



Hanson

ABN : 90 009 679 734

Air Quality Monitoring Program



for the
East Guyong Quarry

February 2013

Prepared by:



R.W. CORKERY & CO. PTY. LIMITED

This page has intentionally been left blank



Hanson

ABN : 90 009 679 734

Air Quality Monitoring Program

for the

East Guyong Quarry

Prepared for:

Hanson Construction Materials Pty Ltd
ABN: 90 009 679 734
Level 5, 75 George Street
PARRAMATTA NSW 2150

Telephone: (02) 6331 1933
Facsimile: (02) 6331 3805
Email: martin.gear@hanson.com.au

Prepared by:

R.W. Corkery & Co. Pty. Limited
Geological & Environmental Consultants
ABN: 31 002 033 712

Brooklyn Office:

1st Floor, 12 Dangar Road
PO Box 239
BROOKLYN NSW 2083

Telephone: (02) 9985 8511

Facsimile: (02) 9985 8208

Email: brooklyn@rwcorkery.com

Orange Office:

62 Hill Street
ORANGE NSW 2800

Telephone: (02) 6362 5411

Facsimile: (02) 6361 3622

Email: orange@rwcorkery.com

Brisbane Office:

Suite 5, Building 3
Pine Rivers Office Park
205 Leitchs Road
BRENDALE QLD 4500

Telephone: (07) 3205 5400

Facsimile: (02) 9985 8208

Email: brisbane@rwcorkery.com

Ref No. 869/03

February 2013



R. W. CORKERY & CO. PTY. LIMITED

Document Control

Document Title	Air Quality Monitoring Program			
Document Number	869/03			
Document Owner				
Revision	Issue Date	Originator	Reviewed	Approved
Original	August 2012	K Oxley	M Bland/R Corkery	M Gear
Revision 1	October 2012		DP&I	M Bland
Revision 2	February 2013	M Bland		A Driver
Next Review Due	<p>Within 3 months of the submission of an:</p> <ul style="list-style-type: none"> (a) annual review under Schedule 5 condition 3; (b) incident report under Schedule 5 condition 6; (c) audit report under Schedule 5 condition 8; and (d) any modifications to this approval, <p>the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Director-General.</p>			

This Copyright is included for the protection of this document

<p>COPYRIGHT</p> <p>© R.W. Corkery & Co. Pty Limited 2013 and © Hanson Construction Materials Pty Ltd 2013</p> <p>All intellectual property and copyright reserved.</p> <p>Apart from any fair dealing for the purpose of private study, research, criticism or review, as permitted under the Copyright Act, 1968, no part of this report may be reproduced, transmitted, stored in a retrieval system or adapted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without written permission. Enquiries should be addressed to R.W. Corkery & Co. Pty Limited.</p>

CONTENTS

	Page
COMMONLY USED ACRONYMS	VII
1. INTRODUCTION.....	1
2. APPROVED ACTIVITIES	3
3. CONSULTATION.....	5
3.1 GOVERNMENT AGENCY CONSULTATION.....	5
3.2 LANDHOLDER CONSULTATION	5
4. LEGAL AND OTHER REQUIREMENTS	7
5. OBJECTIVES AND OUTCOMES.....	12
6. ROLES AND RESPONSIBILITIES.....	12
7. COMPETENCE TRAINING AND AWARENESS	13
8. SURROUNDING RESIDENCES.....	14
9. EXISTING ENVIRONMENT	14
9.1 INTRODUCTION	14
9.2 SITE WIND ENVIRONMENT.....	14
9.3 AMBIENT AIR QUALITY	14
9.4 GREENHOUSE GASES	16
9.5 POTENTIAL AIR QUALITY IMPACTS	17
9.6 PREDICTED AIR QUALITY IMPACTS.....	17
10. MANAGEMENT MEASURES.....	18
10.1 INTRODUCTION	18
10.2 DUST CONTROL PROCEDURES	18
10.3 GREENHOUSE GASES	20
11. AIR QUALITY MONITORING.....	21
11.1 INTRODUCTION	21
11.2 PARAMETERS AND ASSESSMENT CRITERIA.....	21
11.3 MONITORING EQUIPMENT AND LOCATION	22
11.4 MONITORING FREQUENCY	22
11.5 DEPOSITED DUST MONITORING PROCEDURE.....	23
11.5.1 Introduction	23
11.5.2 Sampling Equipment	23
11.5.3 Sample Collection.....	24
11.5.4 Office Procedures.....	24
11.5.5 Field Procedures	24



CONTENTS

	Page
11.5.6 Sample Despatch	25
11.5.7 Data Recording and Reporting	25
11.6 PM ₁₀ MONITORING PROCEDURE	26
11.6.1 Sampling Equipment	26
11.6.2 Automatic Warnings and Data Review	26
11.7 METEOROLOGICAL MONITORING	27
11.8 GREENHOUSE GAS MONITORING	27
12. EVALUATION OF COMPLIANCE	27
13. CORRECTIVE AND PREVENTATIVE ACTIONS	28
14. COMPLAINTS HANDLING AND RESPONSE	28
15. INCIDENT REPORTING	30
16. PUBLICATION OF MONITORING INFORMATION	30
17. REVIEW	30
18. REFERENCES	31

FIGURES

Figure 1	Locality Plan	2
Figure 2	Site Layout	4
Figure 3	Surrounding Residences and Air Quality Monitoring Locations	6
Figure 4	Annual and Seasonal Wind Roses	15
Figure 5	Typical Deposited Dust Gauge	23

CONTENTS

	Page
TABLES	
Table 1	Landholder Consultation 7
Table 2	Air Quality Project Approval Requirements 8
Table 3	Air Quality Statement of Commitments Requirements 11
Table 4	Licence Requirements 12
Table 5	Air Quality Objectives and Key Performance Outcomes 12
Table 6	Roles and Responsibilities 13
Table 7	Ambient Air Quality Levels 16
Table 8	Predicted Annual Greenhouse Gas Emissions 16
Table 9	Predicted Cumulative Air Quality Impacts – Stages 1 to 7 18
Table 10	Dust Control Procedures 19
Table 11	Compliance and Assessment Criteria 21
Table 12	Location of Dust Monitoring Equipment 22
Table 13	Monitoring Requirements for Greenhouse Gas Reporting 27



This page has been intentionally left blank



COMMONLY USED ACRONYMS

AS	Australian Standard
DP&I	Department of Planning and Infrastructure
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	Environment Protection Authority
EPL	Environment Protection Licence
NATA	National Association of Testing Authorities
PA	Project Approval
PM ₁₀	Particulate matter <10µm in diameter
TSP	Total suspended particulate matter – the mass of all particulate matter suspended in a solution



This page has been intentionally left blank



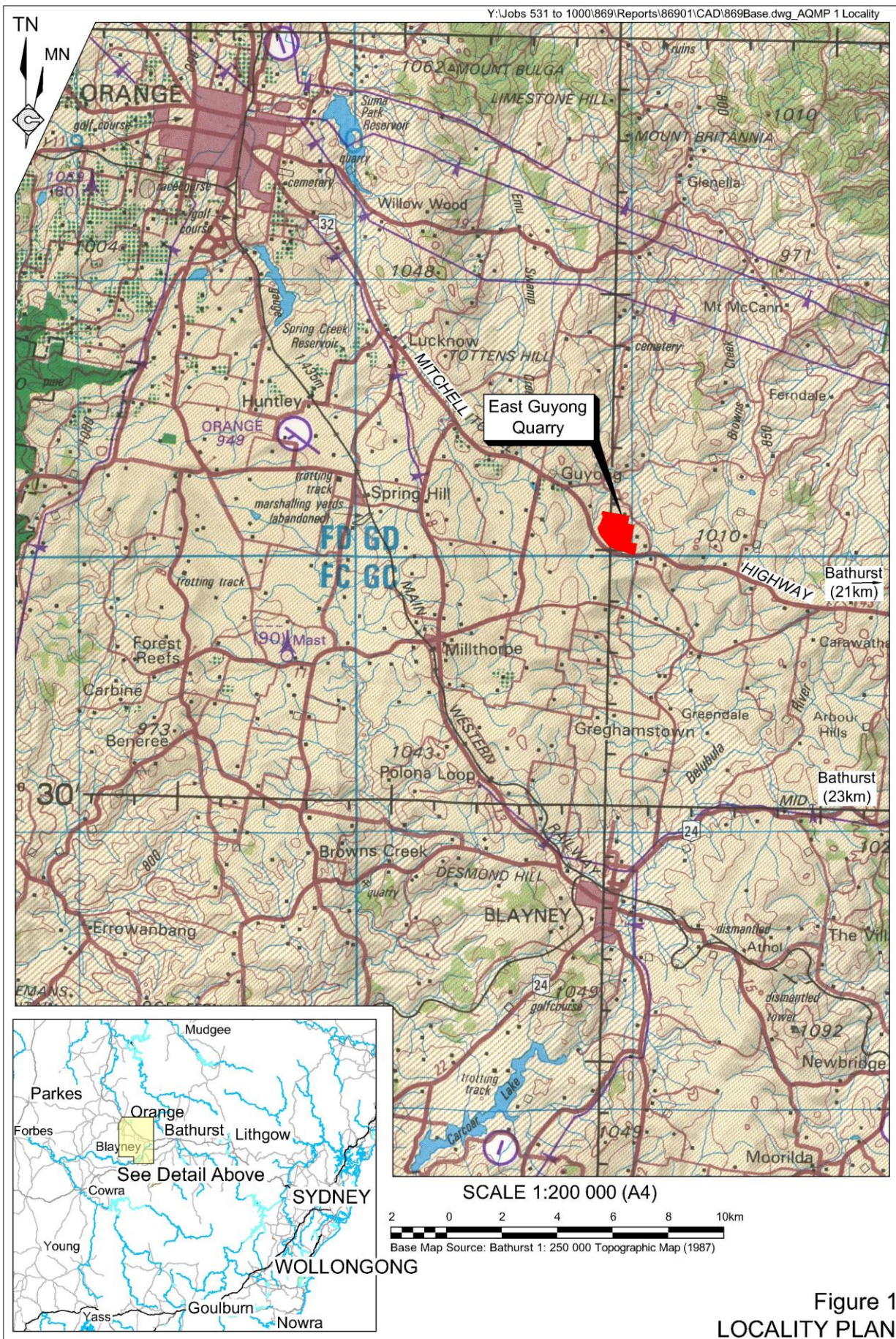
1. INTRODUCTION

This *Air Quality Monitoring Program* (the Program) has been prepared by R W Corkery & Co Pty Limited on behalf of Hanson Construction Materials Pty Ltd (the Company) for the East Guyong Quarry (the Quarry). The Quarry is located approximately 22km southeast of Orange and 36km west of Bathurst (**Figure 1**).

This Plan has been prepared in satisfaction of *PA Condition 3(20)* of Project Approval 06_0193¹ and describes the following.

- The activities approved under PA 06_0193.
- The consultation undertaken during preparation of this Plan.
- The legal and other requirements associated with management of air quality emissions from the Quarry.
- The objectives and key performance outcomes for this Plan and the Quarry.
- Roles and responsibilities.
- Competence training and awareness.
- Surrounding residences.
- A description of the existing air quality environment and predicted air-quality related impacts.
- Air quality management measures that will be implemented during construction and operation of the Quarry.
- Air quality-related monitoring that will be undertaken.
- Evaluation of compliance with air quality criteria.
- Corrective and preventative actions that will be implemented should exceedance(s) of the relevant criteria be identified.
- Complaints handling and response procedures that will be implemented.
- Incident reporting procedures.
- Publication of monitoring information.
- Plan review.

¹ All conditions in Project Approval 06_0193 are referred to as *PA Condition*



The approved Quarry is fully described in the following documents noting that the Preferred Project Report includes details of the layout approved for construction. A brief description of the approved activities is provided in Section 2.

- *Environmental Assessment* dated September 2009 and associated documentation prepared to support the application for PA 06_0193.
- *Environmental Assessment* dated September 2009 and associated technical reports prepared to support the application for PA 06_0193.
- *Detailed Response to Public Exhibition Submissions* (undated).
- *Preferred Project Report* (undated).

In addition, a range of other management plans have also been prepared to guide operations within the Quarry. These include the following.

- *Environmental Management Strategy.*
- *Asbestos Management Plan.*
- *Noise Management Plan.*
- *Aboriginal Cultural Heritage Management Plan.*
- *Soil and Water Management Plan.*
- *Landscape Management Plan.*
- *Blast Management Plan*

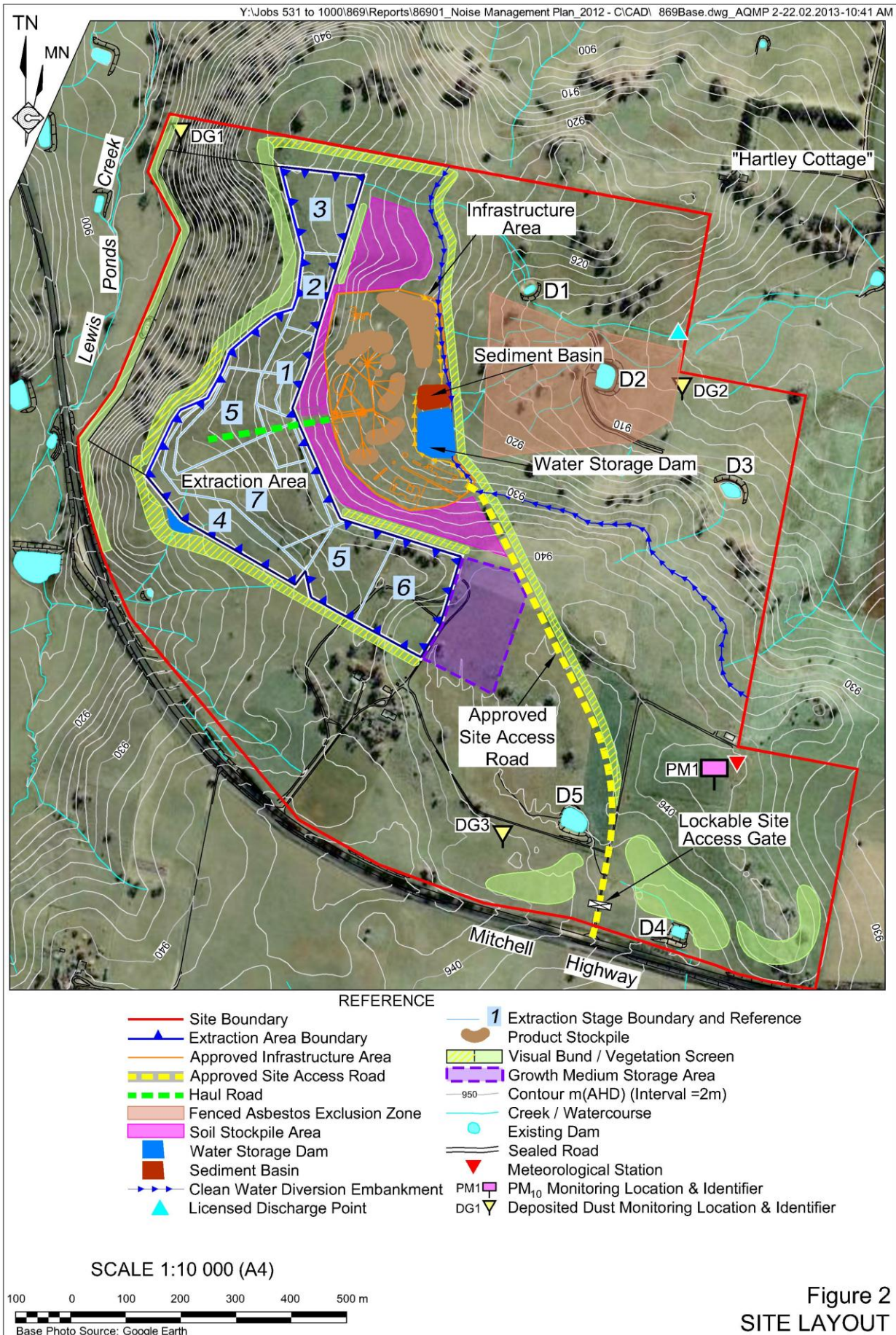
2. APPROVED ACTIVITIES

The approved activities at the Quarry comprise the following (**Figure 2**).

- Establishment of an extraction area to extract basalt using standard drill, blast, load and haul techniques.
- Construction and use of a processing plant to process the extracted basalt to produce a range of quarry products, including aggregates and road base, and stockpiling of the resulting products adjacent to the processing plant.
- Construction of a site access road and intersection with the Mitchell Highway.
- Transportation of up to 400 000t per year of quarry products via the Mitchell Highway using truck and dog and B Double trucks.
- Construction of a range of bunds and mounds and establishment of native vegetation to provide visual screening for the quarry operations.

The approved quarry life is until 31 December 2042 and the approved hours of operation are as follows.

- Monday to Friday (non-daylight savings) – 6:00am to 6:00pm.
- Monday to Friday (daylight savings) – 6:00am to 8:00pm.
- Saturdays – 7:00am to 1:00pm.
- Sundays and public holidays – nil.



Product despatch between 5:00am and 6:00am and from 6:00pm to 10:00pm (non-daylight savings) and 8:00pm to 10:00pm (daylight savings), Monday to Saturday is permitted following negotiation of written agreements with the seven surrounding landholders nominated in *PA Condition (3)6*.

3. CONSULTATION

3.1 GOVERNMENT AGENCY CONSULTATION

The following government agency consultation was undertaken during the preparation of this Plan.

- An email was sent on 30 July 2012 to the Environment Protection Authority (EPA) advising that this Plan was in preparation and requesting any requirements for inclusion in the Program.
- A response was received from the Environment Protection Authority on 2 August 2012 indicating that the agency had no further requirements other than those identified in the Project Approval.
- A draft version of this Plan was provided to the Environment Protection Authority on 10 September 2012 with a request to review the Program and provide feedback by 21 September. A response was received on 19 September indicating that the Environment Protection Authority would not be providing comment on the draft Plan.

3.2 LANDHOLDER CONSULTATION

PA Condition 4(1) requires within 3 months of the Project Approval, the Company shall notify, in writing, the landowners of all residences located within 1km of any of the site boundaries of their right to request monitoring in accordance with *PA Condition 4(3)*.

Figure 3 presents the residences to which *PA Condition 4(1)* applies and **Table 1** presents the consultation undertaken to date and the responses received.

It is noted, however, that following receipt of the requests for air quality monitoring at the “Quinton” and “Wheatfield’s” properties, the owners of those properties sold them. The Company contacted the purchaser, Mr Errol Babbage on 3 August 2012. During that conversation, it was agreed that monitoring should be done on the Company-owned land, as close as practicable to the residences on “Quinton” and “Wheatfields”. This, however, does not alter landholder rights to request further monitoring under *PA Condition 4(3)* or directly to the Company. See Section 11 for further details of the monitoring program.

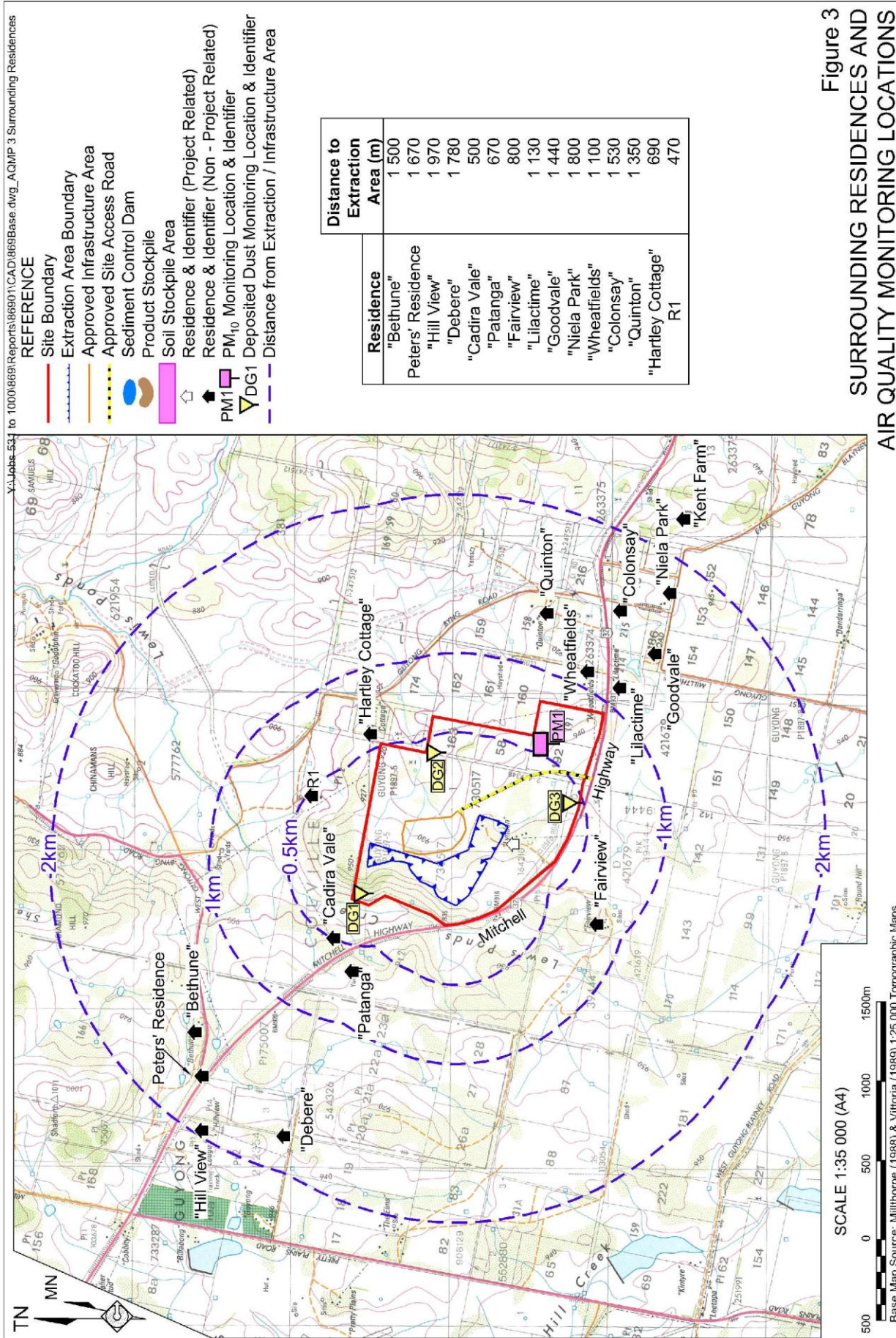


Figure 3
SURROUNDING RESIDENCES AND
AIR QUALITY MONITORING LOCATIONS

Community consultation was also undertaken through informal and formal consultation processes during the assessment period prior to the approval of the Quarry. Feedback received by the community has been taken into account when preparing this Plan.

Table 1
Landholder Consultation

Landholder	Property Name ¹	Type of Communication	Date Sent	Response Received
Gordon Family (1)	“Bethune East”	Letter	5 April 2011	Nil
Gordon Family (2)	“Bethune”	Letter	5 April 2011	Nil
RJ, MG and GJ Munro	“Cadira Vale”	Letter	5 April 2011	Nil
S and T Gordon	“R1”	Letter	5 April 2011	Nil
Mr & Mrs McPhee	“Colonsay”	Letter	5 April 2011	Nil
D Harris	“Fairview”	Letter	5 April 2011	Nil
S and T Gordon	“Hartley Cottage”	Letter	5 April 2011	Nil
Mrs J E Pritchard	“Kent Farm”	Letter	5 April 2011	Nil
RE and CM Hindmarsh	“Kintyre”	Letter	5 April 2011	Nil
Mr and Mrs Bestwick	“Lilactime”	Letter	5 April 2011	Nil
Stephanie Bestwick and Simon Warner		Letter	5 April 2011	Nil
RE and CM Hindmarsh	“Patanga”	Letter	5 April 2011	Nil
Mr Peters	Cnr Byng Road and Mitchell Highway	Letter	5 April 2011	Nil
E Babbage	“Quinton”	Letter	5 April 2011	Received letter 8 April 2011 requesting air quality monitoring
E Babbage	“Wheatfields”	Letter	5 April 2011	Received letter 8 April 2011 requesting air quality monitoring
Note 1: See Figure 3 .				
Source: Hanson Construction Materials Pty Ltd.				

4. LEGAL AND OTHER REQUIREMENTS

The Company was granted Project Approval (PA) 06_0193 by the NSW Land and Environment Court on 21 May 2012 pursuant to Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The approval includes the required criteria that the construction and operational activities of the Company must comply with and sets out the core requirements of this Plan. Relevant air quality-related conditions associated with this approval are reproduced in **Table 2**.

Table 3 presents the relevant air quality-related commitments from the Statement of Commitments incorporated within PA 06_0193 and where each is addressed in this document.

Table 2
Air Quality Project Approval Requirements

Page 1 of 3

Schedule	Condition	Plan Section																												
AIR QUALITY																														
3(18)	<p>The Proponent shall ensure that the dust emissions generated by the project do not cause additional exceedances of the criteria listed in Tables 6, 7 and 8 at any residence on privately-owned land, or on more than 25 percent of any privately-owned land.</p> <p><i>Table 6: Long-term criteria for particulate matter</i></p> <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Averaging period</th> <th>Criterion</th> <th>Basis</th> </tr> </thead> <tbody> <tr> <td>Total suspended particulate (TSP) matter</td> <td>Annual</td> <td>90µg/m³</td> <td>Total¹</td> </tr> <tr> <td>Particulate matter <10µm(PM₁₀)</td> <td>Annual</td> <td>30µg/m³</td> <td>Total¹</td> </tr> </tbody> </table> <p><i>Table 7: Short-term criterion for particulate matter</i></p> <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Averaging period</th> <th>Criterion</th> <th>Basis</th> </tr> </thead> <tbody> <tr> <td>Particulate matter <10µm(PM₁₀)</td> <td>24 hour</td> <td>50µg/m³</td> <td>Total¹</td> </tr> </tbody> </table> <p><i>Table 8: Long-term criteria for deposited dust</i></p> <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Averaging period</th> <th>Maximum increase² in deposited dust level</th> <th>Maximum total¹ deposited dust level</th> </tr> </thead> <tbody> <tr> <td>Deposited dust</td> <td>Annual</td> <td>2 g/m²/month</td> <td>4 g/m²/month</td> </tr> </tbody> </table> <p>Notes for Tables 6-8:</p> <ul style="list-style-type: none"> ¹Background PM₁₀ concentrations or deposited dust levels due to all other sources plus the incremental worst case in concentrations due to the project; ²Incremental increase in PM₁₀ concentrations or deposited dust levels due to the project on its own; and ³Deposited dust is assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: +Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method. 	Pollutant	Averaging period	Criterion	Basis	Total suspended particulate (TSP) matter	Annual	90µg/m ³	Total ¹	Particulate matter <10µm(PM ₁₀)	Annual	30µg/m ³	Total ¹	Pollutant	Averaging period	Criterion	Basis	Particulate matter <10µm(PM ₁₀)	24 hour	50µg/m ³	Total ¹	Pollutant	Averaging period	Maximum increase ² in deposited dust level	Maximum total ¹ deposited dust level	Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month	11.2
Pollutant	Averaging period	Criterion	Basis																											
Total suspended particulate (TSP) matter	Annual	90µg/m ³	Total ¹																											
Particulate matter <10µm(PM ₁₀)	Annual	30µg/m ³	Total ¹																											
Pollutant	Averaging period	Criterion	Basis																											
Particulate matter <10µm(PM ₁₀)	24 hour	50µg/m ³	Total ¹																											
Pollutant	Averaging period	Maximum increase ² in deposited dust level	Maximum total ¹ deposited dust level																											
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month																											
3(19)	<p>Operating Conditions</p> <p>The Proponent shall ensure any visible air pollution generated by the project is assessed regularly, and that quarrying operations are relocated, modified, and/or stopped as required to minimise air quality impacts on privately-owned land, to the satisfaction of the Director-General.</p>	10.2																												
3(20)	<p>Air Quality Monitoring</p> <p>The Proponent shall prepare and implement an Air Quality Monitoring Program for the project to the satisfaction of the Director-General. This program must:</p> <p>(a) be prepared in consultation with EPA, and be submitted to the Director-General for approval prior to the commencement of construction activities; and</p> <p>(b) include details of how the air quality performance of the project will be monitored, and include a protocol for evaluating compliance with the relevant air quality criteria in this approval.</p>	3.1 11,12																												
3(21)	<p>Meteorological Monitoring</p> <p>During the life of the project, the Proponent shall ensure that there is a suitable meteorological station in the vicinity of the site that complies with the requirements in the <i>Approved Methods for Sampling of Air Pollutants in New South Wales</i> guideline.</p>	11.7																												
4(1)	<p>Notification of Landholders</p> <p>Within 3 months of this approval, the Proponent shall notify, in writing, the landowners of all residences located within one kilometre of any of the project site boundaries of their right to request monitoring in accordance with condition 4 (3).</p>	3.2																												

Table 2 (Cont'd)
Air Quality Project Approval Requirements

Page 2 of 3

Schedule	Condition	Plan Section
AIR QUALITY		
4(2)	If the results of the monitoring required in Schedule 3 identify that the impacts generated by the project on site are greater than the relevant impact assessment criteria, and there is no negotiated agreement in place to allow the impact, then within 2 weeks of obtaining the monitoring results the Proponent shall:	13, 14, 15
	(a) notify the Director-General, the affected landowners and tenants (including tenants of quarry owned properties) accordingly, and provide monitoring results to each of these parties until the results show that the project is complying with the relevant criteria in Schedule 3; and	
	(b) in the case of exceedances of the relevant air quality criteria, send the affected landowners and tenants (including tenants of mine-owned properties) a copy of the NSW Health fact sheet entitled 'Mine Dust and You' (as may be updated from time to time).	15
4(3)	Independent Review If a landowner of privately-owned land considers the project to be exceeding the relevant air quality or noise impact assessment criteria in Schedule 3, then he/she may ask the Director-General in writing for an independent review of the impacts of the project on his/her land. If the Director-General is satisfied that an independent review is warranted, the Proponent shall within 2 months of the Director-General's decision:	
	(a) commission a suitably qualified, experienced and independent expert, whose appointment has been approved by the Director-General, to:	
	• consult with the landowner to determine his/her concerns;	
	• conduct monitoring to determine whether the project is complying with the relevant impact assessment criteria in Schedule 3; and	14
	• if the project is not complying with these criteria then:	
	- determine if more than one source, including the project, is responsible for the exceedance, and if so the relative share of each source towards the impact on the land;	
- identify the measures that could be implemented to ensure compliance with the relevant criteria; and		
(b) give the Director-General and landowner a copy of the independent review.	14	
5(2)	Management Plan Requirements The Proponent shall ensure that the Management Plans required under this approval are prepared in accordance with any relevant guidelines, and include:	
	(a) detailed baseline data;	9
	(b) a description of:	
	• the relevant statutory requirements (including any relevant approval, licence or lease conditions);	4
• any relevant limits or performance measures/criteria; and	11.2	

Table 2 (Cont'd)
Air Quality Project Approval Requirements

Page 3 of 3

Schedule	Condition	Plan Section
AIR QUALITY		
5(2) (Cont'd)	<ul style="list-style-type: none"> the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures; 	11.2
	(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	10.2
	(d) a program to monitor and report on the: <ul style="list-style-type: none"> impacts and environmental performance of the project; and 	11
	<ul style="list-style-type: none"> effectiveness of any management measures (see (c) above); 	12
	(e) a contingency plan to manage any unpredicted impacts and their consequences;	13
	(f) a program to investigate and implement ways to improve the environmental performance of the project over time;	12
	(g) a protocol for managing and reporting any: <ul style="list-style-type: none"> incidents; 	15
	<ul style="list-style-type: none"> complaints; 	14
	<ul style="list-style-type: none"> non-compliances with statutory requirements; and exceedances of the impact assessment criteria and/or 	13
	<ul style="list-style-type: none"> performance criteria; and 	11
(h) a protocol for periodic review of the plan.	17	
<i>Note: At the discretion of the Director-General, some of these requirements may be waived where they are either not relevant or necessary.</i>		
5(4)	Revision of Strategies, Plans and Programs	17
	Within 3 months of the submission of an:	
	(a) annual review under condition 3 above;	
	(b) incident report under condition 6 below;	
	(c) audit report under condition 8 below; and	
(d) any modifications to this approval,		
the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Director-General.		
<i>Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the project.</i>		
5(6)	Incident Reporting The Proponent shall notify the Director-General and any other relevant agencies of any incident associated with the project as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.	15

Table 3
Air Quality Statement of Commitments Requirements

Appendix 2		Plan Section
AIR QUALITY		
Air Quality	<ul style="list-style-type: none"> • Dust suppression activities, such as spraying a suitable dust suppressant, will be undertaken on all unsealed quarry roads so that dust generation is minimised. 	10
	<ul style="list-style-type: none"> • A weather station monitor will be installed on-site to continuously monitor weather conditions so that quarry operations can be modified to reduce dust emitting activities and appropriate mitigations taken in response to adverse weather. 	11
	<ul style="list-style-type: none"> • An Air Quality Management Plan will be developed for the proposal and be implemented prior to extraction commencing. This Plan will include air quality monitoring during construction and initial operation at the sensitive receptors as nominated in the Heggies Pty Ltd, Air Quality Impact Assessment Report of the EAR. 	11
Greenhouse Gases	<ul style="list-style-type: none"> • The proponent will continue to report annually the quarry operation's Greenhouse Gas emissions. 	11.8
Environmental Management, Monitoring and Auditing	<ul style="list-style-type: none"> • The proponent will obtain an Environmental Protection Licence for the proposal in accordance with the Protection of the Environment Operations Act 1 997. Three years after the commencement of the proposal, and every four years thereafter, the proponent will commission and pay the full cost of an Independent Environmental Audit of the proposal. 	4 See EMS
	<ul style="list-style-type: none"> • Within 7 days of detecting an exceedance of the limits/performance criteria in this approval or an incident causing (or threatening to cause) material harm to the environment, the proponent shall report the exceedance/incident to EPA and any relevant agency. The report will: <ul style="list-style-type: none"> - describe the date, time and nature of the exceedance/incident; 	13
	<ul style="list-style-type: none"> - identify the cause (or likely cause) of the exceedance/incident; 	13
	<ul style="list-style-type: none"> - describe what action has been taken to date; and 	13
	<ul style="list-style-type: none"> - describe the proposed measures to address the exceedance/incident. 	13
	<ul style="list-style-type: none"> • Prior to the commencement of any operations, proponent will implement, publicise and list with a telephone company a contact phone number which will enable the general public to reach a person who can arrange appropriate response action to the enquiry. The proponent will maintain a register to record details of all enquiries received and actions undertaken in response. This record will be made available to the EPA as required. 	14

Table 4 presents the relevant air quality-related requirements from the Environment Protection Licence.

Table 4
Licence Requirements

Condition Number	Condition	Plan Section
AIR QUALITY		
Environment Protection Licence		
	To be completed once EPL Granted.	

5. OBJECTIVES AND OUTCOMES

Table 5 presents the objectives and key performance outcomes for this Plan and the Quarry.

Table 5
Air Quality Objectives and Key Performance Outcomes

OBJECTIVES	KEY PERFORMANCE OUTCOMES
Air Quality	
(a) To ensure compliance with all relevant Project approval and Environment Protection Licence criteria and reasonable community expectations.	(i) Compliance is achieved with all relevant criteria nominated in the Project Approval 06_0193 and Environment Protection Licence and reasonable community expectations.
(b) To implement appropriate air quality management and mitigation measures during all stages of the Quarry.	(ii) All identified air quality management and mitigation measures are implemented to the extent required.
(c) To implement an appropriate monitoring program to establish compliance or otherwise with relevant criteria during all stages of the Quarry.	(iii) All identified monitoring is undertaken in accordance with the relevant procedures and at the relevant intervals.
(d) To implement an appropriate complaints handling and response protocol	(iv) Complaints (if any) are handled and responded to in an appropriate and timely manner.
(e) To implement continual improvement for investigating, implementing and reporting on reasonable and feasible measures to reduce air quality emissions..	(v) An appropriate continual improvement program has been implemented.
(f) To implement an appropriate incident reporting program, if required.	(vi) Incidents (if any) are reported in an appropriate and timely manner.

6. ROLES AND RESPONSIBILITIES

Table 6 presents the roles and responsibilities for the implementation of this Plan.

Table 6
Roles and Responsibilities

ROLES	RESPONSIBILITIES
Operations Manager	Must ensure adequate resources are available to enable implementation of the Program.
Quarry Manager	Accountable for the overall environmental performance of the East Guyong Quarry operations, including the following outcomes of this Plan. <ul style="list-style-type: none"> • Implementation of the competence training and awareness as outlined in Section 7. • Implementation of relevant air quality controls outlined in Section 10 • Complaints handling and response as outlined in Section 14.
Quarry Supervisor	Manage the implementation of the following components of this Program. <ul style="list-style-type: none"> • Air quality monitoring as outlined in Sections 11. • Evaluation of compliance as outlined in Section 12 and related follow-up actions. • Correction and preventative of air quality management as outlined in Section 13. • Incident reporting as outlined in Section 15. • Publication of monitoring data and reports as outlined in Section 16. • Review of this Program as outlined in Section 17.
All personnel	Ensure training and awareness induction has been undertaken. Compliance with this Program.
Source: Hanson Construction Materials Pty Ltd.	

7. COMPETENCE TRAINING AND AWARENESS

All Company personnel and contractors and their employees will undergo Company and site specific inductions, incorporating air quality management awareness training as part of the site induction program. The following areas will be covered in the induction.

- Awareness of prevailing wind directions and their potential to increase air emissions downwind.
- Awareness of air quality control measures.
- Awareness of operating hours.
- Awareness of community complaints protocols.
- Monitoring of air quality emissions at the nearest privately owned residences.
- Awareness of the requirements for notifying incidents.

The Quarry Manager will be responsible for ensuring the appropriate air quality management training is included in the induction.

8. SURROUNDING RESIDENCES

Figure 3 displays the location of residences within 2km of the Extraction and Infrastructure Area.

9. EXISTING ENVIRONMENT

9.1 INTRODUCTION

An *Environmental Assessment* dated September 2009 and associated documentation was prepared to support the application for PA 06_0193. The following sections provide a summary of the ambient air quality baseline and predicted air quality levels that were assessed for the Quarry.

9.2 SITE WIND ENVIRONMENT

Figure 4 presents the annual and seasonal wind roses compiled from the data collected from the Quarry's meteorological station for the period October 2002 to August 2003. This data is summarised as follows.

- Spring – Westerly winds dominate, while light winds occur from the south-southeast and east-southeast.
- Summer – Northerly light winds dominate, while moderate winds contribute from the east-northeast and the east.
- Autumn – Winds are experienced from all directions with moderate winds from the southwest.
- Winter – Northerly light winds dominant with significant contributions of moderate winds from the northwest and southwest directions.

9.3 AMBIENT AIR QUALITY

Ambient air quality data for the environmental assessment for both dust deposition and airborne particulate matter was collected by Heggies Australia Pty Ltd (Heggies, 2007) in 2002 and 2005.

Table 7 provides the ambient background air quality levels that have been adopted for the Quarry based on the following.

- Deposited Dust – average deposited dust levels in Western NSW.
- TSP & PM₁₀ – EPA operated monitoring station in Bathurst.

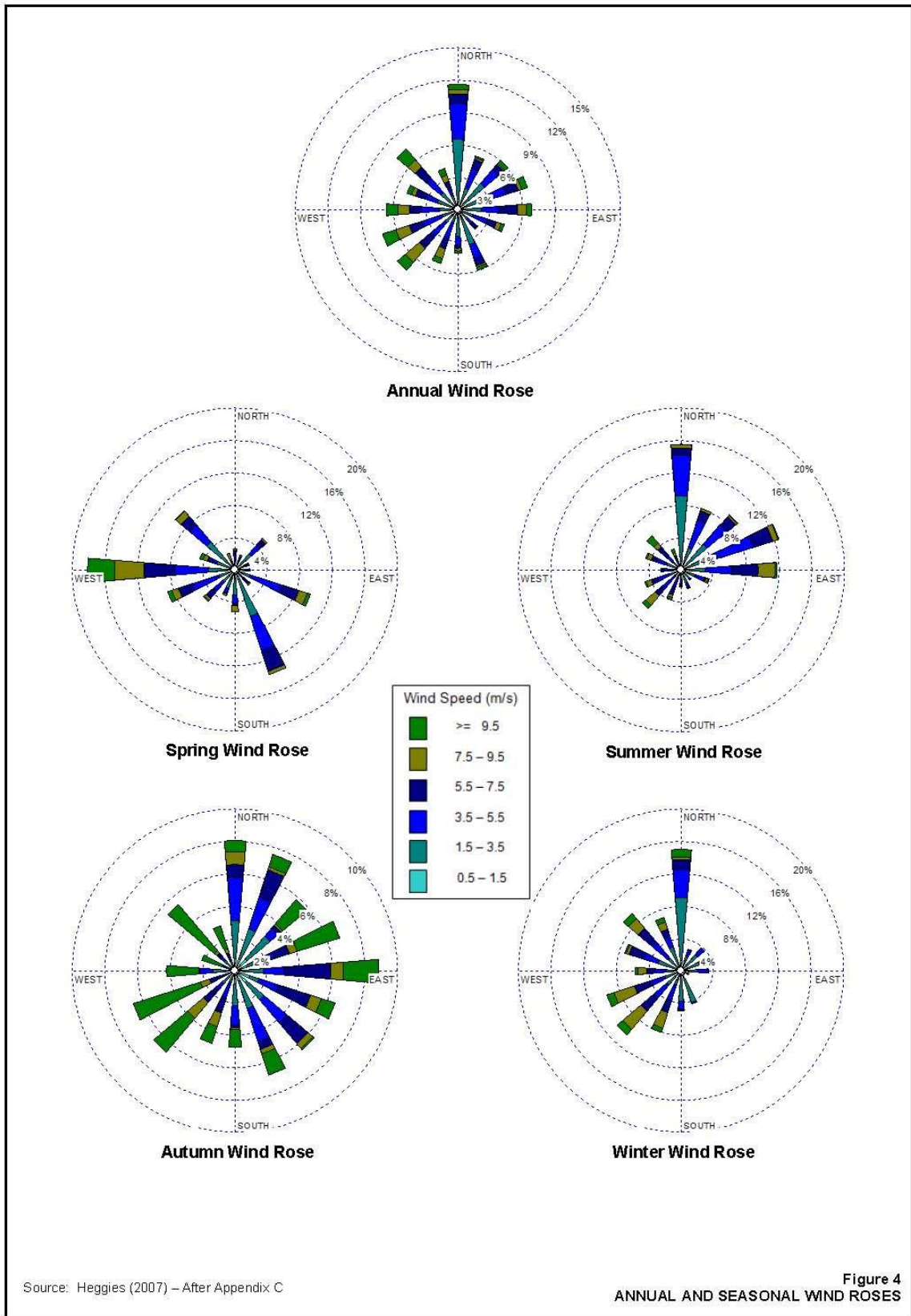


Table 7
Ambient Air Quality Levels

Parameter	Averaging Period	Assumed Background Quantity
PM ₁₀	24-hours	Daily varying ¹
	Annual	13µg/m ³
TSP ²	Annual	26µg/m ³
Dust	Annual	1.6g/m ² /month
Note 1: Daily varying 24-hour average PM ₁₀ concentrations were used for modelling purposes.		
Note 2: Total Suspended Particulate		
Source: Heggies, 2007 Modified Table 4		

9.4 GREENHOUSE GASES

During preparation of the preferred project report, a greenhouse gas source assessment was undertaken by Heggies (Heggies, 2009) and emissions associated with the following were considered.

- Purchase of electricity (Scope 2).
- Diesel consumed during the operation of the Quarry (Scope 1).
- Diesel consumed during the transportation of product to market in company owned vehicles (Scope 1).
- Explosive use (Scope 1).

Scope 3 emissions (i.e. from the manufacture and production of purchased materials and end use of hard rock, employee travel, transport and distribution losses from electricity networks) were not considered within this assessment.

Table 8 presents the predicted annual greenhouse gas emissions from all operations at the Quarry.

Table 8
Predicted Annual Greenhouse Gas Emissions

Source	Predicted Emissions (t CO ₂ -e) ¹
Electricity Consumption	899.5
Mining Fleet – Diesel Combustion	815.2
Transport Fleet – Diesel consumption	2 304.5
Explosive Use	21.2
Total	4 040²
Note 1: Assumes an annual production rate of 400 000t.	
Note 2: Does not include Scope 3 emissions	
Source: Heggies, 2009 – Table 11	

9.5 POTENTIAL AIR QUALITY IMPACTS

Emissions from the following activities associated with the Quarry are potential sources of air pollutants in the local area (including particulates and greenhouse gases).

- Clearing operations.
- Soil stripping.
- Drilling operations.
- Blasting.
- Loading and hauling.
- Crushing and screening.
- Stockpiling of product.
- Transportation off site on dirt roads.
- Land preparation for rehabilitation.

9.6 PREDICTED AIR QUALITY IMPACTS

Four modelling scenarios were used to reflect the greatest exposed surface areas during the various stages of the quarrying operations as follows (**Figure 2**).

- Stage 1 (Excavating to the east of the static plant).
- Stage 4 (Excavating to the south and east of Stage 2).
- Stage 7 (Extending south of Stage 5).
- Stage 7+ (west of all scheduled stages).

Six of the closest residences (sensitive receptor) were selected for the air quality modelling to determine the dust depositional, PM₁₀ 24 hours, PM₁₀ annual average impacts of the mitigated activities of the Quarry (**Table 9**). Total averages have included the background ambient dust levels together with the incremental contributions by the quarrying activity.

The result of the modelling indicated the following.

- Cumulative dust deposition levels are predicted to be less than 2.1 g/m²/month.
- Cumulative PM₁₀ 24-hour average levels are predicted to be less than 44µg/m³.
- Cumulative PM₁₀ annual average levels are predicted to be less than 16µg/m³.

All levels are below the air quality assessment criteria as listed in *PA Condition 3(18)* (**Table 2**).

Table 9
Predicted Cumulative Air Quality Impacts – Stages 1 to 7

Receptor ¹	Stage	Cumulative Depositional Dust annual average (g/m ² /month) ²	Cumulative PM ₁₀ 24-hour average (µg/m ³) ³	Cumulative PM ₁₀ annual average (µg/m ³) ⁴
Criteria		4.0	50	30
"R1"	1	1.7	39	15
	3	1.8	40	15
	7	1.8	39	15
"Hartley Cottage"	1	1.9	43	15
	3	2.1	44	16
	7	2.0	44	16
"Quinton"	1	1.7	39	15
	3	1.7	39	15
	7	1.7	39	15
"Lilactime"	1	1.7	40	15
	3	1.7	42	15
	7	1.7	40	15
"Fairview"	1	1.7	39	15
	3	1.8	39	15
	7	1.8	42	16
"Cadira Vale"	1	1.7	39	15
	3	1.7	39	15
	7	1.7	39	15
Note: 1 – See Figure 3 for location. Note: 2 – Total includes ambient air quality level of 1.6 g/m ² /month plus predicted contribution by the Quarry Note: 3 - Total includes varied ambient air quality levels plus predicted contribution by the Quarry Note: 4 - Total includes ambient air quality level of 13µg/m ³				
Sources: Heggies, 2007 Modified from Tables 8, 9, 10.				

10. MANAGEMENT MEASURES

10.1 INTRODUCTION

PA Condition 5(2)(c) requires this Plan to list the mitigation measures to be implemented to ensure compliance with the relevant assessment criteria. **Table 10** presents the control procedures and measures to be adopted to satisfy this requirement.

10.2 DUST CONTROL PROCEDURES

Table 10 presents the dust control procedures that will be implemented to mitigate dust emissions from the quarrying activities.

Table 10
Dust Control Procedures

Page 1 of 2

Source	Control Procedures	Personnel Responsible
General	<ul style="list-style-type: none"> Visually inspect operations several times per day for visible dust and adjust operations to reduce visible dust 	Quarry supervisor
Clearing Operations	<ul style="list-style-type: none"> Disturb only the minimum area necessary for quarrying and related operations. Maintain water sprays/water truck on stockpiles to minimise the generation of dust, as required. 	Quarry Supervisor Quarry Supervisor All personnel
Soil Stripping	<ul style="list-style-type: none"> Maintain water sprays/water truck on stockpiles to minimise the generation of dust, as required. 	Quarry Supervisor All personnel
Topsoil Stockpiles	<ul style="list-style-type: none"> Revegetate long term topsoil stockpiles 	Quarry Supervisor
Drilling	<ul style="list-style-type: none"> Ensure dust suppression equipment is installed and operational. 	Quarry Manager
Blasting	<ul style="list-style-type: none"> Design blast to minimise dust and fume emissions. 	Quarry Manager
Loading of rock	<ul style="list-style-type: none"> Minimise the drop heights between front-end loader buckets and truck carrying quarry materials. 	Quarry Supervisor and Equipment Operators
Internal Roads	<ul style="list-style-type: none"> All unsealed roads and trafficked areas will be watered, as required, to minimise the generation of dust. Enforce a speed limit of 40km/hr on the site access road and 20km/hr on all unsealed roads within the Site. All roads will have edges clearly defined with marker posts or equivalent to control their locations. Development of minor roads or tracks will be limited and the locations of these clearly defined. Obsolete roads will be ripped and re-vegetated. 	Quarry Supervisor All personnel Quarry Manager Quarry Manager Quarry Manager
Processing	<ul style="list-style-type: none"> Installation of automatic water sprays within the crushing plant or enclosing of the primary or secondary crusher area. Minimise drop heights from the loading bin to the primary crusher. 	Quarry Manager Equipment Operators
Product Stockpiles	<ul style="list-style-type: none"> Maintain product handling areas / stockpiles in a moist condition as required to minimise wind-blown and traffic-generated dust. 	Quarry Manager

Table 10 (Cont'd)
Dust Control Procedures

Page 2 of 2

Source	Control Procedures	Personnel Responsible
Transportation of Product	<ul style="list-style-type: none"> Maximise truck capacities to reduce the number of movements necessary to transport products. 	Quarry Manager
	<ul style="list-style-type: none"> Cover all loads with tarps prior to leaving site. 	Quarry Manager
	<ul style="list-style-type: none"> Seal the Site Access Road from the intersection with the Mitchell Highway to the weighbridge. 	Quarry Manager
Rehabilitation	<ul style="list-style-type: none"> Establish the interim or final landform as soon as areas become available for rehabilitation. 	Quarry Manager
	<ul style="list-style-type: none"> Revegetate interim or final landforms as soon as conditions are favourable. 	Quarry Manager
	<ul style="list-style-type: none"> Apply dust suppressants if conditions are not favourable for the establishment of vegetation. 	Quarry Supervisor
Source: Hanson Construction Materials Pty Ltd.		

Prior to the commencement of daily operations, the Quarry Manager or Quarry Supervisor will undertake an assessment of meteorological information to determine if any adverse wind conditions are predicted. If adverse conditions are predicted, the various activities planned for the day will be assessed to determine if further control procedures will be required to ensure that air quality compliance criteria are met. If compliance is unlikely to be achievable, activities will be temporarily suspended.

10.3 GREENHOUSE GASES

The Company has implemented an *Energy Efficiency Opportunities Action Plan* across all Company operations to ensure that best practices in sustainable manufacturing and transporting operations is adopted for all of its operations.

The key action points to be adopted for the Quarry are summarised as follows.

- Energy-reduction targets including all new plant and equipment to meet high energy-efficiency standards.
- Monitoring of electricity consumption with timers and smart meters.
- Implementation and tracking of energy efficiency targets by a network of Energy Efficiency Coordinators and site-based Energy Efficiency Personnel.
- Continually seeking sustainable solutions of transporting products to clients.
- Training of truck drivers, educating them on how to minimise fuel consumption by assuming ‘environmentally conscious’ driving techniques.

- Purchasing and updating of new, more efficient electronic engines and lighter tare weight vehicles.
- Certification through the National Heavy Vehicle Accreditation Scheme (NHVAS) which is recognised as industry best-practice.
- Checks for road worthiness to be undertaken on a daily basis.

The Quarry Manager will be responsible for the implementation of the relevant Greenhouse Gas action points.

11. AIR QUALITY MONITORING

11.1 INTRODUCTION

PA Condition 3(20) requires that an Air Quality Monitoring Program for the quarry include details of air quality performance monitoring. In addition, *PA Condition 3(21)* requires meteorological monitoring be undertaken. The following sub-sections are presented to satisfy these requirements.

11.2 PARAMETERS AND ASSESSMENT CRITERIA

Table 11 presents the relevant air quality assessment criteria that will apply to the Quarry at surrounding residences in accordance with *PA Condition 3(18)*.

Table 11
Compliance and Assessment Criteria

Long-term criteria for particulate matter			
Pollutant	Averaging period	Criterion	Basis
Total suspended particulate (TSP) matter	Annual	90µg/m ³	Total ¹
Particulate matter <10µm(PM ₁₀)	Annual	30µg/m ³	Total ¹
Short-term criterion for particulate matter			
Particulate matter <10µm(PM ₁₀)	24 hour	50µg/m ³	Total ¹
Long-term criteria for deposited dust			
Pollutant	Averaging period	Maximum increase² in deposited dust level	Maximum total¹ deposited dust level
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month
Note 1: ¹ Background PM ₁₀ concentrations or deposited dust levels due to all other sources plus the incremental worst case in concentrations due to the project; Note 2: ² Incremental increase in PM ₁₀ concentrations or deposited dust levels due to the project on its own; and Note 3: ³ Deposited dust is assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003; Note 4: ⁴ Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.			

11.3 MONITORING EQUIPMENT AND LOCATION

Dust monitoring equipment will be installed in accordance with the following.

- AS/NZS 3580.10.1:2003 *Methods for Sampling and Analysis of Ambient Air, Determination of Particulates—Deposited Matter—Gravimetric method.*
- AS 2922:1987 *Ambient Air - Guide for the Siting of Sampling Units* (NSW DECCW Method AM-1), and the NSW DECCW *Approved methods for the sampling and analysis of air pollutants in NSW* (DECC, 2005).

Table 12 presents the air quality-related monitoring locations.

Table 12
Location of Dust Monitoring Equipment

Monitoring Location	Purpose	Units of Measurement	Averaging Period	Sampling Frequency	Sampling Method
DG1	Deposited Dust	g/m ² /month	Month, annual	Monthly	AM-19(AS3580.10.1:2003)
DG2	Deposited Dust	g/m ² /month	Month, annual	Monthly	AM-19(AS3580.10.1:2003)
DG3	Deposited Dust	g/m ² /month	Month, annual	Monthly	AM-19(AS3580.10.1:2003)
PM1	PM ₁₀	µg/m ³	24 hour	Continuous	AM-16(AS2724.4-1987)
MET1	Meteorology	Various	15 minute	Continuous	DECC (2005)

There are established relationships between PM₁₀ and TSP for extractive industries whereby if the PM₁₀ long-term impact assessment criterion is satisfied the TSP criterion can also be expected to be satisfied. In view of this, PM₁₀ monitoring is proposed as a surrogate for demonstration of compliance with the TSP criterion in **Table 8**, and thus no TSP monitoring is to be undertaken.

Figures 2 and **3** present the locations of all air quality-related monitoring locations. It is noted that in order to minimise disturbance and inconvenience for surrounding land owners, deposited dust gauges have been located within the site boundary a locations closest to surrounding residences. The Company contends that demonstration of compliance at those locations will satisfy the requirements of *PA Condition 3(18)* at surrounding residences.

The Quarry Manager will be responsible for the installation and management of all dust monitoring equipment.

11.4 MONITORING FREQUENCY

Table 12 presents the air quality monitoring sampling frequencies and methods that will be undertaken for the Quarry.

The Quarry Supervisor will be responsible to ensure sampling is undertaken at the relevant frequencies and in accordance with the procedures outlined in Sections 11.5 and 11.6.

11.5 DEPOSITED DUST MONITORING PROCEDURE

11.5.1 Introduction

As described in **Table 12**, deposited dust sampling would be undertaken in accordance with the relevant standard. The following presents the sampling procedures that will be implemented for sampling of dust deposition.

11.5.2 Sampling Equipment

Each deposited dust gauge will comprise the following components.

- A 2.4m steel post.
- A plastic sample holder.
- A glass sample container/bottle (2 litre).
- A 150mm diameter glass funnel (and rubber stopper).

Deposited dust gauges will be installed in accordance with *AS 3580.10.1-2003* which requires the top of the glass funnel to be $2.0\text{m} + 0.1\text{m}$ above the surrounding ground level. It is also a requirement that the angle between the top of the gauge and surrounding vegetation is less than 30° . **Figure 5** displays an assembled gauge.

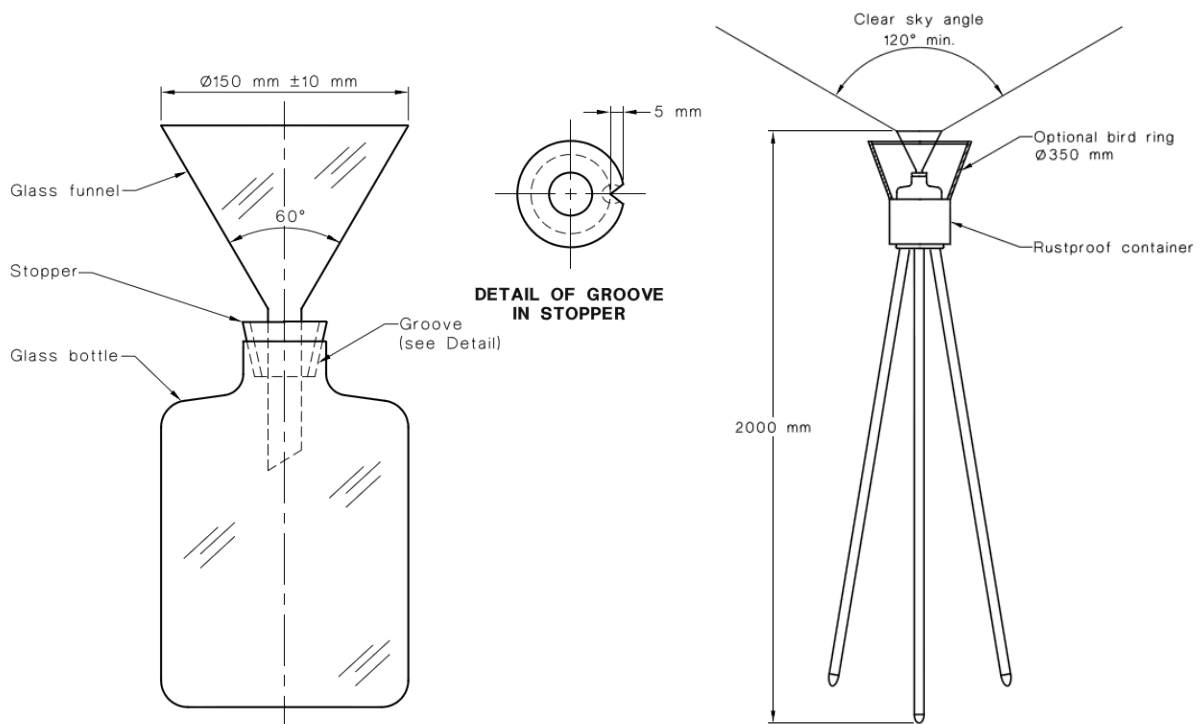


Figure 5 Typical Deposited Dust Gauge

Source: AS 3580.10.1-2003 Methods for sampling and analysis of ambient air, Figures 1 and 2.

11.5.3 Sample Collection

Deposited dust samples will be collected approximately monthly. The following equipment will be required during the sample changeover.

- Deposited dust monitoring sheet and chain of custody form.
- Crate/container for sample container.
- 3 x glass sample containers (with copper sulphate CuSO_4 added at laboratory).
- Marker pen/ink pen.
- 50mL wash bottle.
- 1 x container of distilled water.
- Clean cotton cloth.
- Narrow bottle brush.
- Spares kit:
 - glass funnel;
 - rubber stopper;
 - 1 litre bottle of CuSO_4 solution (available from laboratory); and
 - marker pen/ink pen.

11.5.4 Office Procedures

The following procedures are to be undertaken by the Quarry Supervisor prior to commencing the sampling program.

1. Check all new sample containers have the required quantity of copper sulphate added.
2. Check all equipment for use in the sample collection/changeover (Section 11.6.3) is present and functional.

11.5.5 Field Procedures

The following procedure will be implemented during collection/changeover of sample bottles.

1. Carefully remove the sample bottle and funnel from the sample holder (be careful of spiders, etc.).
2. Wash down the inside surface of the funnel with approximately 50mL of distilled water into the sample bottle using the bottle brush to loosen any deposited dust.
3. Remove the stopper and funnel from the sample bottle, taking care not to break the neck of the funnel and immediately place a cap on the sample bottle.

4. Complete the labelling of the sampling period on the sample flagon bottle by placing the date of collection on the bottle (see example below).

East Guyong Quarry

DG1

Sampling Period

01/9/12 - 01/12/12

5. Place the stopper and cleaned funnel on the new bottle.
6. Ensure that the new bottle is properly numbered and the commencement date of the sampling period is recorded on the bottle (see example below).

East Guyong Quarry

DG1

Sampling Period

01/12/12 -

7. Replace the new bottle and funnel in the sample holder ensuring the top of the funnel is horizontal.
8. Ensure all relevant data and comments are written on the deposited dust monitoring sheet and chain of custody form before leaving each site.

It is always important to note whether there have been any changes in land use immediately adjacent to the gauge since the last collection period. Some changes may be slow, e.g. increasing height of nearby vegetation. It is also important to note if the sample has been contaminated by extraneous material including vegetation, bird droppings, insects, etc. This information needs to be recorded on the monitoring sheet and chain of custody form.

11.5.6 Sample Despatch

All samples despatched to the laboratory need to be accompanied by a deposited dust monitoring sheet and chain of custody form. It is important to establish a chain of custody for all documentation relating to the samples and the supply of the results, i.e.

- laboratory formally acknowledges receipt of samples and planned date for issue of draft results (if not received then follow up to check samples have not gone astray);
- draft results provided by laboratory (to be checked by Company personnel that they are appropriate and no laboratory errors have occurred); and
- receipt of final results (in a timely manner).

11.5.7 Data Recording and Reporting

Upon receipt of the laboratory results, the following will be undertaken.

- The results will be entered into a spreadsheet and compared with the guideline level of $4\text{g/m}^2/\text{month}$ and with previous results to ascertain any inconsistent results.



- Download monthly wind speed and direction data from the onsite meteorological station for the period of sampling.
- In the event there are any excessive deposited dust levels, these need to be compared with the recorded wind speed and direction data and any comments recorded during sample bottle changeover to potentially ascertain the source/s of the excessive levels. It is also worth reviewing the ash content on samples recording high total insoluble solid levels as low ash values indicate the dust to be of organic origin (e.g. pollen).

11.6 PM₁₀ MONITORING PROCEDURE

11.6.1 Sampling Equipment

The Company has installed a Dust Trac PM₁₀ monitor as shown on **Figure 2**. The monitor records continuous PM₁₀ concentrations, with the data available in real-time.

The PM₁₀ monitor will be operated in accordance with the following.

- AS2724.4-1987 – *Ambient air-particulate matter – Determination of light scattering – integrating nephelometer method*; and
- the manufacturer's instructions.

11.6.2 Automatic Warnings and Data Review

Prior experience at other Company sites indicates that a 15 minute average trigger level of 90µg/m³ provides adequate protection against a 24 hour average exceedance criteria of 50µg/m³.

On the receipt of a warning, the Quarry Manager or Supervisor will inspect the operations immediately and determine the likely source of the suspended particulate material. If, in the Quarry Manager's or Supervisor's opinion, the source is Quarry-related, appropriate management measures will be implemented, potentially including:

- relocation operations;
- cessation of particular activities within the Site; or
- increased or more focused use of dust suppression equipment, including the water cart.

Data from the PM₁₀ monitor will be checked periodically by the Quarry Supervisor to confirm that the warning system is operational. In addition, graphs of the results of PM₁₀ monitoring for the proceeding 12 months will be included in the *Annual Review*.

11.7 METEOROLOGICAL MONITORING

The company has installed an automated meteorological station within the Site (**Figure 2**). The meteorological station records:

- temperature;
- rainfall;
- wind speed and direction;
- solar radiation; and
- barometric pressure.

The data is recorded at 15 minute intervals. From this data, the following is calculated.

- sigma-theta (a measure of the fluctuation of the horizontal wind direction);
- fire danger index; and
- dew point.

The Company will ensure that the meteorological station is operated in accordance with the following guidelines.

- AS 2923:1987 Ambient air - Guide for measurement of horizontal wind for Air Quality Applications;
- USEPA (2000) EPA 454/R-99-005 Meteorological monitoring guidance for regulatory modelling applications; and
- Manufacturer's recommendations.

11.8 GREENHOUSE GAS MONITORING

Table 13 presents the monitoring that will be undertaken for Greenhouse Gas Reporting in accordance with the *National Greenhouse and Energy Reporting Act 2007*.

Table 13
Monitoring Requirements for Greenhouse Gas Reporting

Parameter Monitored	Frequency	Responsibility
Electricity usage	Collated Yearly	Quarry Manager
Diesel usage	Collated Yearly	Quarry Manager

Source: Heggies, 2009

12. EVALUATION OF COMPLIANCE

The air quality monitoring results will be reviewed and tabulated by the Quarry Supervisor:

- within 7 days of the receipt of deposited dust monitoring data; and
- weekly for PM₁₀ monitoring data.

The tabulated data will include an assessment of the monitoring results against the criteria identified in *PA Conditions 3(18)*. The tabulated data will be reviewed by the Quarry Manager and a copy included within each *Annual Review*.

In the event that the monitoring results approach the criteria identified in *PA Condition 3(18)*, the Quarry Manager or Quarry Supervisor will:

- review the meteorological data and Quarry-related activities for the same period;
- determine if the elevated dust levels/concentrations are Quarry-related; and
- if so, implement appropriate corrective and preventative actions, including further review of air quality monitoring data.

13. CORRECTIVE AND PREVENTATIVE ACTIONS

In the event that air quality monitoring identifies an exceedance of the air quality criteria identified in *PA Conditions 3(18)*, the exceedance will be investigated to determine the likely cause. The investigation will seek to determine:

- the date(s) and period of the exceedance.
- whether the exceedance of the criteria was directly related to one or more air quality sources associated with the Quarry or if any other factors contributed to the exceedance;
- the primary cause(s) of the incident;
- any contributing factor(s) which led to the incident;
- whether appropriate controls were implemented to prevent the incident; and
- the most appropriate corrective and preventative measures that need to be implemented to prevent a recurrence of the incident.

If it has been identified that the criteria have been exceeded, the Company will report and investigate the exceedance in accordance with the procedure identified in Section 15.

Corrective and/or preventative actions will be assigned to relevant Company personnel. Actions will be communicated internally through planning meetings and toolbox talks and outstanding actions will be monitored for their effectiveness upon completion.

14. COMPLAINTS HANDLING AND RESPONSE

The *Environmental Management Strategy* as required by *PA Condition 5(1)* includes a detailed complaints management procedure. This sub-section records the procedures that would be implemented following receipt of an air quality-related complaint.

Air quality-related complaints may be received via one of the following methods.

- Directly via the 24-hour, 7 day per week Company's general Emergency Line (1800 882 478). This number will be advertised widely in the local media, on signage at the Site entrance and on the Company web site www.hanson.com.au.
- Directly via a dedicated email address which will be advertised in a similar manner to the Community Information Line.
- Indirectly via the relevant government agencies.

In addition, consultation will be held with the community as part of the Company's standard consultation procedures, namely informal meeting with surrounding landholders as required. These meetings will provide a further forum at which complaints may be received.

Following receipt of any air quality-related complaint, the Company will implement the following procedure.

1. The complaint will be reviewed by the Quarry Manager or their delegate to determine the nature, date and time of the air quality emission. This will include contacting or meeting with the complainant.
2. Relevant monitoring data will be reviewed, including meteorological and both deposited dust and PM₁₀ data.
3. Should the air quality monitoring report indicate that no exceedance of the criteria identified in *PA Conditions 3(18)*, the Quarry Manager will continue to consult with the complainant in relation to managing air quality emissions within the Quarry.
4. Should the air quality monitoring report indicate that an exceedance of the criteria identified in *PA Conditions 3(18)*, the Quarry Manager will notify the Department of Planning and Infrastructure and Environment Protection Authority and will implement the procedures identified in Condition 4(3). In addition, the Quarry Manager will continue to consult with the complainant, as required, in relation to the complaint.
5. In the event that multiple complaints are received from the same individual(s) and the Company can demonstrate:
 - at least three air quality-related complaints from the complainant, with demonstrated compliance with the criteria identified in *PA Conditions 3(18)* in each case; and
 - there is documented evidence of a genuine attempt by the Company to discuss the issue and seek a resolution with the complainant without success;then the Company may, in consultation with the relevant government agencies, limit responses to further complaints to Steps 1 and 2 above.

All complaints would be recorded using a proforma complaints record sheet and the nature and outcome of the complaint and subsequent investigation provided in summary form to the Community Consultative Committee and in the Annual Review.

15. INCIDENT REPORTING

In the event that an initial investigation concludes that an exceedance of an environmental criterion was directly attributed to activities associated with the Quarry, as described in Section 13, the event will be reported to NSW Department of Planning and Infrastructure, EPA and the relevant landholder(s) within 24-hours of confirming the exceedance. A copy of the NSW Health fact sheet entitled “*Mine Dust and You*” or any subsequent updates will also be provided to the affected landowner.

Within 7 days of identifying the exceedance, the Company will submit a written report with regular updates on the status of the additional mitigation actions to the Director-General, EPA and, where relevant, the relevant landholder(s). In addition, a copy of all reports will be provided to the Community Consultative Committee, made publicly available on the Quarry website and will be included in the *Annual Review*.

The Quarry Manager will be responsible for incident reporting.

16. PUBLICATION OF MONITORING INFORMATION

All air quality monitoring reports will be made publicly available on the Quarry website and will be included in the *Annual Report*.

All air quality exceedance investigation reports will be made publicly available on the Quarry website within 7 days of being finalised and accepted by the EPA.

Finally, the Company will also provide the Community Consultative Committee with a copy of all monitoring reports.

The Quarry Manager will be responsible for publication of all relevant monitoring information.

17. REVIEW

In accordance with *PA Condition 5(4)*, this *Air Quality Management Plan* will be reviewed and, if required, revised within 3 months of:

- the submission of an annual review under *PA Condition 5(3)*;
- the submission of an incident report under *PA Condition 5(6)*;
- the submission of an audit report under *PA Condition 5(8)*; and
- any modification to the conditions of PA 06_0193.

The Quarry Manager will be responsible for the review of this Plan.

18. REFERENCES

Heggies, 2007 - *Proposed Hard Rock Quarry, Guyong NSW Air Quality Assessment, 2007* by Heggies Pty Ltd.

Heggies, 2009 - *Proposed Hard Rock Quarry, Guyong NSW Greenhouse Gas Assessment, 2009* by Heggies Pty Ltd.

This page has been intentionally left blank

