sediment basins of the Bungonia By-pass, including immediately following rainfall, with accumulated water pumped to a water truck and discharged to pasture on the "Ardmore Park" property.

Correspondence between the Company and SCA is included as **Appendix 3**. A copy of the inspection and action log for the Bungonia By-pass from March 2014 to August 2015 is included as **Appendix 5**.



5. MONITORING RESULTS AND ANALYSIS

5.1 INTRODUCTION

This section presents the results of the monitoring undertaken within and surrounding the Quarry Site, and analyses the monitoring results to identify trends and note any non-compliances.

5.2 METEOROLOGICAL MONITORING

Meteorological monitoring is undertaken by the use of a meteorological station on the Quarry Site (see **Figure 7**) that continuously monitors temperature, precipitation, wind speed and wind direction. The Company has remote access to these results via a website.

The meteorological monitoring results are presented in full as **Appendix 6**. A summary is presented in **Table 2**.

Table 2
Meteorological Monitoring Results

Date	Wind Direction (Â°)	Wind Speed (km/h)	Temperature (°C)			Precipitation (mm)			
			Mean	Max	Min	Mean	Max	Min	Total
Nov-13	188.0	14.23	15.0	30.7	3.0	0.01	3.40	0.00	67.80
Dec-13	185.5	14.86	18.8	35.5	6.1	0.00	0.80	0.00	16.60
Jan-14	200.6	14.09	20.1	37.3	7.8	0.00	0.40	0.00	7.80
Feb-14	214.4	12.90	18.7	36.4	8.5	0.01	1.60	0.00	43.80
Mar-14	187.5	11.82	17.1	27.7	8.7	0.01	1.20	0.00	86.40
Apr-14	151.2	10.70	13.7	24.9	2.8	0.01	0.80	0.00	46.60
May-14	128.5	12.85	11.3	21.3	-0.4	0.00	0.80	0.00	27.00
Jun-14	120.6	16.72	8.4	15.0	-2.2	0.00	0.80	0.00	40.80
Jul-14	115.9	18.05	7.2	16.7	-2.5	0.00	0.20	0.00	4.20
Aug-14	154.9	11.12	7.2	15.7	-3.1	0.01	1.20	0.00	119.00
Sep-14	141.8	14.42	10.8	23.7	1.1	0.00	1.00	0.00	33.60
Oct-14	149.9	14.69	14.7	29.2	2.0	0.00	1.80	0.00	37.80
Nov-14	181.2	14.64	17.4	37.7	2.4	0.00	1.00	0.00	27.00
Dec-14	195.3	13.79	18.0	32.0	8.1	0.02	7.20	0.00	214.20
Jan-15	191.4	13.27	18.5	31.6	7.7	0.01	3.40	0.00	113.40
Feb-15	224.3	10.38	18.1	30.7	9.5	0.00	3.80	0.00	35.40
Mar-15	173.7	12.55	16.6	30.3	5.9	0.00	1.80	0.00	34.20
Apr-15	162.9	12.32	NR ¹	NR ¹	3.2	0.01	2.00	0.00	96.20
May-15	127.0	15.10	9.7	20.8	-2.5	0.00	0.60	0.00	23.40
Jun-15	130.1	9.71	7.2	14.3	-2.2	0.00	0.80	0.00	42.60
Jul-15	120.3	15.94	5.7	14.2	-2.0	0.01	0.80	0.00	57.60

Note 1: NR: No results available
Source: Multiquip Quarries Pty Ltd

The Company will continue meteorological monitoring during the next AEMR Period.

5.3 NOISE

The Company has prepared a Noise Monitoring Program (NMP) for the Quarry (Heggies, 2010). The NMP provides for annual noise monitoring, once all components of the project are operating, at two locations surrounding the Quarry Site (R6 and R9 - see **Figure 7**). During the AEMR period, only restricted extraction and crushing was undertaken, which did not trigger the commencement of noise monitoring as nominated in the NMP.

The NMP also provides for monitoring of traffic noise at two locations adjacent to the Bungonia By-pass once transport operations commence. No product transportation was undertaken during the AEMR period and hence the requirement to monitoring traffic noise was not triggered.

5.4 AIR QUALITY

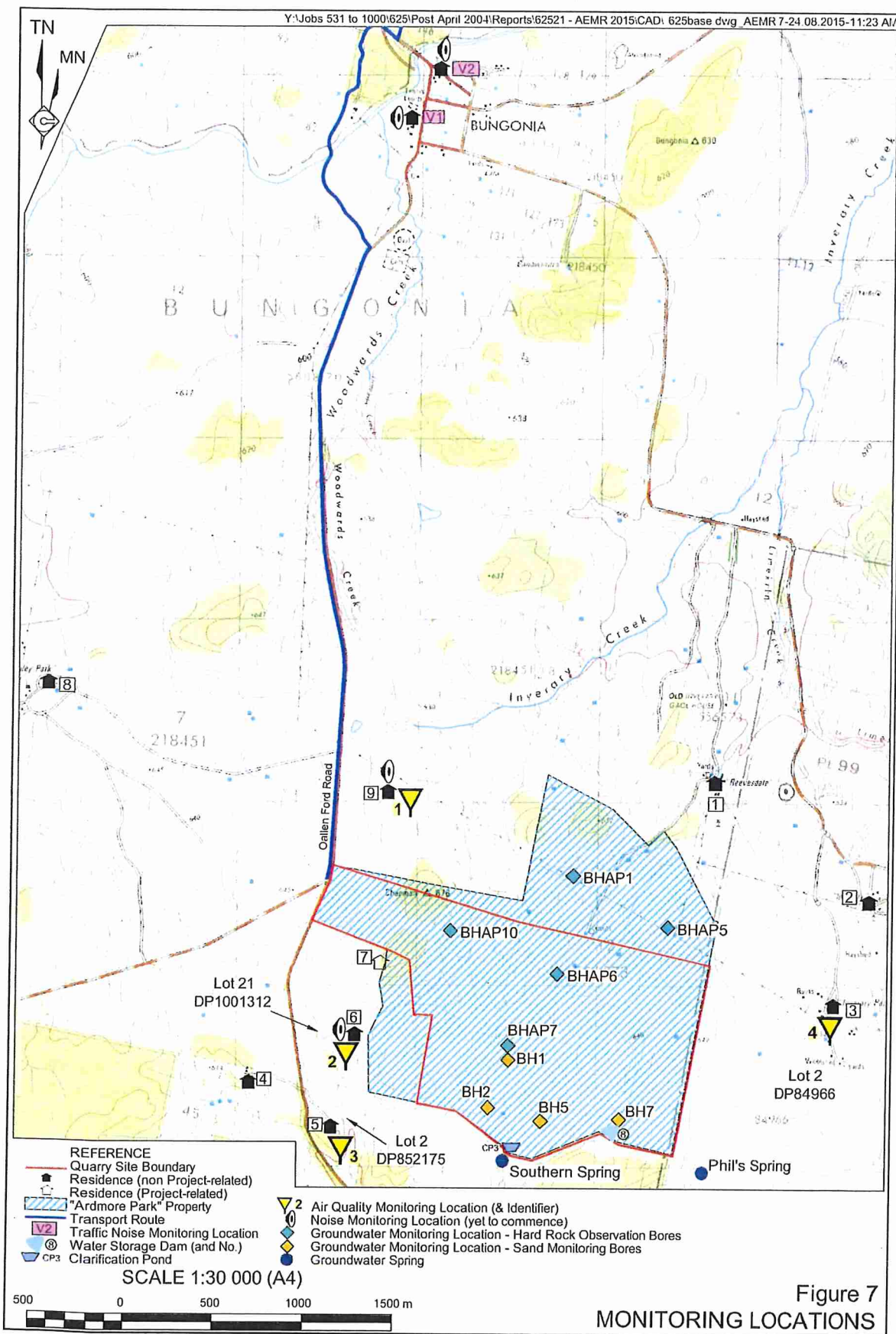
Deposited dust is monitored at four locations surrounding the Quarry Site (**Figure 7**). The deposited dust monitoring results are presented in **Table 3** and **Figure 7**.

With the exception of December 2013, the average depositional dust results are within the $4\text{g}/\text{m}^2/\text{month}$ criteria presented in Condition 3(7) of MP 07_0155. While extraction and crushing was ongoing for the initial 2 weeks of December, the exceptionally elevated result ($27\text{g}/\text{m}^2/\text{month}$) suggested some other local factor has influenced this result. The unusually high results of December 2013 are therefore considered to be anomalous and are not included in analysis. The Company has subsequently committed to investigating elevated results immediately and follow the protocol nominated below.

1. The lab will be contacted to confirm the result does not represent a typographic error, e.g. decimal place in the wrong spot.
2. The Company will consider regional weather or other events, e.g. bushfire / dust storms, to explain the result. In future monitoring, anomalous results will be investigated immediately.
3. The Company will review local meteorological conditions during the month to establish the prevailing winds and therefore whether elevated dust from the Quarry Site is a possible explanation.
4. The Company will review local land uses to establish if these, e.g. ground cultivation, may be a cause for the elevated dust levels.

If the result cannot be explained as either Quarry-related, local land use related or regional event related, it will be treated as anomalous and excluded from analysis.





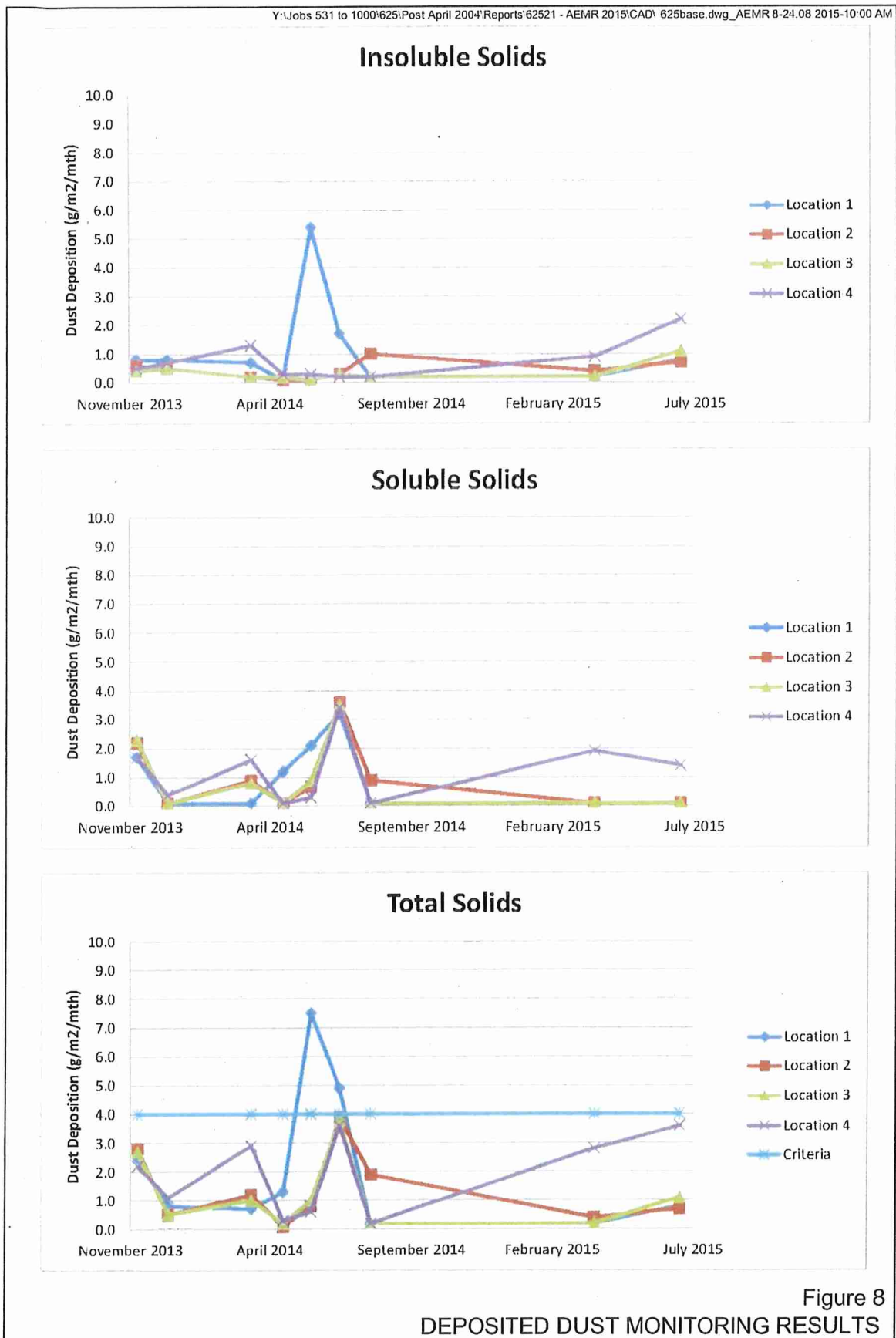


Table 3
Deposited Dust Monitoring Results

Date	Location 1			Location 2			Location 3			Location 4		
	Insoluble Solids	Soluble Solids	Total Solids	Insoluble Solids	Soluble Solids	Total Solids	Insoluble Solids	Soluble Solids	Total Solids	Insoluble Solids	Soluble Solids	Total Solids
30-Nov-13	0.8	1.7	2.5	0.6	2.2	2.8	0.4	2.3	2.7	0.5	1.7	2.2
02-Dec-13 ¹	0.2	27.0	27.0	1.3	0.3	1.6	0.7	0.4	1.1	2.4	<0.1	2.4
01-Jan-14 ²	0.8	<0.1	0.8	0.5	<0.1	0.5	0.5	<0.1	0.5	0.7	0.4	1.1
01-Apr-14 ²	0.7	<0.1	0.7	0.2	0.9	1.2	0.2	0.8	1.0	1.3	1.6	2.9
05-May-14 ²	0.1	1.2	1.3	0.1	<0.1	0.1	0.2	<0.1	0.2	0.3	<0.1	0.3
03-Jun-14 ²	5.4	2.1	7.5	0.1	0.7	0.8	0.1	0.9	1.0	0.3	0.3	0.6
03-Jul-14	1.7	3.2	4.9	0.3	3.6	3.9	0.3	3.5	3.8	0.2	3.4	3.6
05-Aug-14 ²	0.2	<0.1	0.2	1.0	0.9	1.9	0.2	<0.1	0.2	0.2	<0.1	0.2
31-Mar-15 ²	0.2	<0.1	0.2	0.4	<0.1	0.4	0.2	<0.1	0.2	0.9	1.9	2.8
30-Jun-15 ²	0.8	<0.1	0.8	0.7	<0.1	0.7	1.1	<0.1	1.1	2.2	1.4	3.6
Average	1.1	7.0	4.6	0.5	1.4	1.4	0.4	1.6	1.2	0.9	1.5	2.0

Note 1: The results for 2 December 2013 are considered to be anomalous and are not included in analysis.

Note 2: Where a result is below the limit of detection, the upper detection limit has been used in analysis.

Source: Multiquip Quarries Pty Ltd

5.5 WATER

5.5.1 Surface Water

Surface water monitoring is required only at the locations shown in **Figure 7** during discharge events. There were no discharge events during the AEMR Period (other than the noted incident noted in Section 4.2), and so no surface water monitoring was required.

5.5.2 Groundwater

The Company has prepared a Water Management Plan (WMP) (RWC/LCC/SEEC, 2010) which nominated a groundwater monitoring program. This program nominates 5 monitoring bores developed within basalt, 4 monitoring bores developed within the sand resource and two groundwater springs.

Initial groundwater sampling was undertaken in January 2015 by Larry Cook Consulting Pty Ltd (LCC). Given the sand extraction area remains to be commenced, this monitoring was restricted to the basalt bores and groundwater springs which are identified as follows (see **Figure 7**).

- Hard rock bores: BHAP 1, BHAP 5, BHAP 6, and BHAP 10. One of the bores included in the groundwater monitoring program of the WMP (BHAP 7) could not be relocated.
- Groundwater springs:
 - Southern Spring; and
 - Phil's Spring.

These bores were sampled again in July 2015. **Table 4** provides a summary of the result of the analyses of pH, electrical conductivity (EC), anions and cations.

A complete analysis of results is provided in the Groundwater Monitoring Reports prepared by LCC following each monitoring campaign (see **Appendix 7**). In summary, LCC reports that pH values are near neutral and EC levels reflect the composition of the host geological formation. The moderate salinity of the springs reflects the relative close proximity to the remnant basalt layers in the area.

With the exception of an anomalously high concentration of Total Phosphorus recorded in the Southern Spring (30 mg/L) in January 2015, which LCC attributes to a natural source, the concentrations of cations and anions remained similar between the two sampling campaigns and as expected.

Figure 7 also identifies the location of the monitoring bores within the sand resource (BH 1, BH 2, BH 5 and BH 7). During the July 2015 monitoring campaign, LCC notes that two of the sand monitoring bores (BH 1 and BH 7) have been destroyed and require reinstalling. The remaining two bores (BH 2 and BH 5) have been compromised and require redevelopment prior to sampling.

Groundwater monitoring will be continued in the 2015/2016 AEMR Period, on a quarterly basis, in order to assess any potential adverse impacts of the Quarry.



Table 4
Groundwater Monitoring Results

Analyte	Units	Guidelines		BHAP/1		BHAP/5		BHAP/6		BHAP/10		South Spring		Phil's Spring	
		Drinking Water - Health Guidelines	Trigger Value for the Protection of Freshwater Aquatic Ecosystems	Jan-15	Jul-15	Jan-15	Jul-15	Jan-15	Jul-15	Jan-15	Jul-15	Jan-15	Jul-15	Jan-15	Jul-15
pH	pH Units			6.7	6.3	7.3	8.3	7.1	7.1	6.8	6.8	7.2	7.1	7.4	7.4
Electrical Conductivity	µS/cm			780	760	405	680	3000	2100	2610	2500	1020	530	1090	1100
Cations															
Sodium Na ⁺	mg/L	180		110	130	20	20	305	230	430	400	155	50	81	87
Calcium Ca ²⁺	mg/L			40	18	23	19	240	140	59	69	42	21	57	50
Potassium K ⁺	mg/L			7.3	1.3	6	0.9	11	3.3	17	8	6.4	1.1	6	0.7
Magnesium Mg ²⁺	mg/L			20	13	46	72	100	70	84	96	42	30	84	81
Ammonia NH ₄ -N	mg/L		0.9	<0.1		<0.1		<0.1		<0.1		<0.1		<0.1	
Anions															
Chloride Cl ⁻	mg/L	250		230	230	48	52	850	500	820	670	79	86	145	150
Sulphate SO ₄ ²⁻	mg/L	500		20	6	19	19	32	25	43	59	<2	<1	25	16
Bicarbonate HCO ₃ ⁻	mg/L			78	18	255	230	585	350	260	330	670	170	520	420
Carbonate CO ₃ ²⁻	mg/L			<1	<5	<1	<5	<1	<5	<1	<5	<1	<5	<1	<5
Nitrate NO ₃ -N	mg/L	50	0.7	0.49		5		<0.1		0.12		<0.1		<0.1	
Nitrite NO ₂ -N	mg/L	3		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1	
Phosphate PO ₄ -P	mg/L			<0.1		<0.1		<0.1		<0.1		<0.1		<0.1	
Total Phosphorus	mg/L			0.58	0.1	2.6		0.1		1.5		30		<0.1	

6. REFERENCES

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