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Air Quality Monitoring Review
1/09/2021 to 1/09/2022
DA 267-11-99
EPL 6535

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Document details

Date	Revision	Author	Date of Expert Approval	Details
28/11/2022	0	Lisa Thomson BAppSc(Chem)Hons, MRACI, MIQA, CChem	8/03/2022 Appendix A	
30/01/2023	1	Lisa Thomson Changes required by DPE 18/01/2023		Appendix G: DPE Request for Additional Information 18/1/23; Appendix H: PM2.5 Results 09/10/2021; Section 6: Conclusions and Recommendations

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Glossary and Abbreviations

BAM	Beta Attenuated Method
DPE	NSW Department of Planning and Environment
EPA	NSW Environment Protection Authority
HVAS	High Volume Air Sampler
PM10 or PM ₁₀	Particulate Matter less than 10 micron in diameter
PM2.5 or PM _{2.5}	Particulate Matter less than 2.5 micron in diameter
R2 or R ²	Pearsons Correlation Coefficient
TEOM	Tapered Element Oscillating Microbalance

1 Introduction

1.1 SCOPE

VGT Environmental Compliance Solutions Pty Ltd has been engaged by Hodgson Quarries and Plant Pty Ltd to prepare a report in accordance with condition 29A and 29B, DA267/11/99 Mod 4 for the sand quarry at Roberts Road Maroota:

29A. The Applicant must commission an expert review of the air quality monitoring system at the site. This review must:

(a) be undertaken by a suitably qualified and experience person(s) whose appointment has been approved by the Secretary;

(b) review the accuracy of the air quality monitoring system at the site over a 12 month period, in general accordance with the Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007) and with a particular focus on PM_{2.5} monitoring;

(c) provide recommendations (where required) to improve the accuracy of air quality monitoring system at the site; and

(d) be undertaken in consultation with the EPA.

29B. A copy of the expert review report along with a timetable for implementing any recommendations arising from the review required under condition 29A of this Schedule, must be submitted by 30 November 2022, or as otherwise agreed by the Planning Secretary.

Note that this condition is taken from the Notice of Modification document, as the Consolidated Consent has only been provided as a draft with errors.

Lisa Thomson from VGT Environmental Compliance Solutions Pty Ltd (VGT) was approved by the nominee of the Planning Secretary to review the air monitoring system in accordance with the above reproduced condition on the 8/03/2022, see [Appendix A](#).

1.2 BACKGROUND

The sand quarry at Roberts Road Maroota (the site) has been operating continuously since the 1990's. A fourth modification to the consent conditions for the operations was sought in 2020 and approved on the 13th August 2021. The modification was to:

- Import up to 320,000 tonnes per annum of VENM and ENM to backfill the excavation
- Onsite processing of selected imported materials for sale
- Increase truck movements to 140 per day
- Extend the quarry life to 31 May 2030
- Remove a condition limiting the area of exposed and active quarry area to allow for backfill and rehabilitation activities.

During the modification process, the EPA requested clarification of the Air Quality Impact Assessment and cast doubt on the accuracy of the onsite PM_{2.5} monitoring. The EPA recommended that the licensee commission an expert review of the air quality monitoring system, with specific focus on the PM_{2.5} monitoring. The Response to Submissions detailing the EPA requirements is included in [Appendix B](#).

1.3 LICENCES AND CONDITIONS

Development approval (DA267-11-99), with conditions of consent was first issued by the then Department of Urban Affairs and Planning on the 31st of May 2000. A Modification to Consent (Mod 4) was submitted in November 2019 and approved on 13th August 2021, see [Appendix C](#).

An Environment Protection Licence number 6535 has been issued for the site and is included in [Appendix D](#).

1.4 CONSULTATION

The EPA was approached by the author for comments on the report. Copies of the EPA reply are included in [Appendix E](#), however the EPA had no comments.

2 Review Methodology

This review is required to evaluate 12 month's worth of monitoring data, with particular emphasis on the accuracy of the PM2.5 results.

Terminology used throughout the report is consistent with the Australian Standard series of methods for sampling and analysis of ambient air. In particular, the report is written in the context of AS3580.19 Ambient air quality data validation and reporting. A full list of the standards referenced is included in [Section 5](#).

AS3580.19 section 2.5.2 outlines how manual data systems shall be examined for anomalies, outliers and inconsistencies. The following table contains a list recommended as a base for examination and corresponding comments on the site's system.

Table 1. *AS3580.19 Section 2.5.2 Data Examination Items*

Item	Comments on Site System
Audit and inter-laboratory results	All site results are covered by the scope of accreditation number 20375 of the laboratory and are therefore audited by NATA. (Section 3.1).
Concurrent data from other ambient air quality monitoring stations in the immediate vicinity of the station under examination	Section 4 .
Concentration ratios for pollutants from a known source	Table 8 .
Emission source locations and meteorological data	Where results from the site have been invalidated due to these factors, it has been discussed in Section 3.3 .
Seasonal and diurnal variations in pollution concentrations	No obvious seasonal or daily trends have been noted.
Time period corresponding to known unusual events	There were no known bushfires during the review period, however there were periods of heavy rain.
Historical records	This review covers a 12 month period from 1/9/2021 to 1/9/2022.
Statistical Analysis	Section 5
Graphical representations	Graph 1 to Graph 9
Observations reported by the site.	Not available for inclusion in this report.

Due to availability of concurrent data from other ambient air quality monitoring stations in the immediate vicinity of the station under examination, the period 1st September 2021 to 1st September 2022 was chosen.

The external sites available for comparison of results are given in the table below.

Table 2. *External Sites*

Site	Description	Distance from Site	Type of Monitoring
DPE Air Quality Monitoring Site Richmond https://www.environment.nsw.gov.au/topics/air/monitoring-air-quality/sydney	University of Western Sydney, Hawkesbury	Approx 40km	BAM PM10 and PM2.5
Dixon Sand, Old Northern Rd Maroota http://www.dixonsand.com.au/	Sand Quarry	Approx 3km	TEOM PM10
PF Formations, Old Northern Rd Maroota https://pfformation.com.au/	Sand Quarry	Approx 200m	Depositional Dust <i>Only 2021 available</i>

2.1.1 Critical Criteria from AS3580.19 Table 5

AS3580.19 lists critical criteria for each method in section 2.8.2, Table 5. Note that not all critical criteria in the Table have been assessed, as not all are relevant to the current review. Individual results were not checked for each criteria, rather the method was checked as to whether the critical criteria are met, and NATA audits ensure compliance.

Table 3. *Depositional Dusts Critical Criteria*

Criteria	Conformance
Equipment conforms to specified dimensions	Yes
Funnel aperture plane within 10° of horizontal 2 ± 0.2m above ground	Yes
Algicide added to gauges	Yes
Test sieve of 1mm	Yes
Conformance with specified temperatures	Yes
Conformance with analytical balance requirements	Yes

Table 4. *Particulate Matter Critical Criteria*

Criteria	Conformance
Equipment conforms to specified requirements	Yes
Sampler operation within allowable tolerance of selected time period	Yes
HVAS exhaust directed away from sampler and ground	Yes
Conformance with analytical balance requirements	Yes
Filter weighing environment within the specified temperature and humidity requirements	Yes

Criteria	Conformance
Laboratory blank filter weight change within the specified limits	Yes
No sample loss during filter folding and sample recovery	Not noted on sample comments
Sample flow rate as required	Yes
Sample inlet sized as specified	Yes

3 Site Air Quality Monitoring

3.1 AIR QUALITY MONITORING PLAN

The air quality is monitored on the site in accordance with an Air Quality Management Plan available for download https://www.vgt.com.au/client_images/2039728.pdf. The current version is R4 7/11/2016.

Table 5. Air Quality Monitoring Summary

Parameter	Method	Sampling Period / Interval	Location (Figure One)	Performance Criteria
Insoluble Solids g/m²/month	AS3580.10.1	30 +/- 2 days / continuous	D1, D2, D3	<= 4 as Annual Average
Total Suspended Particulates (TSP) µg/m³	AS3580.9.3	24 hrs every 6 days	D1	<= 90 as Annual Average
Particulate Matter less than 10 micron (PM10) µg/m³	AS3580.9.6	24 hrs every 6 days	D1	<= 25 as Annual Average <= 50 as 24 hour Average
Particulate Matter less than 2.5 micron (PM2.5) µg/m³	AS3580.9.14	24 hrs every 6 days	D1	<= 8 as Annual Average <= 25 as 24 hour Average

The site results for the review period are given in the tables and graphs on the following pages. The monitoring locations are given on [Figure One](#).

Figure One. Monitoring Locations

Plan of: Annual Review & Compliance Report 2021 for Roberts Road Maroota Sand Quarry - Environmental Monitoring Locations

Figure: THREE

Version/Date: V0 15/03/2022

Our Ref: 12173_HMA_ARC2021_Q003_V0_F3

Location: Maroota Quarry, Roberts Road, Maroota, NSW

Council: Hills Shire Council

Tenure: Not Applicable

Client: Hodgson Quarries & Plant Pty Ltd

Source: Fyfe - Quarry Image Date 24/02/2022 Zone MGA 94
nearmap - Surrounds Image Date 18/03/2020 Zone MGA 56


Survey: Not Applicable

Projection: GDA2020/MGA Zone 56 EPSG:7856

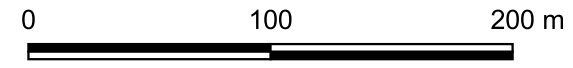
Contour Interval: Not Applicable

Plan By: SK/JD

Project Manager: LT



This figure may be based on third party data which has not been verified by vgt and may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and vgt does not warrant its accuracy.



Note:

Dam No.	Dam Catchment	Dam Area (m ²)	Estimated Average Depth (m)	Estimated Volume (m ³)
1	Processing Dam	-	Ranging from 0.1-3m*	1,240*
2	Holding Dam	12,200	1	12,200
3	Northern Nursery Dam	7,500	2	15,000
4	Southern Nursery Dam	14,500	2	29,000
Total Volume Held				57,440

* Volume calculated from 12D software to RL 187.2 from modelled contours.
All dams will be incorporated into the final landform.

Legend

- Property Boundary
- Monitoring Wells
- Dust & HVAS
- Attended Noise
- Road Noise Monitoring
- Water Sampling
- Dust Gauge
- Weather Station
- Sprinkler

3.2 DEPOSITED DUST RESULTS FOR SITE

Graph 1. Deposited Dust D1

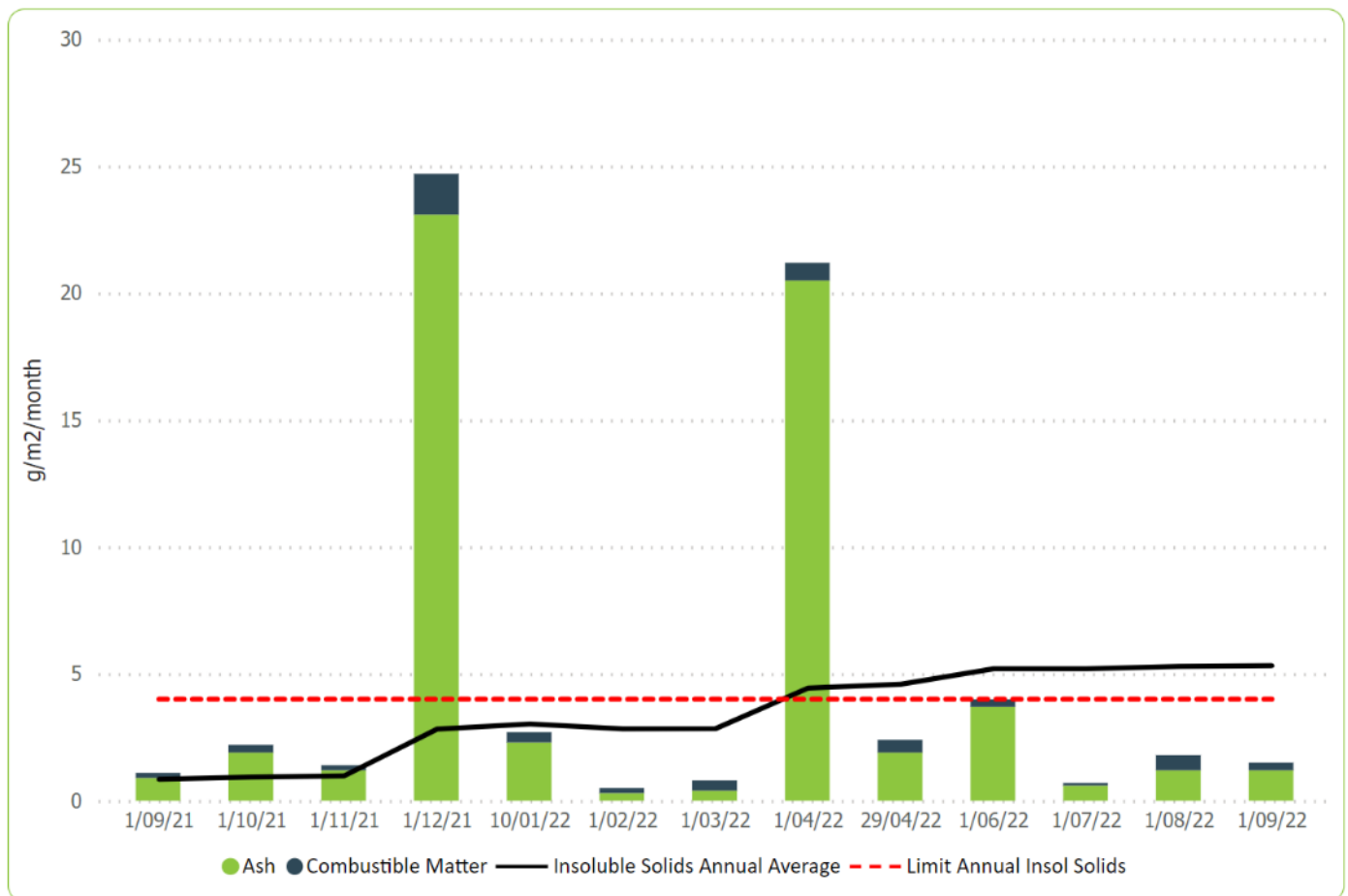


Table 6. Deposited Dust D1

Date On	Comments	Date Sampled	Days On	Insoluble Solids	Ash	Combustible Matter	Calculated Rain
30/07/21		1/09/21	33	1.1	0.9	0.2	63
1/09/21		1/10/21	30	2.2	1.9	0.3	25
1/10/21		1/11/21	31	1.4	1.2	0.2	50
1/11/21	Sampled by Melissa Mass	1/12/21	30	24.7	23.1	1.6	116
1/12/21	Sampled by Melissa Mass	10/01/22	40	2.7	2.3	0.4	115
10/01/22	Sampled by Melissa Mass	1/02/22	22	0.5	0.3	0.2	47
1/02/22	Sampled by Melissa Mass	1/03/22	28	0.8	0.4	0.4	116
1/03/22	Sampled by Melissa Mass	1/04/22	31	21.2	20.5	0.7	116
1/04/22	Sampled by Melissa Mass	29/04/22	28	2.4	1.9	0.5	110
29/04/22	Sampled by Melissa Mass	1/06/22	33	4.0	3.7	0.3	98
1/06/22	Sampled by Melissa Mass	1/07/22	30	0.7	0.6	0.1	7
1/07/22	Sampled by Melissa Mass. Flooding rainfall event during July.	1/08/22	31	1.8	1.2	0.6	114
1/08/22	Sampled by Melissa Mass.	1/09/22	31	1.5	1.2	0.3	32

Graph 2. Deposited Dust D2

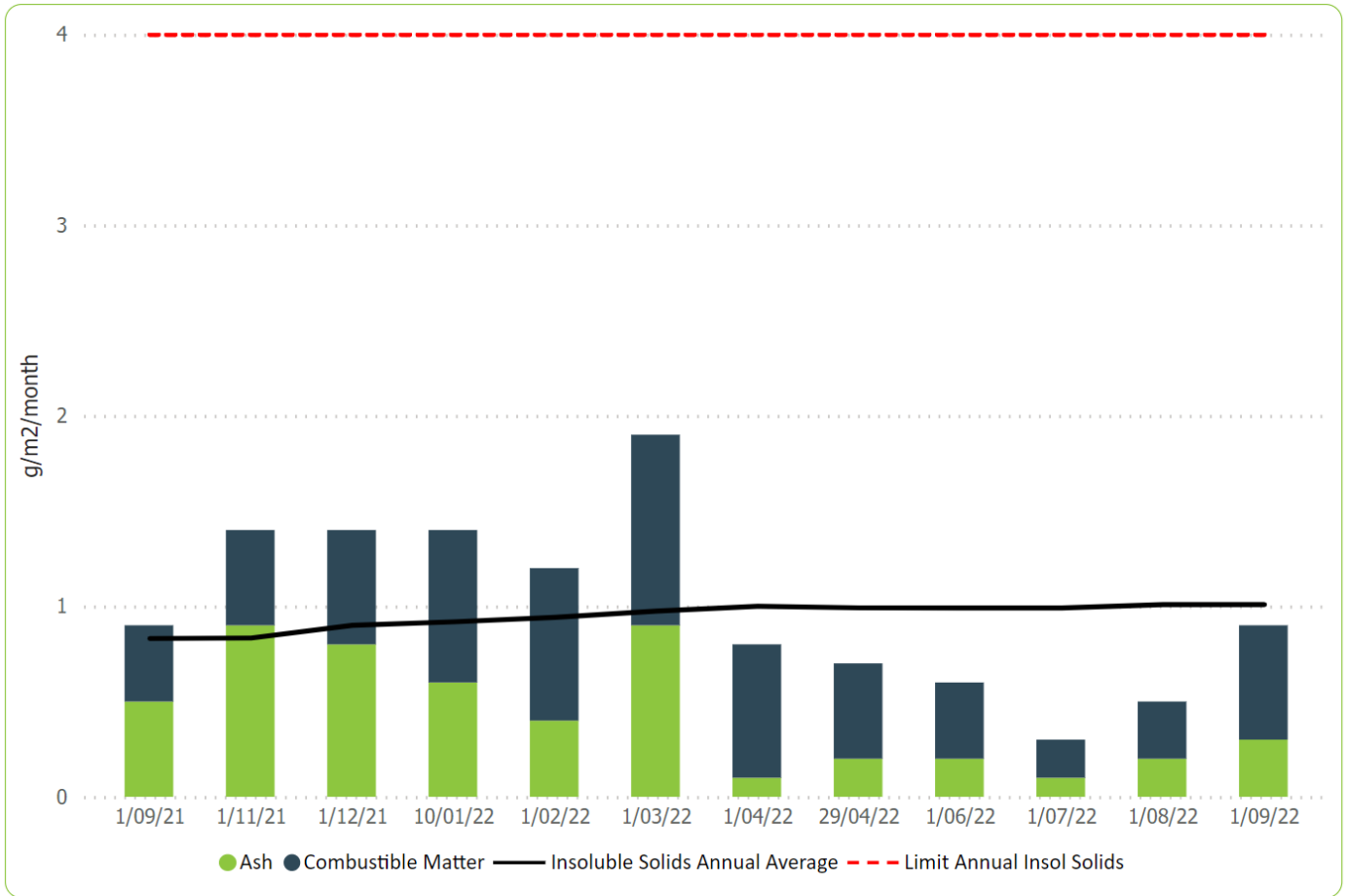


Table 7. Deposited Dust D2

Date On	Comments	Date Sampled	Days On	Insoluble Solids	Ash	Combustible Matter	Calculated Rain
30/07/21		1/09/21	33	0.9	0.5	0.4	54
1/10/21		1/11/21	31	1.4	0.9	0.5	41
1/11/21	Sampled by Melissa Mass.	1/12/21	30	1.4	0.8	0.6	115
1/12/21	Sampled by Melissa Mass.	10/01/22	40	1.4	0.6	0.8	115
10/01/22	Sampled by Melissa Mass.	1/02/22	22	1.2	0.4	0.8	33
1/02/22	Sampled by Melissa Mass	1/03/22	28	1.9	0.9	1.0	115
1/03/22	Sampled by Melissa Mass	1/04/22	31	0.8	0.1	0.7	115
1/04/22	Sampled by Melissa Mass	29/04/22	28	0.7	0.2	0.5	88
29/04/22	Sampled by Melissa Mass	1/06/22	33	0.6	0.2	0.4	85
1/06/22	Sampled by Melissa Mass	1/07/22	30	0.3	0.1	0.2	4
1/07/22	Sampled by Melissa Mass.	1/08/22	31	0.5	0.2	0.3	115
	Flooding rainfall event during July.	1/09/22	31	0.9	0.3	0.6	26
1/08/22	Sampled by Melissa Mass.						

Graph 3. Deposited Dust D3

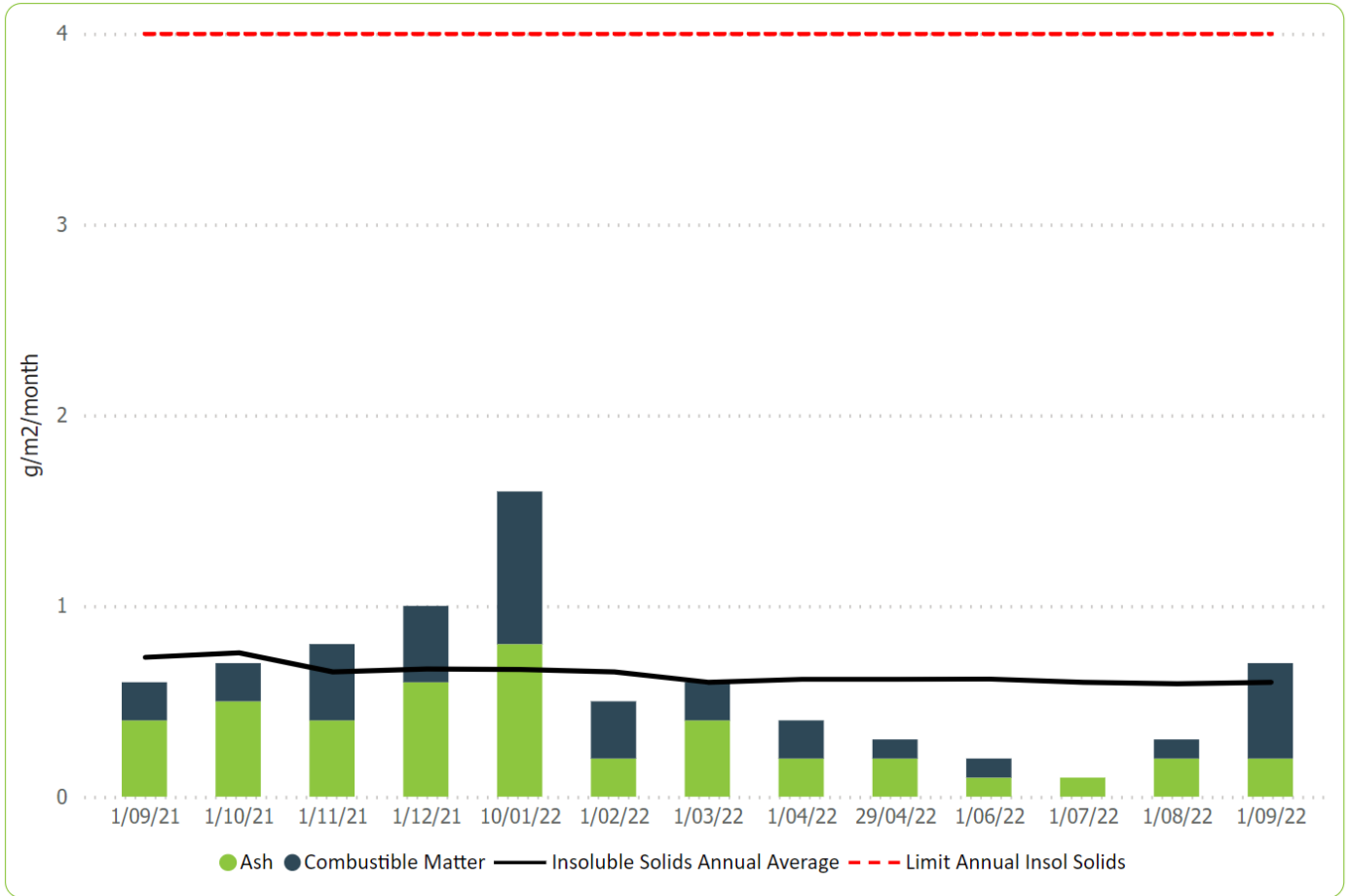


Table 8. Deposited Dust D3

Date On	Comments	Date Sampled	Days On	Insoluble Solids	Ash	Combustible Matter	Calculated Rain
30/07/21		1/09/21	33	0.6	0.4	0.2	66
1/09/21		1/10/21	30	0.7	0.5	0.2	22
1/10/21		1/11/21	31	0.8	0.4	0.4	38
1/11/21	Sampled by Melissa Mass	1/12/21	30	1.0	0.6	0.4	114
1/12/21	Sampled by Melissa Mass	10/01/22	40	1.6	0.8	0.8	115
10/01/22	Sampled by Melissa Mass	1/02/22	22	0.5	0.2	0.3	44
1/02/22	Sampled by Melissa Mass	1/03/22	28	0.6	0.4	0.2	116
1/03/22	Sampled by Melissa Mass	1/04/22	31	0.4	0.2	0.2	116
1/04/22	Sampled by Melissa Mass	29/04/22	28	0.3	0.2	0.1	108
29/04/22	Sampled by Melissa Mass	1/06/22	33	0.2	0.1	0.1	94
1/06/22	Sampled by Melissa Mass	1/07/22	30	0.1	0.1	0.0	7
1/07/22	Sampled by Melissa Mass.	1/08/22	31	0.3	0.2	0.1	114
1/07/22	Flooding rainfall event during July.	1/09/22	31	0.7	0.2	0.5	31
1/08/22	Sampled by Melissa Mass.						

3.3 PARTICULATE MATTER RESULTS FOR SITE

Graph 4. Particulate Matter

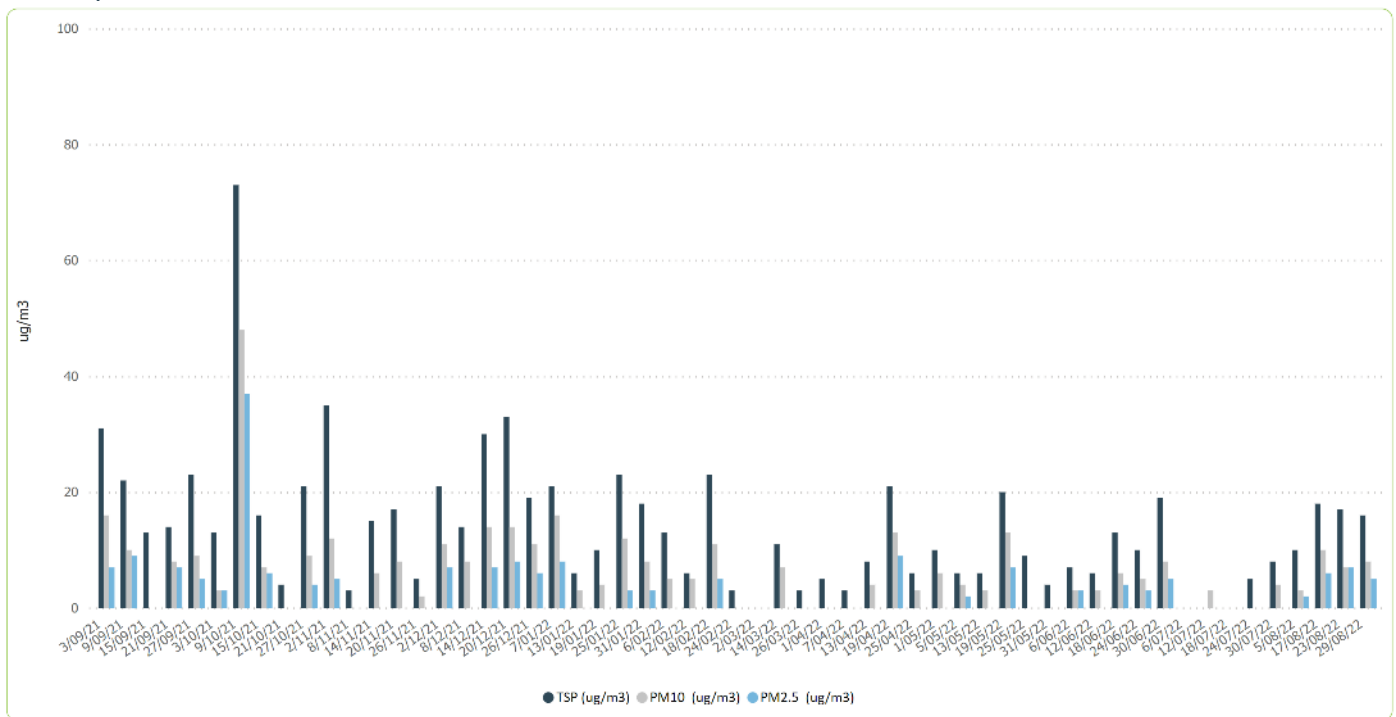


Table 9. Particulate Matter Results and Ratios

Date	TSP (ug/m3)	PM10 (ug/m3)	PM2.5 (ug/m3)	Ratio TSP/PM10	Ratio PM10/PM2.5
3/09/2021	31	16	7	1.94	2.29
9/09/2021	22	10	9	2.20	1.11
15/09/2021	13	<2	<2		
21/09/2021	14	8	7	1.75	1.14
27/09/2021	23	9	5	2.56	1.80
3/10/2021	13	3	3	4.33	1.00
9/10/2021	73	48	37	1.52	1.30
15/10/2021	16	7	6	2.29	1.17
21/10/2021	4	<2	<2		
27/10/2021	21	9	4	2.33	2.25
2/11/2021	35	12	5	2.92	2.40
8/11/2021	3	<2	<2		
14/11/2021	15	6	<2	2.50	
20/11/2021	17	8	<2	2.13	
26/11/2021	5	2	<2	2.50	
2/12/2021	21	11	7	1.91	1.57
8/12/2021	14	8	<2	1.75	
14/12/2021	30	14	7	2.14	2.00
20/12/2021	33	14	8	2.36	1.75
26/12/2021	19	11	6	1.73	1.83

Date	TSP (ug/m3)	PM10 (ug/m3)	PM2.5 (ug/m3)	Ratio TSP/PM10	Ratio PM10/PM2.5
7/01/2022	21	16	8	1.31	2.00
13/01/2022	6	3	<2	2.00	
19/01/2022	10	4	<2	2.50	
25/01/2022	23	12	3	1.92	4.00
31/01/2022	18	8	3	2.25	2.67
6/02/2022	13	5	<2	2.60	
12/02/2022	6	5	<2	1.20	
18/02/2022	23	11	5	2.09	2.20
24/02/2022	3	<2	<2		
2/03/2022	<2	<2	<2		
14/03/2022	11	7	<2	1.57	
26/03/2022	3	<2	<2		
1/04/2022	5	<2	<2		
7/04/2022	3	<2	<2		
13/04/2022	8	4	<2	2.00	
19/04/2022	21	13	9	1.62	1.44
25/04/2022	6	3	<2	2.00	
1/05/2022	10	6	<2	1.67	
5/05/2022	6	4	2	1.50	2.00
13/05/2022	6	3	<2	2.00	
19/05/2022	20	13	7	1.54	1.86
25/05/2022	9	<2	<2		
31/05/2022	4	<2	<2		
6/06/2022	7	3	3	2.33	1.00
12/06/2022	6	3	<2	2.00	
18/06/2022	13	6	4	2.17	1.50
24/06/2022	10	5	3	2.00	1.67
30/06/2022	19	8	5	2.38	1.60
6/07/2022	<2	<2	<2		
12/07/2022		3	<2		
18/07/2022		<2	<2		
24/07/2022	5	<2	<2		
30/07/2022	8	4	<2	2.00	
5/08/2022	10	3	2	3.33	1.50
17/08/2022	18	10	6	1.80	1.67
23/08/2022	17	7	7	2.43	1.00
29/08/2022	16	8	5	2.00	1.60

3.4 INVALIDATED RESULTS

3.4.1 Depositional Dusts

There were no depositional dust results invalidated in accordance with recommendations in AS3580319.

The chosen date range included 13 sets of results from 3 sampling sites, totalling 36 results. On 4 occasions the sampling range was inconsistent with the requirements of AS3580.10.1, being 30 +/- 2 days. The August 2021 set were sampled from 30/7/2021 to 1/9/2021, being 33 days. The December 2021 set were sampled from 1/12/2021 until 10/1/2022 due to the Christmas holiday period, a period of 40 days. The following period was correspondingly shortened: 10/1/2022 to 1/2/2022, being 22 days. The May 2022 set of results had a sampling period of 29/4/2022 to 1/6/2022, being 33 days. In each of these cases, the calculations were adjusted to allow for number of days. All results were flagged, but none required invalidation.

3.4.2 Particulate Matter

On the 8th March 2022 the PM10 showed results higher than the TSP, however the PM10 filter paper contained rust stains and had been contaminated after removal from the instrument. The result was invalidated due to post-sampling contamination and removed from the data set. The TSP instrument did not operate between 12th July and 20th July 2022 due to an electrical fault.

3.5 AUDIT OF RESULTS

3.5.1 Sampling

The sampling of the deposition gauges is undertaken by a site contractor and the changing of the HVAS filter papers is undertaken by site employees. These activities are not covered by the NATA scope accreditation and are therefore not subject to external independent auditing. There was only one result where the test was invalidated due to sampling error (8/3/22, PM10). The sampling procedures were not sighted for this review.

3.5.2 Testing

A review of the laboratory reports obtained from the site shows that all of the analytes listed in [Table 4](#) and tested under the site's AQMP are covered by the scope of accreditation of the laboratory undertaking the testing, VGT Laboratories Pty Ltd accreditation number 20375. The NATA accreditation ensures that the organisation performing the testing has been assessed by independent auditors as technically competent to perform all of the tests listed in [Appendix F](#).

4 Concurrent Data from Other Sites

4.1 DEPOSITIONAL DUST COMPARISON

Depositional dust results from the site were compared to PF Formation (PFF) results published on their website. Only 4 months of data was available for comparison. Methods of testing are the same.

Table 10. *Depositional Dust External Site Comparison*

Sample Period	D1	D2	D3	Average Roberts Rd	PFF Maroota School	PFF Hitchcock Rd	PFF Jurds	PFF Josh	PFF Lodge	Average PFF
Sep-21	2.2	0.9	0.7	1.27	0.79	1.3	1.4	0.6	0.4	0.90
Oct-21	1.4	1.4	0.8	1.20	1.4	2.1	1.6	1.3	1.5	1.58
Nov-21	24.7	1.4	1	9.03	2.1	3.3	3.8	4.4	2	3.12
Dec-21	2.7	1.4	1.6	1.90	1.4	1.7	2.9	1.4	0.8	1.64

Graph 5. *Depositional Dust External Site Comparison*

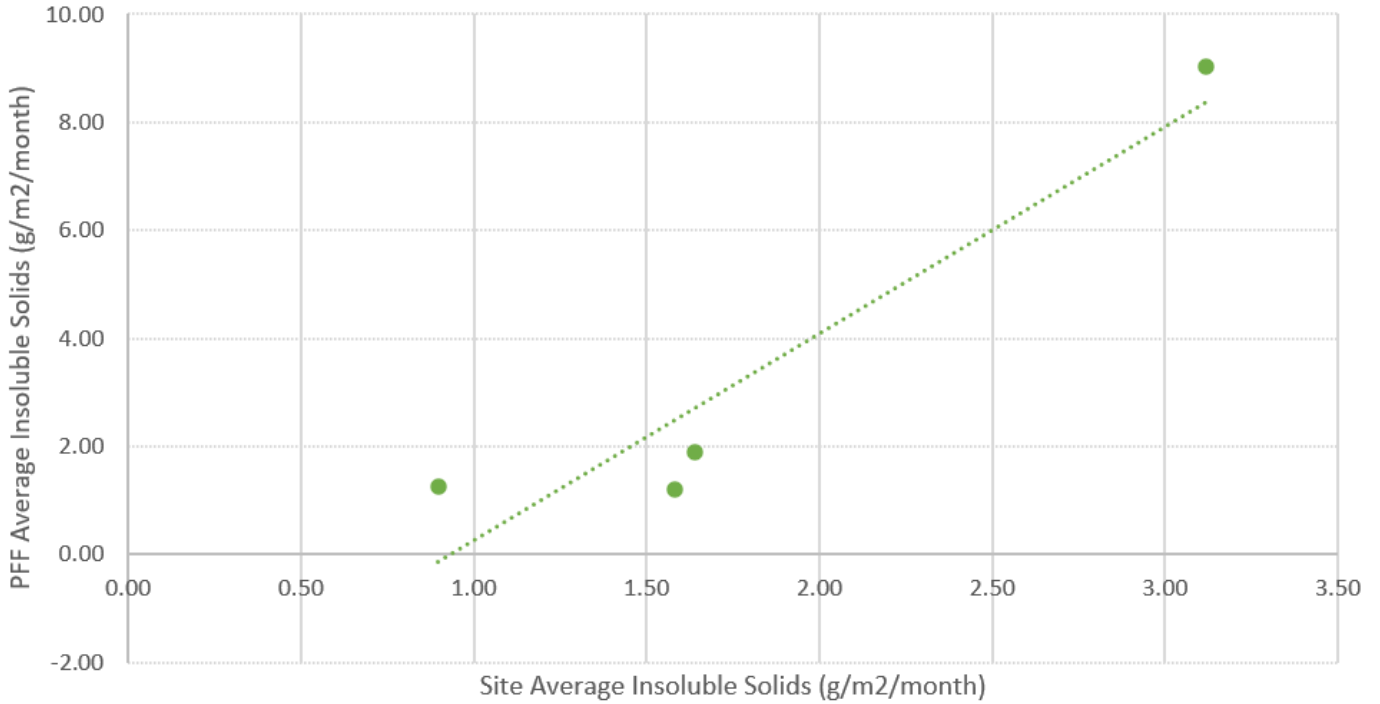


Table 11. *Deposited Dust Comparison Statistics*

Parameter	Value
Average Site result / Average Comparison result Period Sept 2021 to Dec 2021	13.4 / 7.2
R² coefficient (Graph 5)	0.90

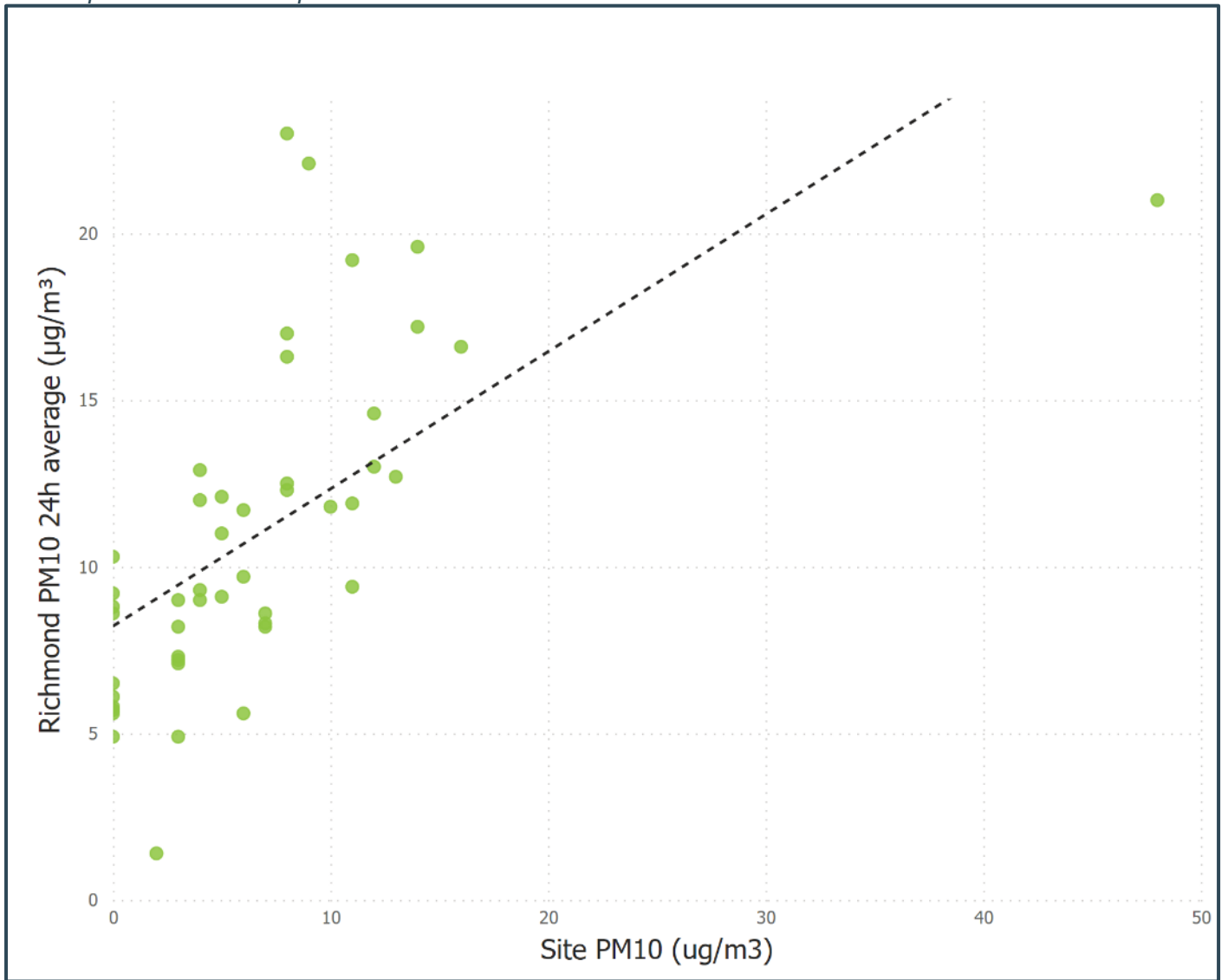
4.2 PARTICULATE MATTER COMPARISON

Particulate matter results from the site were compared to 2 different sources – NSW DPE site (BAM) for both PM10 and PM2.5, and Dixon Sand (TEOM) for PM10 only. Twelve months of data was available for comparison. Methods of testing are different. Dixon Sand is only required to monitor PM10, not TSP or PM2.5. PFF is not required to monitor either TSP, PM10 or PM2.5.

Table 12. *Particulate Matter External Site Comparison*

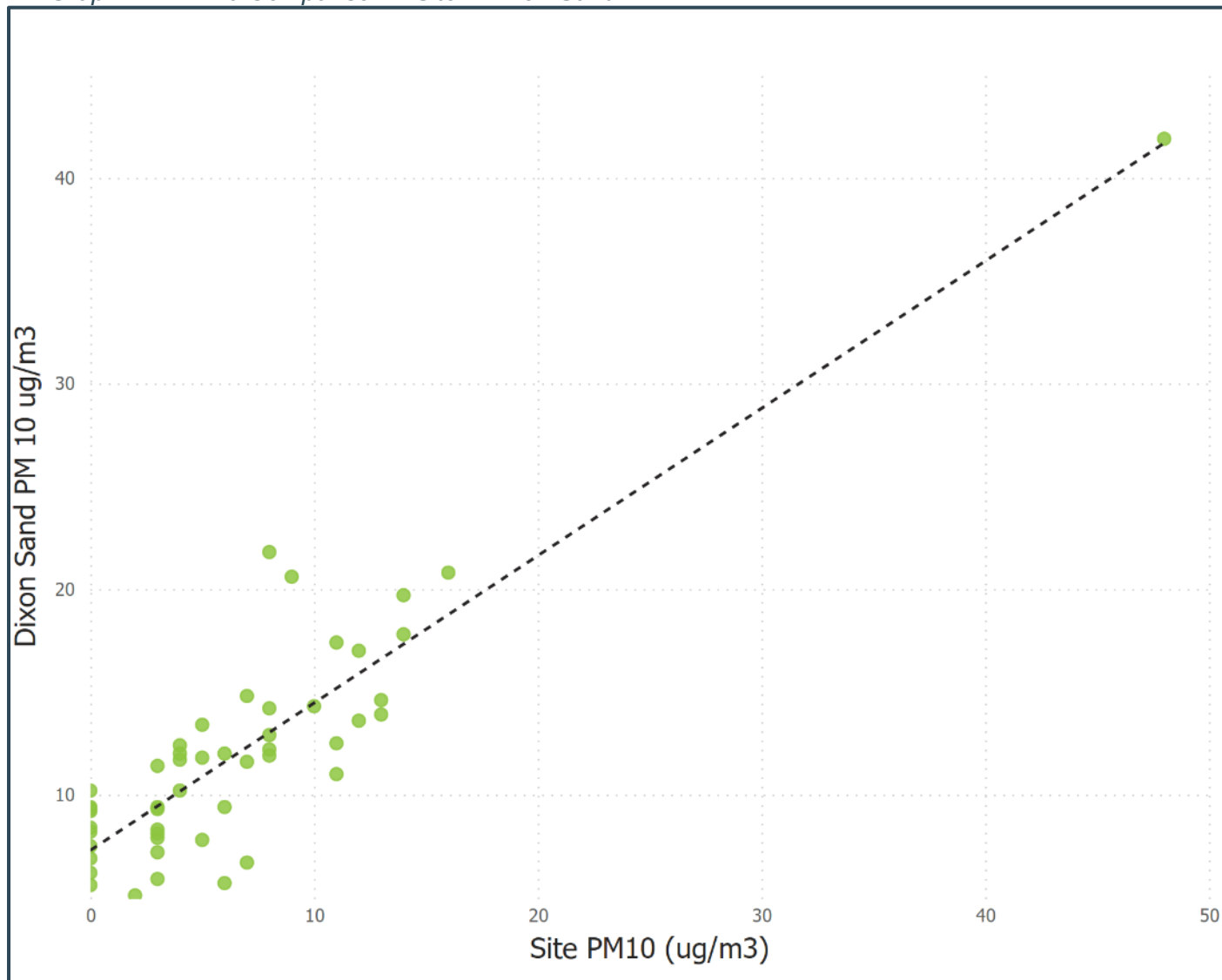
Site	Average PM10	Average PM2.5	No of Readings	R ² v BAM PM10	R ² v BAM PM2.5	R ² v TEOM PM10
Roberts Rd	6.5	3.2	57	0.42 (<i>Graph 6</i>)	0.17 (<i>Graph 9</i>)	0.77 (<i>Graph 7</i>)
Richmond BAM	10.9	5.0	366	-	-	0.62 (<i>Graph 8</i>)
Dixon Sand TEOM	12.1	NR	366	0.62 (<i>Graph 8</i>)	NR	-

Graph 6. PM10 Comparison – Site v Richmond

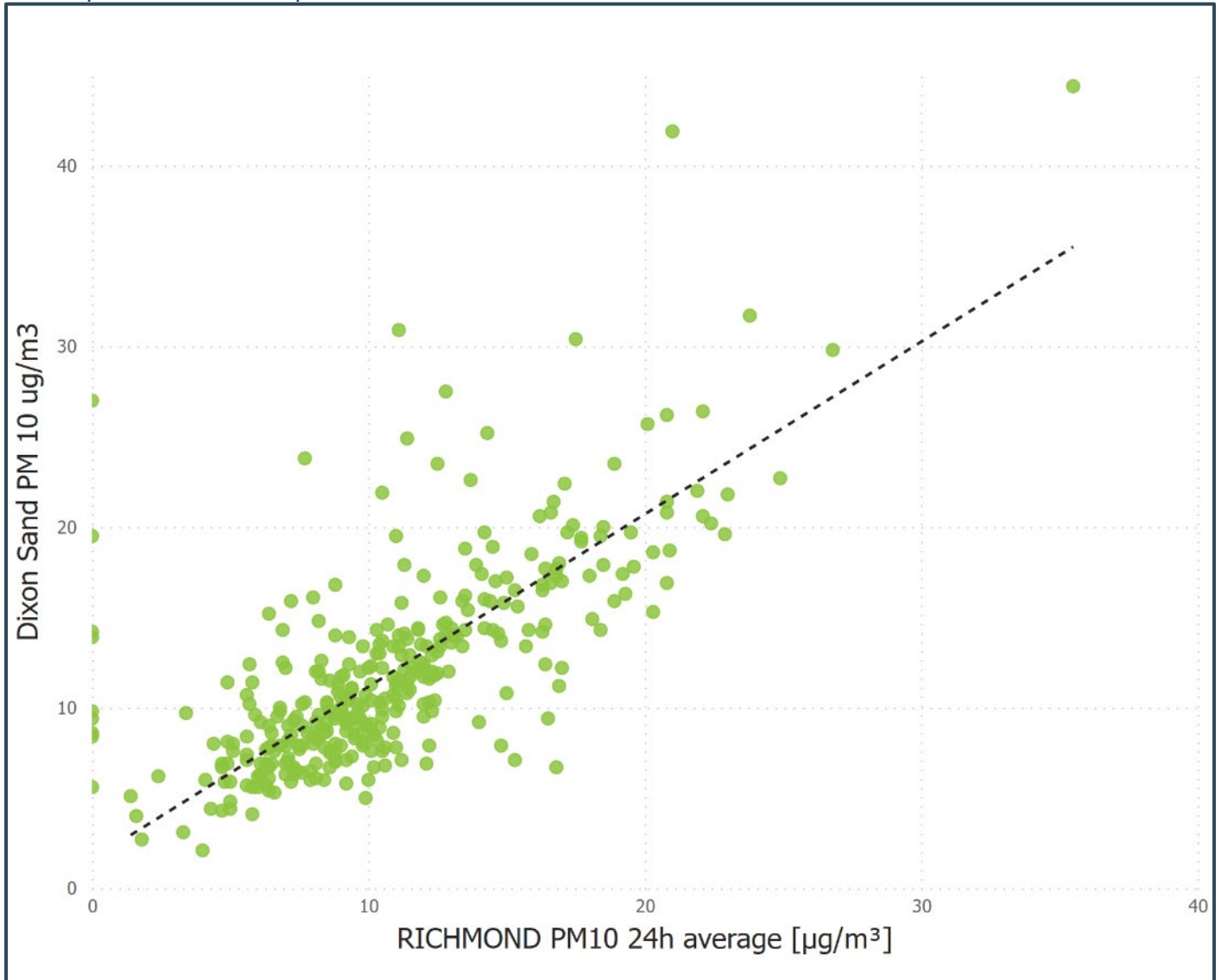


$R^2 = 0.42$

Graph 7. PM10 Comparison – Site v Dixon Sand

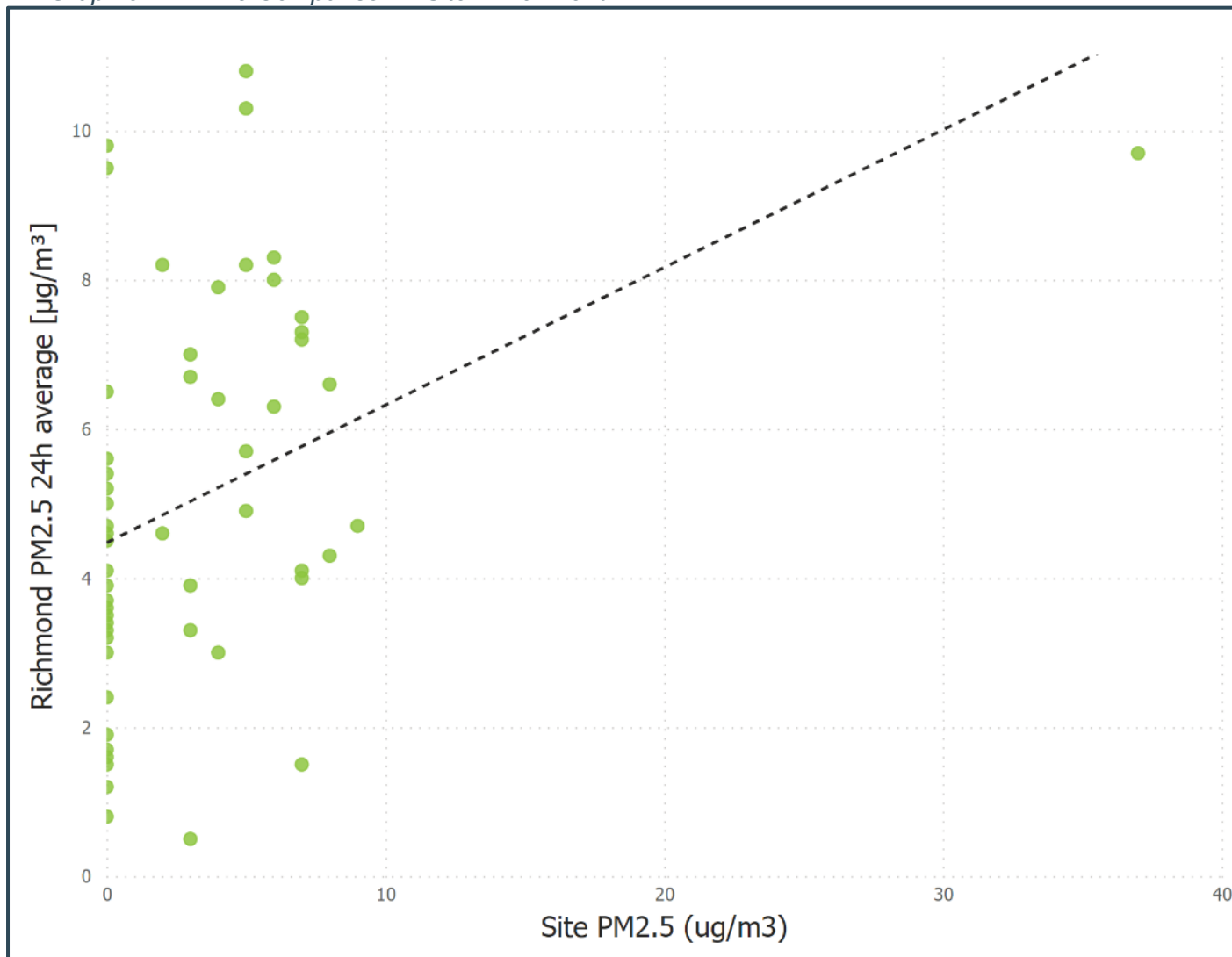


Graph 8. PM10 Comparison – Dixon Sand v Richmond



$R^2 = 0.62$

Graph 9. PM2.5 Comparison – Site v Richmond



R² = 0.17

5 Statistics Summary and Interpretation

5.1 DEPOSITIONAL DUSTS STATISTICS

All of the expected Insoluble Solids results from the site's depositional dust gauges were available for review for the period chosen. There were no invalidated results, although several were flagged due to sampling times not adhering to the method. This did not affect accuracy of the testing results.

Four months of results were available from a nearby monitoring site (PFF) for comparison of results. The results from each operation were averaged and compared for each of 4 months, then plotted against each other to obtain a Pearson's correlation coefficient (R^2). The R^2 value of 0.90 shows that despite one high result from one of the site monitors, the results compared very well to the independent comparison site.

Table 13. *Depositional Dust Result Summary*

	D1	D2	D3	Site Average	PFF Average
Count	13	13	13	4 comparison months	4
% of Expected Results	100%	100%	100%		
Insoluble Solids Average (g/m²/month)	5.6 Annual	1.0 Annual	0.6 Annual	13.4 (4 comparison months only)	7.2 (4 comparison months only)
R² coefficient (Graph 5)				0.90	

5.2 PARTICULATE MATTER STATISTICS

Greater than 90% of the expected High Volume Air Sampler results from the site were available for the review. One result for the period was invalidated due to post-sampling contamination of the filter paper. The TSP instrument did not operate between 12th July and 20th July 2022 due to an electrical fault.

The ratio of TSP to PM10 and PM10 to PM2.5 was examined and found to be consistent and within expected values for a sand quarry. The particulate matter fractions for the site were plotted against each other to obtain a Pearson's correlation coefficient (R^2). The R^2 values of 0.90 and 0.88 respectively show that the ratios are well within expected ranges. There were no anomalous results in the review period.

Table 14. *High Volume Air Sampler Site Result Summary*

	TSP	PM10	PM2.5	Ratio TSP/PM10	Ratio PM10/PM2.5
Count	55	57	57		
% of Expected Results	90%	94%	94%		
Annual Average (ug/m³)	14.3	6.5	3.2	1.63	0.87
R² Coefficient				0.90	0.88

Twelve months of results were available from two external monitoring sites (Richmond and Dixon Sand) for comparison of results. The results from each site were plotted against each other to obtain a Pearson's correlation coefficient (R^2). The results highlight the expected differences between testing procedures and geographical locations. The Richmond site is too far away to be used as a valid comparison site, as shown by the R^2 against both the site HVAS (0.42) and the Dixon TEOM (0.62). This shows that the Richmond site cannot be reliably compared for the PM2.5 testing either ($R^2 = 0.17$). The low R^2 is exacerbated by the large number of low or not detectable results. This does not reflect on the accuracy of the testing, but rather highlights that the Richmond site is not a suitable comparison site.

The Pearson's correlation coefficient between the site HVAS and Dixon Sand TEOM for PM10 was 0.77. Given the differences in methodology and the number of not detectable readings, this is considered an acceptable result, confirming the accuracy of the sites HVAS testing. As Dixon Sand is not required to monitor TSP or PM2.5, no comparison can be made.

PF Formations is not required to monitor particulate matter at all, therefore no comparison can be made.

Table 15. *Particulate Matter Correlation Summary*

Correlation	Value
PM10 Site HVAS vs Richmond BAM	0.42
PM10 Site HVAS vs Dixon Sand TEOM	0.77
PM10 Dixon Sand TEOM vs Richmond BAM	0.62
PM2.5 Site HVAS vs Richmond BAM	0.17

6 Conclusions and Recommendations

Based on the relevant criteria set out in AS3580.19 Methods for sampling and analysis of ambient air, Method 19: Ambient air quality data validation and reporting, and upon review of the results from 1/09/2021 to 1/9/2022, the air quality monitoring at the Roberts Rd Maroota Sand Quarry is fit for purpose, as accurate as can be reasonably expected, and exceeds those of the site's nearest neighbours.

The following recommendations are proposed to assist in improving the site's air quality monitoring system:

- Ensure site conditions and observations for the monitoring period are included on the sample sheet for all air quality samples, along with name of the technician, date and time sampled, and compliance with the siting and instrument requirements of the relevant method.
 - To be checked by Environmental Manager after each sampling event, or monthly at a minimum.
- Ensure that the procedure for sampling is documented and that all sampling technicians are trained in it regularly.
 - Procedure for sampling to be included in updated AQMP (see next point for timing). Training records to be maintained by the site, and updated as required by staff changes.
- Update the site Air Quality Management Plan (AQMP) to include the modification 4 requirements. The author recommends that, in consultation with the DPE, monitoring for TSP be discontinued as this is a less critical parameter, and instead replaced by a ratio calculation from PM10 based on monitoring data collected from the site over as long a period as possible, without including the extraordinary events of the 2019-2020 bushfires. The explanation for how this is to be calculated would be included in the updated AQMP.
 - It is recommended that the AQMP be updated within 3 months + 4 weeks (in accordance with Schedule 2 condition 67) following submission of the Annual Report and Independent Environmental Audit whichever is later, to ensure all outcomes from those reviews are included.

7 References

- Ref 1 AS3580.19, Methods for sampling and analysis of ambient air, Method 19: Ambient air quality data validation and reporting.
- Ref 2 AS3580.1.1, Methods for sampling and analysis of ambient air, Method 1.1 – Guide to siting air monitoring equipment.
- Ref 3 AS3580.10.1, Methods for sampling and analysis of ambient air, Method 10.1 – Determination of particulate matter - Deposited Dust – Gravimetric method.
- Ref 4 AS3580.9.3, Methods for sampling and analysis of ambient air, Method 9.3 – Determination of suspended particulate matter – Total suspended solid matter – High volume air sampler gravimetric method.
- Ref 5 AS3580.9.6, Methods for sampling and analysis of ambient air, Method 9.6 – Determination of suspended particulate matter – PM10 High volume air sampler with size selective inlet - gravimetric method.
- Ref 6 AS3580.9.14, Methods for sampling and analysis of ambient air, Method 9.14 – Determination of suspended particulate matter – PM2.5 High volume air sampler with size selective inlet - gravimetric method.

The title 'Appendix A: Letter regarding approval of expert' is displayed in a bold, dark blue, sans-serif font. It is positioned to the right of a vertical green bar that extends from the top of the page down to the middle of the page. The text is centered vertically within this section.



Department of Planning and Environment

Mr Stuart Reed
Environmental Officer
Hodgson Quarries and Plant Hire Pty Ltd
PO Box 1778
Gosford
New South Wales 2250

08/03/2022

Dear Mr Reed

**Roberts Road Quarry (DA267-11-99)
Review of air quality monitoring system**

I refer to your nomination of Ms Lisa Thompson as a suitably qualified person to undertake a review of the air quality monitoring system in accordance with condition of consent 29A of Schedule 2 for the Roberts Road Quarry.

I have reviewed Ms Thompson's resume and the additional information dated 10 January 2022 detailing her relevant experience. Accordingly, I approve Ms Thompson as a suitably qualified person in accordance with conditions of consent 29A of Schedule 2.

If you have any questions you may contact Carl Dumpleton on carl.dumpleton@planning.nsw.gov.au / 9274 6283.

Yours sincerely

Jessie Evans
Director, Resource Assessments
Resource Assessments

As nominee of the Planning Secretary

Appendix B: Response to Submissions EPA

Recommended Conditions of Consent - EPA Comments



Notice No. - 1600632

DEPARTMENT OF PLANNING INDUSTRY AND ENVIRONMENT
ABN 20 770 707 468
4 PARRAMATTA SQUARE, 12 DARCY STREET
PARRAMATTA NSW 2150

Attention: Melissa Anderson

Notice Number 1600632
File Number EF13/3063
Date 22-Sep-2020

EPA Response - SSD Modification - Roberts Road Quarry - DA267/11/99 Mod 4

I refer to the application by Hodgson Quarries and Plant Pty Ltd to modify development consent DA267-11-99 and the accompanying additional information provided to the Environment Protection Authority (EPA) on 25 March 2020, 25 May 2020 and 11 September 2020. The EPA has reviewed the additional information provided relating to Air.

Hodgson Quarries and Plant Pty Ltd (the proponent) operates the Roberts Road Quarry located on the corner of Roberts Road at Maroota NSW (the premises). The proponent is seeking to modify the development consent (DA 267-11-99) for the premises to allow for importation of Virgin Excavated Natural Material (VENM) and Excavated Natural Material (ENM) for backfilling the extraction area to construct a free-draining final landform, and to undertake processing and blending.

The modification of consent is sought to:

- import Virgin Excavated Natural Material (VENM) and Excavated Natural Material (ENM), to backfill the extraction area and create a final landform. Up to 320,000 tonnes per annum of VENM/ENM is proposed to be imported;
- On-site processing of selected, high sand content VENM and ENM for sale or blending with sand produced from the in-situ resources;
- Increase in the number of traffic movements permitted each day from 100 to 140. Up to 40 additional truck movements per day are associated with the proposed importation of VENM and ENM;
- An extension of the approved quarry life from 31 May 2025 to 31 May 2030;
- Removal of a condition limiting the area of exposed and active quarry extents to allow for backfill and rehabilitation of the completed sections of the Quarry with VENM and ENM.

The EPA has issued Environment Protection Licence No 6535 (EPL) under the *Protection of the Environment Operations Act 1997* (Act) to HB Maroota Pty Ltd in respect of the site located at Cnr Roberts and Old Northern Roads, Maroota, NSW 2756, Lot 1 DP 228308, Lot 2 DP 228308 and Lot 2 DP 312327 (premises). The EPL permits the following scheduled activities:

- extractive activities (up to 500,000T tpa)
- crushing, grinding, or separating activities (each permitted up to 500,000T tpa)

Recommended Conditions of Consent - EPA Comments



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If the proposed increase in the amount of VENM and ENM is approved the EPL will require variation under s.58 of the Act to update the limits of the ancillary activity 'Receipt and processing of VENM and ENM' under EPL condition L2.1. This will limit the amount of VENM and ENM received, as approved by any conditions of consent. The applicant will need to apply separately to the EPA to vary the licence.

The licensee will also be required to comply with the conditions of *The excavated natural material order 2014* and *The excavated natural material exemption 2014* (made under Clause 93 of the *Protection of the Environment Operations (Waste) Regulation 2019*).

Please note that, in accordance with EPA's documents *The excavated natural material order 2014* (ENM Order) and *The excavated natural material exemption 2014* (ENM Exemption), ENM cannot be processed or blended with other material, it can only to be imported for the purposes of application to land as engineering fill or for use in earthworks.

The EPA has reviewed the additional information provided and is of the view that if the current activity is modified, EPL No. 6535 should be varied to effectively regulate the modified activity. The applicant will need to apply separately to the EPA to vary this licence. The EPL variation will also include changes to conditions, where relevant, around Air, Water and Noise.

Background

On 3 February 2020 the EPA provided a response (DOC20/6390) which identified issues with:

- the Air Quality Impact Assessment (AQIA), a revised AQIA to address the issues identified was requested,
- the Noise Impact Assessment (NIA), a revised NIA in line with the Noise Policy for Industry (NPfI) was requested,
- potential water pollution risks - a water impact assessment was requested with requirements provided along with recommended conditions to address the residual water pollution risks.

On 15 April 2020 the EPA provided a response (DOC20/249727-8) following a review of the additional information provided, which resulted in additional information being requested:

- *Air* - Revised AQIA, issues identified with the air quality impact assessment have been adequately addressed the referenced site-specific monitoring data for annual average PM2.5 is significantly above the annual average impact assessment criteria of 8 ug/m3. The EPA recommended that, prior to project determination, the proponent investigate the source of the elevated annual average PM2.5 impacts from current operations, and if required, propose mitigation and rectification measures to reduce these impacts. The EPA will consider requiring these measures to be implemented via a pollution reduction program or special condition on the licence. In Umwelt's response dated 20 May 2020, it was advised that "the requirement for a Pollution Reduction Program is not warranted".

- *Noise* - March 2020 Response to Submissions (RtS) did not address the EPA's concerns. The EPA also noted that the EPL was not updated following approval of MOD 3, therefore different metrics were used to assess noise-related monitoring limits (L10 vs. Leq). The EPA requested that the NIA be revised in line with the NPfI, as requested in previous letters to Umwelt on 24 April 2020 and DPIE on 3 February 2020.

- *Water* - The RtS clarified that no discharges are expected to occur during operational quarrying, however the RtS indicated that discharges may be required during construction of final landform. No further assessment is required at this stage given that no licensed discharge point is currently proposed. A recommended condition of approval was provided. In Umwelt's response dated 20 May 2020, it was advised that "the Applicant does not object to this condition".

On 30 April 2020 a teleconference between representatives from the EPA and Umwelt was held. During the teleconference the EPA discussed the issues raised, relating to Noise, in their response to DPIE (letter dated 15 April 2020) to assist Umwelt to understand the issues and request for an updated NIA in line with the NPfI.

Recommended Conditions of Consent - EPA Comments



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On 24 June 2020 the EPA provided the recommended licence conditions - Noise, refer to the EPA's response Notice Number 1596266 (Attachment A). The EPA also requested a further teleconference to discuss resolution of the remaining outstanding issues relating to Air as follows:

- the EPA was unable to reconcile the predicted cumulative ground level concentrations of PM_{2.5} (annual average) on the basis that PM_{2.5} monitoring data collected at the premises was utilised to characterise predicted impacts from the proposal, and there were questions regarding the quality of the referenced PM_{2.5} monitoring data.

On 15 July 2020 a teleconference between representatives from the EPA and Umwelt was held. During the teleconference the EPA discussed the issues relating to Air, in their response to DPIE (letter dated 24 June 2020) to assist Umwelt in understanding the issues and resolution of issues. The EPA met with the proponent to discuss the issue. The EPA advised that the residual issue could be resolved through a further review of the site specific PM_{2.5} monitoring data (specifically on the quality of the data collected) and a commitment to implement reactive management strategies to manage particulate matter emissions at the premises.

Recommendation

The EPA provides the following in response to the additional information provided on 11 September 2020.

The additional analysis of site specific PM_{2.5} monitoring data indicates issues with the quality of the monitoring data which are likely causing an overestimation of cumulative PM_{2.5} impacts presented in the AQIA

The AQIA adopted an annual average PM_{2.5} background of 13 ug/m³, which is significantly greater than the EPA's impact assessment criteria and likely to be an unrealistic characterisation of the existing environment. As such, the EPA recommends additional analysis to investigate the integrity of the monitoring data used in the assessment.

The additional analysis provided compares PM₁₀ to PM_{2.5} ratios from on site monitoring data, with ratios derived from other monitoring stations, and literature values for activities that could be considered similar in nature to the activities undertaken at the premises. Whilst the analysis does not completely resolve issues around the quality of PM_{2.5} monitoring at the premises, it does provide sufficient information to give a good indication that there are accuracy issues with onsite PM_{2.5} monitoring data, likely resulting in unrealistically elevated concentration being reported.

Incremental impact PM_{2.5} from the proposal is predicted to be low

The air quality impact assessment predicts a 0.2 ug/m³ change in annual average PM_{2.5} concentration compared with current operations. This represents 2.5 % of the applicable cumulative assessment criteria. As such there is unlikely to be an appreciable change in observed annual average PM_{2.5} concentrations as a result of the proposal.

The EPA has not completed a detailed review of the Air Quality Management Plan- insufficient detail provided

The proponent has provided an *Air Quality Management Plan prepared for Hodgson Quarries & Plant Pty Ltd Roberts Road Quarry, Maroota NSW 2756*, prepared by Benbow Environmental dated 10 September 2020 (the Air Quality Management Plan). The EPA has not conducted a detailed review of the Air Quality Management Plan, however, a screening level review indicates that the plan is not sufficiently detailed to assure management measures will be effectively and rigorously implemented in an auditable manner.

The EPA recommends the management plan be revised and has included a recommended condition of approval in this regard.

The residual issue can be resolved through conditions of approval

Recommended Conditions of Consent - EPA Comments



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Factoring in the additional analysis provided, the incremental predictions in annual average PM_{2.5}, and a commitment to implement proactive and reactive management strategies, the EPA considers that the residual issue can be resolved through conditions of approval.

The EPA recommends conditions of approval as **Attachment A**, including a condition requiring that the Air Quality Management Plan for the premises be explicit on triggers for implementing reactive management, and those triggers be auditable and reviewed on an ongoing basis for continual improvement purposes.

Further, the EPA recommends that the licensee commission an expert review and audit of current and past air quality monitoring and conduct a campaign of PM_{2.5} monitoring (in accordance with relevant Australian Standards) to accurately confirm ambient PM_{2.5} concentrations.

The EPA also requests that if the modification is approved, that a condition of consent be included requiring HB Maroota Pty Ltd ensure that it holds an EPL that is appropriate for the scheduled activities being undertaken under the *Protection of the Environment Operations Act 1997*.

In the event that the proposal is further modified by the applicant prior to the granting of consent or by DPIE as a result of the conditions proposed to be attached to the consent, the EPA requests that DPIE consult with the EPA about the changes before modifying the consent. This will enable EPA to determine whether the proposed licence conditions need to be modified in light of the changes.

If you have any questions, or wish to discuss this matter further please contact Lisa Crambrook on (02) 8837 6079 or email lisa.crambrook@epa.nsw.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to be 'Lara Barrington', written over a dotted line.

Lara Barrington

Unit Head - Regulatory Operations Metropolitan West

(by Delegation)

Attachment A - Recommended licence conditions - Air

Recommended Conditions of Consent - EPA Comments



Notice No. - 1600632

Attachment A - Recommended licence conditions - Air

Consent Conditions

1. The premises must be maintained in a condition which minimises or prevents the emission of air pollution (including dust) from the premises
2. All operations and activities undertaken at the premises must be conducted in a manner which minimises or prevents the emission of air pollution (including dust) from the premises
3. The proponent must implement methods for application of wet suppression to the source feed material for screening activities. The wet suppression must be implemented to prevent or minimise visible dust emissions occurring from screening activities.
4. The proponent must prepare and implement an Air Quality Management Plan (the AQMP) that includes both proactive and reactive management strategies. The AQMP must include, but is not limited to
 - a. Key performance indicators
 - b. Continuous PM₁₀ monitoring
 - c. Monitoring methods, including location frequency and duration of monitoring
 - d. Triggers for the implementation of reactive management strategies. Triggers must be clearly articulated, and auditable.
 - e. Methods for ongoing review of the AQMP (including the reactive triggers) for informing continual improvement
 - f. Complaint handling procedures
 - g. Methods for documenting the implementation of both proactive and reactive mitigation measures.
 - h. Methods for compliance reporting

EPL conditions

1. The licensee must engage a suitably qualified independent expert, with experience in ambient air quality monitoring of particulate matter, to conduct an independent audit of the current and past air quality monitoring undertaken at the premises. The audit must consider, but is not limited to the following:
 - The methods for collection and analysis;
 - Quality assurance and quality control practices; and
 - Method accuracies

Within <X> months, the licensee must submit a report to the EPA that details the audit undertaken, the findings of the audit, and any recommendations made by the person(s) undertaking the audit.

2. The licensee must undertake a monitoring campaign of PM_{2.5}. The campaign must include monitoring of PM_{2.5} continuously for a minimum of a 12 month period using a method consistent with an Australian Standard. Within 3

Recommended Conditions of Consent - EPA Comments



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months of completion of the 12 month monitoring period, the licensee must submit a report to the EPA. The report must include, but is not limited to:

- A description of the monitoring undertaken, including the method(s) implemented, and conformance to the Australian Standard referenced for undertaking the monitoring;
- A summary of the data obtained during the monitoring period; and
- Analysis and interpretation of the data obtained during the monitoring period.

Appendix C: Notice of Modification and Consolidated Consent Conditions

Notice of Modification

Section 4.55(2) of the *Environmental Planning and Assessment Act 1979*

As delegate for the Minister for Planning and Public Spaces, I modify the development consent referred to in Schedule 1, as set out in Schedule 2.



Carl Dumbleton
A/Director Resource Assessments

Sydney

13 August 2021

SCHEDULE 1

The Development Consent (DA 267-11-99) for the Roberts Road Quarry, granted by the Minister for Urban Affairs and Planning on 31 May 2000.

SCHEDULE 2

1. In the list of definitions, delete “Department”, “DPI Water”, “National Parks and Wildlife Service” and insert the following in alphabetical order:

BCD	Biodiversity and Conservation Division within the Department
Calendar year	A period of 12 months from 1 January to 31 December
Department	Department of Planning, Industry and Environment
DPIE Water	The Water Group within the Department
ENM	Excavated Natural Material, as defined in the EPA’s resource recovery orders and exemptions clauses 91, 92 and 93 of the <i>Protection of the Environment Operations (Waste) Regulation 2014</i>
EPL	Environment Protection Licence under the POEO Act
Heritage NSW	Heritage NSW within the Department of Premier and Cabinet
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance
INP	<i>NSW Industrial Noise Policy (NSW EPA, 2000)</i>
Laden Trucks	Trucks transporting quarry products from the site and/or trucks transporting VENM/ENM to the site
MEG	Regional NSW – Mining, Exploration and Geoscience
Minister	NSW Minister for Planning and Public Spaces, or delegate
Modification 4	Modification application DA 267-11-99 MOD 4 and Statement of Environmental Effects titled: <i>Roberts Road Quarry Modification 4</i> , dated December 2019 prepared by Umwelt Environmental Consulting and Submissions Report titled: <i>Roberts Road Quarry Modification 4, Response to Submissions</i> , dated March 2020 prepared by Umwelt Environmental Consulting, and additional information supporting the Response to Submissions, including: <ul style="list-style-type: none">revised noise assessment titled: <i>Noise Impact Assessment Rev 1</i>, dated May 2020 prepared by Umwelt Environmental Consulting;letter from Umwelt Environmental Consulting, dated 20 May 2020; andletter from Benbow Environmental, dated 10 September 2020.
Non-compliance	An occurrence, set of circumstances or development that is a breach of this consent
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Quarrying products	Includes all saleable quarry products, but excludes tailings, other wastes and material needed for rehabilitation
Secretary	Planning Secretary under the EP&A Act, or nominee
TfNSW	Transport for NSW

VENM
Waste

Virgin Excavated Natural Material, as defined in the POEO Act
Has the same meaning as the definition of the term in the Dictionary to the
POEO Act

2. Delete all references to "DPI-Water" and replace with "DPIE Water".
3. Delete all references to "National Parks and Wildlife Service", "NPWS" and "Heritage Office" and replace with "Heritage NSW".
4. In condition 2(a) of Schedule 2, delete "Modification 3 and Modification 2" and replace with "Modification 2, Modification 3 and Modification 4".
5. In the heading of condition 8 of Schedule 2, delete "Commencement and duration" and replace with "Limits on Approval".
6. In condition 9 of Schedule 2 delete "2025" and replace with "2030".
7. After condition 9, of Schedule 2 insert the following:

9A. The Applicant must not:

- (a) process or dispatch more than 480,000 tonnes of quarrying products at the site in any calendar year;
- (b) receive more than 320,000 tonnes of VENM and ENM (in total) at the site in any calendar year;
- (c) import more than 3 million tonnes of VENM and ENM to the site; and
- (d) import VENM and ENM beyond 31 May 2030.

8. After condition 17 insert the following:

PRODUCTION DATA

17A. The Applicant must provide MEG with annual quarry production data, covering a full calendar year, by no later than 30 January for the following calendar year.

17B. The data must be provided using the relevant standard form and a copy of the data must be included in the Annual Review (required under condition 66).

9. In condition 20 of Schedule 2:
 - a. delete the "g" in clause 20(g) and replace with "h";
 - b. delete the "f" in clause 20(f) and replace with "g"; and
 - c. after condition 20(e), insert "(f) the Traffic Management Plan (Condition 50A)".
10. Before condition 27 insert the following:

Importation of VENM and ENM

26. The applicant must:

- (a) ensure only verified VENM and ENM is received at the site;
- (b) collect data on the VENM and ENM received including details of the origin, date, and quantity received; and
- (c) include a copy of this data in the Annual Review.

11. In condition 27, delete the contents of the condition and replace with:

27. No other materials classified as waste under the EPA's *Waste Classification Guidelines 2009* (or its latest version) may be received or processed on the site, except as expressly permitted in an applicable EPL, specific resource recovery order or exemption under the *Protection of the Environment Operations (Waste) Regulation 2014*.

12. In condition 28 of Schedule 2, delete the contents of the condition and replace with:

28. The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in Table 1 at any residence on privately-owned land.

Table 1: Air quality criteria

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM ₁₀)	Annual	^{a, c} 25 µg/m ³
	24 hour	^b 50 µg/m ³
Particulate matter < 2.5 µm (PM _{2.5})	Annual	^{a, c} 8 µg/m ³
	24 hour	^b 25 µg/m ³
Total suspended particulate (TSP) matter	Annual	^{a, c} 90 µg/m ³
^d Deposited dust	Annual	^b 2 g/m ² /month ^a 4 g/m ² /month

Notes:

^a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).

^b Incremental impact (i.e. incremental increase in concentrations due to the development on its own).

^c Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Secretary.

^d Deposited dust is to be 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*.

13. After condition 28 of Schedule 2, insert the following:

28A. The air quality criteria in Table 1 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or infrastructure to exceed the air quality criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

14. In condition 29(c) of Schedule 2, after “to ensure that areas”, insert “of the site which are exposed and active at any one time are minimised to the greatest extent practicable”.

15. After condition 29 of Schedule 2, insert the following:

29A. The Applicant must commission an expert review of the air quality monitoring system at the site. This review must:

- be undertaken by a suitably qualified and experience person(s) whose appointment has been approved by the Secretary;
- review the accuracy of the air quality monitoring system at the site over a 12 month period, in general accordance with the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007)* and with a particular focus on PM_{2.5} monitoring;
- provide recommendations (where required) to improve the accuracy of air quality monitoring system at the site; and
- be undertaken in consultation with the EPA.

29B. A copy of the expert review report along with a timetable for implementing any recommendations arising from the review required under condition 29A of this Schedule, must be submitted by 30 November 2022, or as otherwise agreed by the Planning Secretary.

The Applicant must implement the recommendations of the expert review to the satisfaction of the Secretary.

16. Delete the contents of condition 47 of Schedule 2 and insert the following:

Noise Operating Conditions

47. The Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 2 at any residence on privately-owned land.

Table 2: Operational noise criteria dB(A)

Receiver	Day (7am-6pm) Monday to Saturday L_{Aeq} (15 min)	6am-7am Monday to Saturday L_{Aeq} (15 min)	6am-7am Monday to Saturday L_{A1} (1 min)
Receiver B	44	40	50
All other receivers	43	40	50

^aThe Noise Assessment Locations referred to in Table 2 are shown in Appendix 2

17. Delete the contents of Condition 50 of Schedule 2 and insert the following:

The Applicant must ensure that truck movements associated with the development do not exceed 70 outbound and 70 inbound per day and does not exceed 10 outbound and 10 inbound per hour.

18. After Condition 50 of Schedule 2, Insert the following:

Traffic Management Plan

50A. The Applicant must prepare a Traffic Management Plan that must:

- (a) be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Secretary;
- (b) be prepared in consultation with TfNSW and Council;
- (c) include a Drivers' Code of Conduct that contains procedures to ensure that drivers:
 - (i) adhere to posted speed limits or other required travelling speeds;
 - (ii) adhere to designated transport routes;
 - (iii) implement safe and quiet driving practices; and
 - (iv) minimise potential conflict with school buses.
- (d) describe the measures to be put in place to ensure compliance with the Drivers' Code of Conduct; and
- (e) propose measures to minimise the transmission of dust and tracking of material onto the surface of public roads from vehicles exiting the site.

The Applicant must submit the Traffic Management Plan for the approval of the Secretary by the 31 October 2021, or as otherwise agreed by the Secretary. The Applicant must implement the Traffic Management Plan as approved.

19. In condition 58 of Schedule 2:

- after "rehabilitate the site", insert "in a manner that is consistent with the final landform designs in Appendix 1,";
- After "satisfaction of the Secretary." delete "This" and replace with "All"; and
- In Table 1: Rehabilitation Objectives, delete the row and contents for "Quarry Benches".
- In Table 1: Rehabilitation Objectives, add the following row as the last row:

Water Quality	<ul style="list-style-type: none">• Water retained on the site is fit for the intended post-mining land use/s• Water discharged from the site is suitable for receiving waters and fit for aquatic ecology and riparian vegetation
---------------	---

20. In condition 68 of Schedule 2, delete the contents of the condition and replace with:

REPORTING AND AUDITING

Incident Notification

68. The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing via the Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident.

21. After condition 68 of Schedule 2, insert the following:

Non-Compliance Notification

68A. Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing via the Major Projects Website and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

22. After condition 72 of Schedule 2 insert the following:

APPENDIX 1 FINAL LANDFORM DESIGN

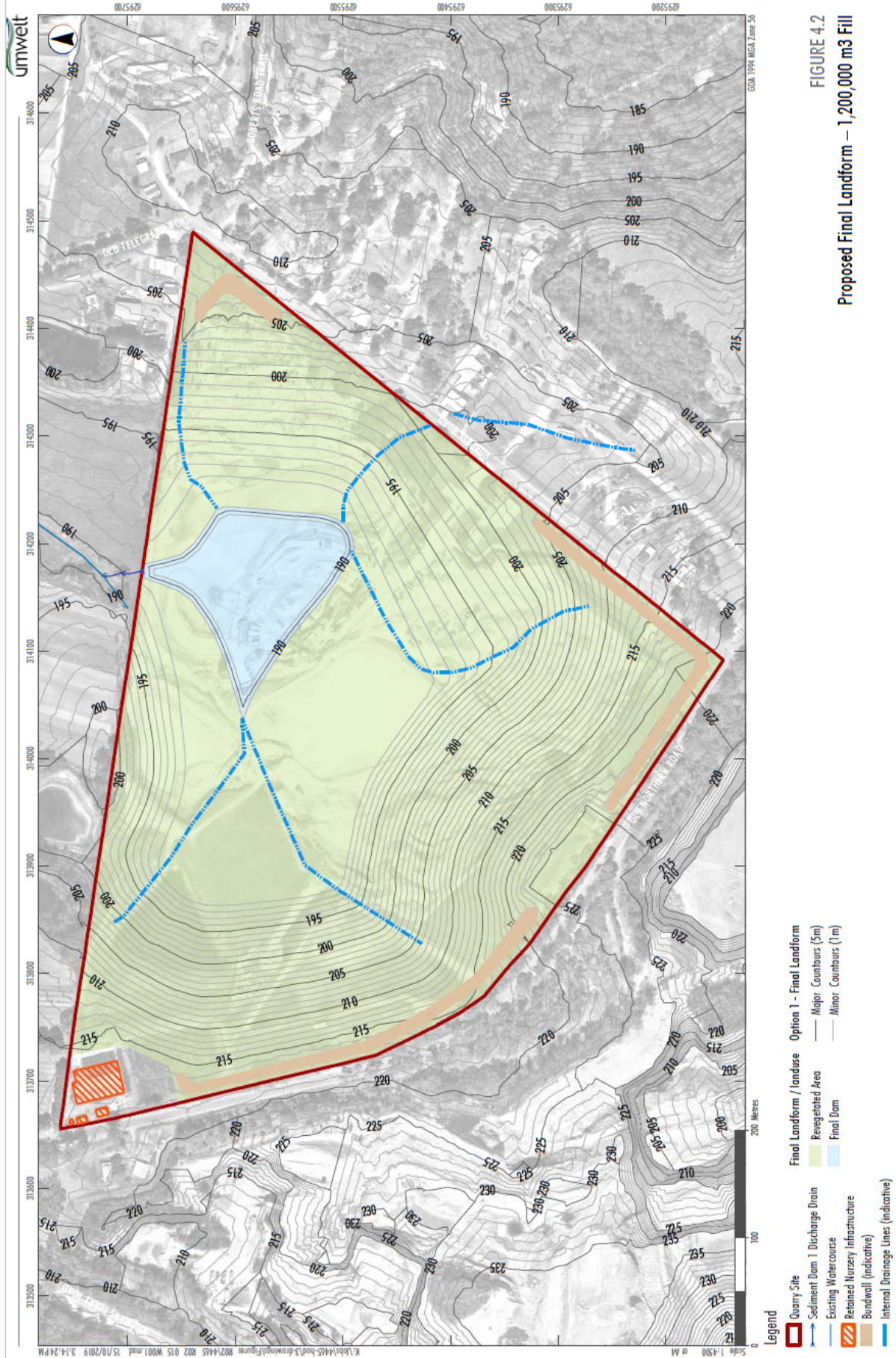


FIGURE 4.2
Proposed Final Landform – 1,200,000 m³ Fill

Figure 1: Final Landform Concept 1

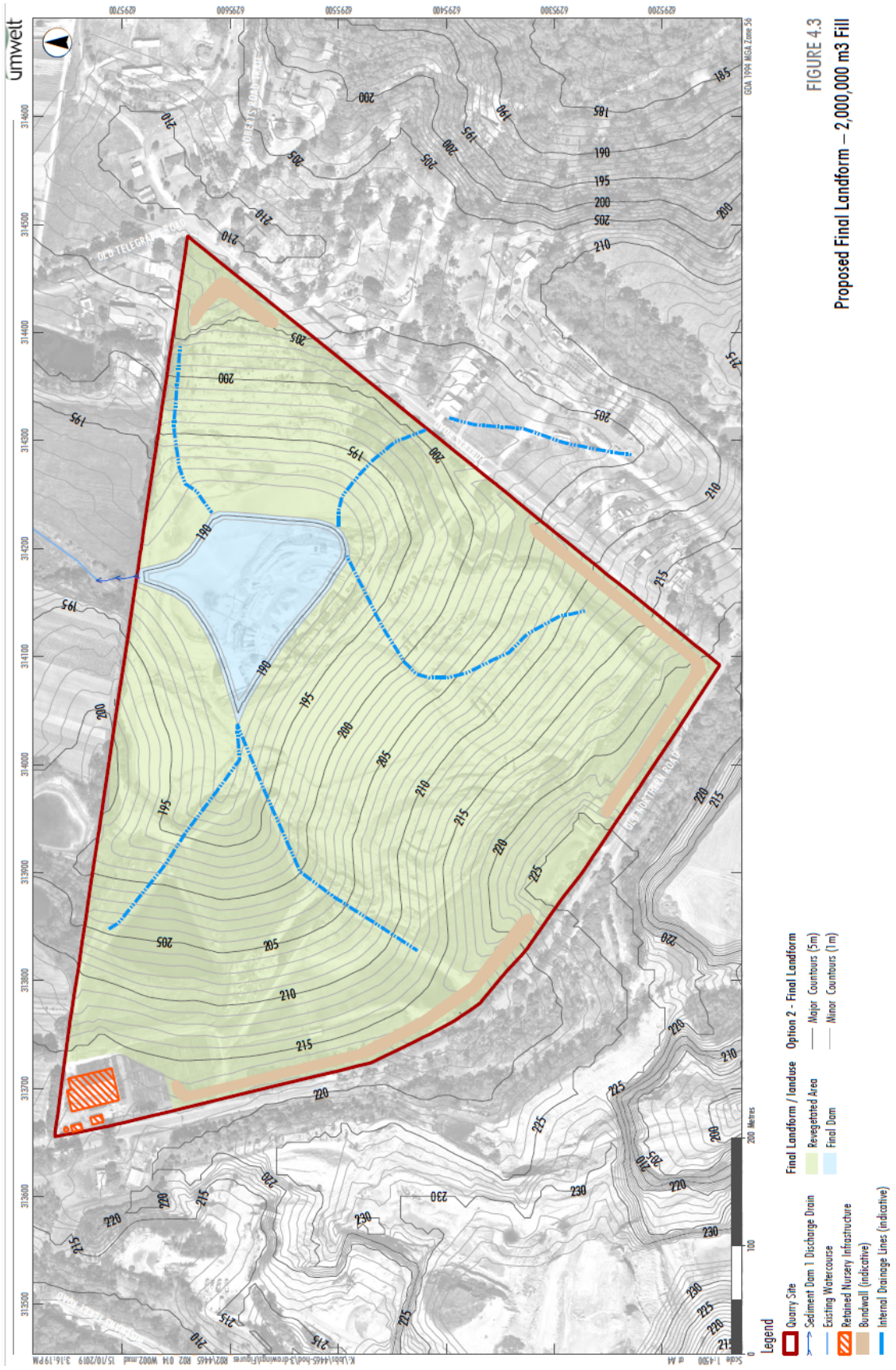


FIGURE 4.3
Proposed Final Landform – 2,000,000 m3 Fill

Figure 2: Final Landform Concept 2

APPENDIX 2 RECEIVER LOCATION PLAN

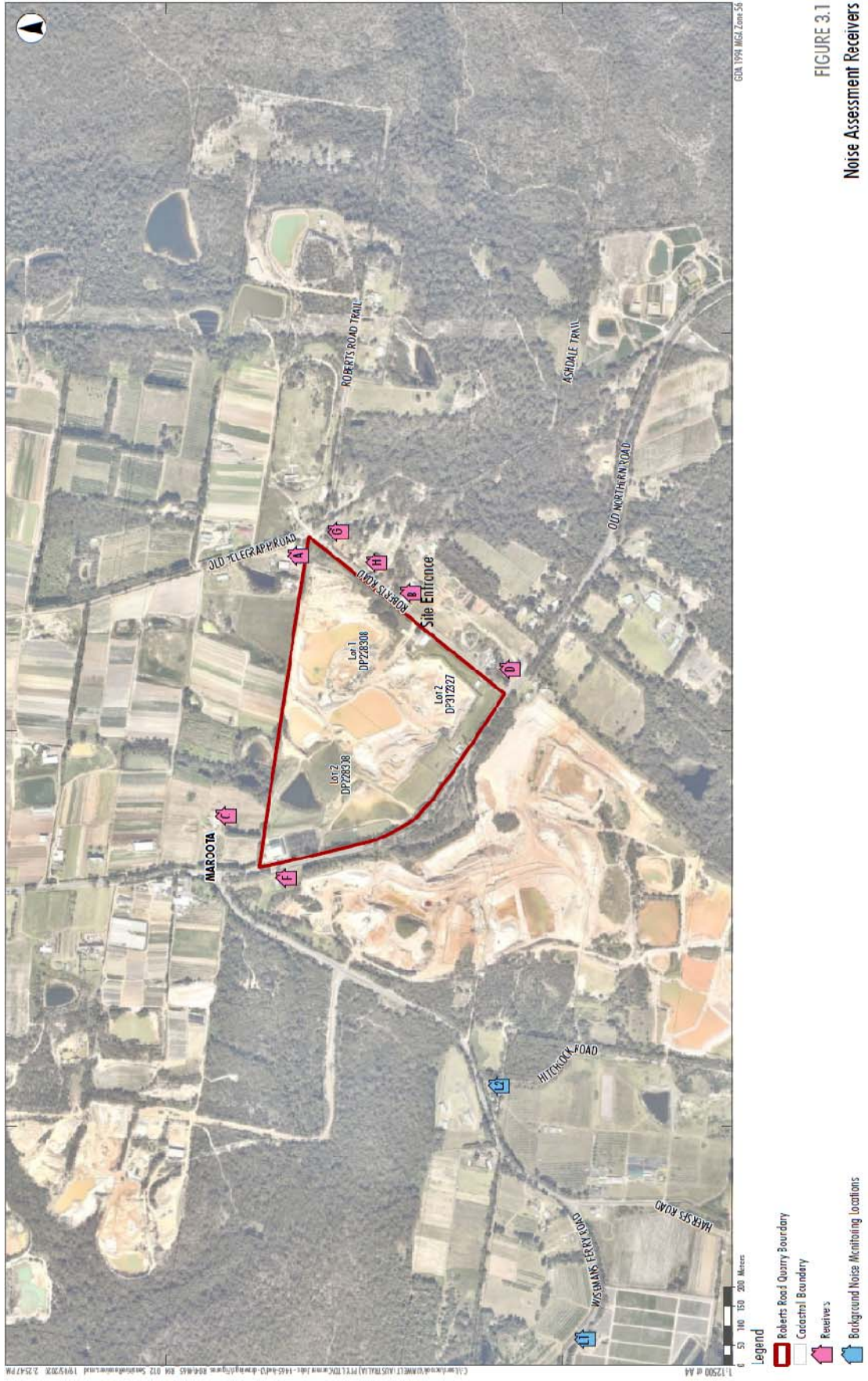


FIGURE 3.1
Noise Assessment Receivers

End of Modification

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

DETERMINATION OF A DEVELOPMENT APPLICATION UNDER SECTION 80(1) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

I, the Minister for Urban Affairs and Planning, under Section 80(1) of the Environmental Planning and Assessment Act, 1979 (the Act), determine the Development Application referred to in Schedule 1 by granting consent to the Application, subject to the conditions set out in Schedule 2.

The reason for the imposition of conditions is to minimise any adverse environmental effects of the development, consistent with the objectives of the Act.

Andrew Refshauge MP
Minister for Urban Affairs and Planning

Sydney 2000 File No. S98/00772

SCHEDULE 1

Application made by: Dr L. S. Martin ("the Applicant").

To: The Minister for Urban Affairs and Planning ("the Minister").

In respect of: Lots 1 and 2 DP 228308, Lot 2 DP 312327, Roberts Road, Maroota, in the Baulkham Hills Local Government Area.

For the following: Extraction and on-site processing of sand, clay and pebble; construction of a bund wall.

Development Application: DA No. 267-11-99 lodged with the Department of Urban Affairs and Planning on 22 November 1999, accompanied by a Environmental Impact Statement prepared by Nexus Environmental Planning Pty Ltd. and dated November 1999.

Determination:

- 1) To ascertain the date upon which the consent becomes effective, refer to Section 83 of the Act.
- 2) To ascertain the date upon which the consent is liable to lapse, refer to Section 95 of the Act.
- 3) Section 97 of the Act confers on an applicant who is dissatisfied with the determination of a consent authority a right of appeal to the Land and Environment Court exercisable within 12 months after receipt of notice.

This instrument includes changes made by DA 267-11-99 Mod 1 in 29 November 2000 (marked red).

This instrument includes changes made by DA 267-11-99 Mod 3 in 18 August 2015 (marked blue).

This instrument includes changes made by DA 267-11-99 Mod 2 in 18 March 2016 (marked green).

This instrument includes changes made by DA 267-11-99 Mod 4 in 13 August 2021 (marked purple).

SCHEDULE 2**Conditions of Development Consent****DEFINITIONS**

The Act	<i>Environmental Planning and Assessment Act 1979</i> , as amended
Approval from EPA	means approved in writing by the EPA or as specified as a condition of a licence
BCA	Building Code of Australia
BCD	Biodiversity and Conservation Division within the Department
Calendar year	A period of 12 months from 1 January to 31 December
Conditions of this consent	The conditions set out in this Schedule
Construction	Construction of the bund wall
Council	The Hills Shire Council
DA	Development Application
DCP 500	Baulkham Hills Shire Council Development Control Plan No. 500 – Extractive Industry
Department	Department of Planning, Industry and Environment
DPIE Water	The Water Group within the Department
EIS	Development application DA 267-11-99 and supporting documentation including the Environmental Impact Statement prepared by Nexus Environmental Planning Pty Ltd, dated November 1999, including the attached landscaping plan; the fax from Holmes Air Sciences dated 21 December 1999; the letter from Nexus Environmental Planning Pty Ltd dated 21 December 1999 and attachments; the letter from Woodward-Clyde dated 21 December 1999; the letter from Woodward-Clyde dated 16 December 1999; the letter from Dick Benbow and Associates Pty Ltd dated 5 January 2000 and attachments; the letter from Dick Benbow and Associates Pty Ltd dated 27 January 2000; and the two faxes from Dick Benbow and Associates Pty Ltd dated 17 February 2000 and attachments, except as modified by the report of Dick Benbow and Associates (Report No 10065 Issue 1) dated 26 June 2000
EMP	Environmental Management Plan
ENM	Excavated Natural Material, as defined in the EPAs resource recovery orders and exemptions clauses 91, 92 and 93 of the <i>Protection of the Environment Operations (Waste) Regulation 2014</i> .
EPA	Environment Protection Authority
EPL	Environment Protection Licence under the POEO Act
GTA	General Term of Approval
Heritage NSW	Heritage NSW within the Department of Premier and Cabinet
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance
INP	<i>NSW Industrial Noise Policy (NSW EPA, 2000)</i>
LA ₁₀ (15 minute)	is the sound pressure level that is exceeded for 10% of the time when measured over a 15 minute period
Laden Trucks	Trucks transporting quarry products from the site and/or trucks transporting VENM/ENM to the site
m AHD	metres Australian Height Datum
MEG	Regional NSW – Mining, Exploration and Geoscience
Minister	NSW Minister for Planning and Public Spaces, or delegate
Modification 1	Modification application 07-00M1 to DA 267-11-99 and supporting SEE titled Amendment to Method of Extraction and Related Acoustic Bund

	Wall, dated 17 July 2000 and prepared by Nexus Environmental Planning Pty Ltd
Modification 2	Modification application DA 267-11-99 Mod 2 and supporting documentation titled: <i>Environmental Assessment Section 75W Modification (2): DA 267-11-99, Hodgson Quarries and Plant Pty Ltd: Roberts Road: Maroota</i> (Volumes 1 and 2), dated 23 September 2015 and prepared by Nexus Environmental Planning Pty Ltd; Response to Submissions <i>75W Modification (2): DA 267-11-99, Hodgson Quarries and Plant Pty Ltd: Roberts Road: Maroota</i> , dated 3 December 2015 and prepared by Nexus Environmental Planning Pty Ltd; and email correspondence from Nexus Environmental Planning Pty Ltd to the Department, dated 12 February 2016, 16 February 2016 and 24 February
Modification 3	Modification application DA 267-11-99 Mod 3 and supporting documentation titled <i>Environmental Assessment Section 75W Modification (3): DA 267-11-99, Hodgson Quarry Products Pty Ltd: Roberts Road: Maroota</i> , dated 17 May 2015 and prepared by Nexus Environmental Planning Pty Ltd
Modification 4	Modification application DA 267-11-99 MOD 4 and Statement of Environmental Effects titled: <i>Roberts Road Quarry Modification 4</i> , dated December 2019 prepared by Umwelt Environmental Consulting and Submissions Report titled: <i>Roberts Road Quarry Modification 4, Response to Submissions</i> , dated March 2020 prepared by Umwelt Environmental Consulting, and additional information supporting the Response to Submissions, including: <ul style="list-style-type: none"> • Revised noise assessment titled: <i>Noise Impact Assessment Rev 1</i>, dated May 2020 prepared by Umwelt Environmental Consulting; • Letter from Umwelt Environmental Consulting, dated 20 May 2020; and • Letter from Benbow Environmental, dated 10 September 2020.
Non-compliance	An occurrence, set of circumstances or development that is a breach of this consent
PCA	Principal Certifying Authority
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Process Water Dam	The process water dam located in the north-eastern corner of the site
Quarrying products	Includes all saleable quarry products, but excludes tailings and other wastes and rehabilitation material
Secretary	Planning Secretary under the EP&A Act, or nominee
Subject Site	Lots 1 and 2 DP 228308, Lot 2 DP 312327, Roberts Road, Maroota, in the Baulkham Hills Local Government Area
TfNSW	Transport for NSW
VENM	Virgin Excavated Natural Material, as defined in the POEO Act
Waste	Has the same meaning as the definition of the term in the Dictionary to the POEO Act
Wet weather high groundwater level	The rolling average of all recorded groundwater level measurements at any monitoring location on the site, as first recorded following any rainfall event of at least 50 mm over any 24-hour period, and as contour mapped using this data

INTEGRATED DEVELOPMENT

Integrated development is development (not being complying development) that, in order for it to be carried out, requires development consent and one or more of the approvals set out in the Act. The subject proposal is integrated development, as it requires development consent and the approval of the Environment Protection Authority under the *Protection of the Environment Operations Act 1997* and, the approval of the Department of Land and Water Conservation under Parts 2 and 5 of the *Water Act 1912*. The general terms of approval of both the EPA and the [DPIE Water](#) therefore form part of this Consent.

GENERAL

Obligation to Prevent and Minimise Harm to the Environment

1. There is an obligation on the Applicant to prevent and minimise harm to the environment throughout the life of the project. This requires that all practicable measures are to be taken to prevent and minimise harm that may result from the construction, operation and, where relevant, the decommissioning of the development.

Adherence to Terms of DA and EIS

2. The Applicant shall:
 - (a) carry out the development generally in accordance with the EIS, [Modification 1](#), [Modification 2](#), [Modification 3](#) and [Modification 4](#); and
 - (b) comply with the conditions of this consent.

If there is any inconsistency between the documents in [Condition 2\(a\)](#), the most recent documents shall prevail to the extent of the inconsistency. The conditions of this consent shall prevail over documents in [Condition 2\(a\)](#) to the extent of any inconsistency.

Compliance

3. The Applicant shall comply with all reasonable requirements of the [Secretary](#) in respect of the implementation of the Conditions of this Consent, within such time as the [Secretary](#) agrees. The [Secretary](#) may order the Applicant to cease work until non-compliance has been addressed to the [Secretary's](#) satisfaction.
4. The Applicant shall ensure that all contractors and sub-contractors are aware of, and comply with, the Conditions of this Consent.
5. The Applicant shall comply with all relevant conditions prescribed in Part 7 of the *Environmental Planning and Assessment Regulation 1994*, as required by Section 80A (11) of the Act.
6. The Applicant SHALL submit a Conditions Compliance Report to the [Secretary](#) prior to the commencement of extraction in areas that are not currently subject to extraction. Subsequent reports will be submitted annually for the first three years of extraction in areas not currently subject to extraction. Further reports SHALL be submitted as required by the [Secretary](#).

To enable ready comparison with the EIS's predictions, diagrams and tables, the Conditions Compliance Reports shall include, but not be limited to, the following matters:

- (a) a compliance audit of the performance of the project against conditions of Consent and statutory approvals;
- (b) a review of the effectiveness of the environmental management of the development;
- (c) the results of environmental monitoring required under this Consent or other approvals, including interpretations and discussion by a suitably qualified person;

- (d) a listing of any variations obtained to approvals applicable to the DA since the last report;
 - (e) a record of all complaints and the actions taken to mitigate all such complaints;
 - (f) a report detailing the rehabilitation measures undertaken since the last report; and
 - (g) environmental management targets and strategies for stages of the development yet to be completed.
7. The **Secretary** may, after considering a Conditions Compliance Report, notify the Applicant of any reasonable requirements for compliance with this Consent. The Applicant SHALL comply with those requirements within such time as the **Secretary** may direct.

Note: The Applicant is obliged to ensure that all statutory requirements, including all relevant legislation, Regulations, Australian Standards, Codes, Guidelines and Notices, Conditions and Directions of the Councils and relevant government agencies are met and approvals obtained.

Limits on Approval

8. No extraction shall commence in areas that are not currently subject to extraction, until the Applicant has:
- (a) **constructed the bund walls at the corner of Roberts Road and Old Northern Road;**
 - (b) submitted the Conditions Compliance Report required under Condition 6; and
 - (c) obtained all licences necessary for the commencement of extraction.
9. The duration of extraction under this Consent is **until 31 May 2030**. The Applicant shall ensure that rehabilitation of all disturbed areas is completed within six months of completion of extraction.
- 9A. The Applicant must not:
- (a) process or dispatch more than 480,000 tonnes of quarrying products at the site in any calendar year;
 - (b) receive more than 320,000 tonnes of VENM and ENM (in total) at the site in any calendar year;
 - (c) import more than 3 million tonnes of VENM and ENM to the site; and
 - (d) import VENM and ENM beyond 31 May 2030.

Complaints Procedures

10. Prior to commencement of construction, the Applicant shall:
- (a) publicise a telephone number on which complaints about the subject development can be registered during the hours of operation in Condition 16; and
 - (b) publicise a postal address where written complaints may be lodged.
- The telephone number and postal address shall be displayed on the property where it can be read from a public road, for the duration of the development.
11. The Applicant shall record details of all complaints received and actions taken in response to complaints in an up-to-date log book. The log book shall be made available for inspection upon request by the **Secretary**, the EPA or the Council; and a summary of complaints received shall be included in the Conditions Compliance Reports under Condition 6.
12. The Applicant shall ensure that an initial response to complaints is provided to the complainant within 24 hours of receipt. The Applicant shall then:
- (a) investigate the concerns raised by the complainant and undertake all reasonable attempts to determine the cause of concern; and
 - (b) if adverse impacts are identified, undertake all practicable measures to modify the activity which may be causing the impacts.
13. If the Applicant's response does not address the complaint to the satisfaction of the complainant within six weeks, the Applicant shall inform the **Secretary** and take any action as directed by the **Secretary**.

This may include a requirement to carry out independent investigations of noise and/or dust at the cost of the Applicant, in accordance with Condition 14.

14. If the **Secretary** is satisfied that an independent investigation is required, the Applicant shall:
- (a) appoint a qualified independent person or team to plan and implement an investigation to qualify the impact and determine the sources of the impact; and
 - (b) bear the cost of the independent investigation and make available plans, programs and other information necessary for the independent person to form an appreciation of the past, present and future works and their effects on dust and/or noise emissions.

This investigation is to be carried out in accordance with a documented Plan. The Plan shall be designed and implemented to measure and/or compute (with appropriate calibration by measurement) the relevant noise and/or dust levels at the complainant's property, that are emitted by the development; and specify a monitoring period and reporting schedule.

The independent person or team, the Plan and the timing of its implementation, shall be approved by the **Secretary**. The independent person or team shall report to the **Secretary** and the Applicant.

Further independent investigations shall cease if the **Secretary** is satisfied that the relevant levels are not being exceeded and are unlikely to be exceeded in the future.

Dispute Resolution

15. In the event that the Applicant, Council, the PCA, or a government authority other than the Department, cannot agree on the specification or requirements applicable under this Consent, the matter shall be referred by either party to the **Secretary** or, if not resolved, to the Minister, whose determination of the disagreement shall be final and binding on the parties.

HOURS OF OPERATION

16. Unless prior written approval of the EPA is obtained, the hours of operation are:
- construction: 7.00am to 6.00pm Monday to Friday
 - extraction and processing of material: 7.00am to 6.00pm, Monday to Friday and 7.00am to 1.00pm on Saturdays
 - vehicle loading: 6.00am to 6.00pm, Monday to Friday and 6.00am to 1.00pm on Saturdays.
- No works shall be undertaken on Sundays or Public Holidays.

These restrictions do not apply to routine maintenance work, such as the repair of machinery, provided the work does not result in exceedance of the noise limits in Condition 47.

DEPTH OF EXTRACTION

17. The Applicant shall ensure that extraction does not take place below a level 2 metres above the wet weather high groundwater level of the regional aquifer, as measured and mapped on the site (see Conditions 39(d) and 44).

PRODUCTION DATA

- 17A. Each year the Applicant must provide MEG with annual quarry production data, covering a full calendar year, by no later than 30 January the following calendar year.
- 17B. The data must be provided using the relevant standard form and a copy of the data must be included in the Annual Review (required under condition 66).

ENVIRONMENTAL MANAGEMENT PLAN

18. The Applicant shall prepare a Construction Environmental Management Plan (EMP) to the satisfaction of the [Secretary](#) prior to commencement of construction. The Construction EMP shall contain appropriate measures which demonstrate how the environmental objectives for the project will be achieved, including objectives stated in this Consent; and contain a monitoring, reporting and response program.

The Applicant shall implement the approved management plan as approved from time to time by the [Secretary](#).

19. The Applicant shall prepare an Operational Environmental Management Plan (EMP) in consultation with the relevant authorities and to the satisfaction of the [Secretary](#), prior to the commencement of extraction under this Consent. The EMP shall incorporate and integrate environmental management for the existing extraction areas, as well as the areas approved under this Consent.

20. The Operational EMP shall include, but not be limited to:
- (a) environmental objectives for the site;
 - (b) the Air Quality Management Plan (Condition 29);
 - (c) the [Water Management Plan \(Condition 42\)](#);
 - (d) the Noise Management Plan (Condition 46);
 - (e) the Road Noise Management Plan (Condition 48);
 - (f) [the Traffic Management Plan \(Condition 50A\)](#);
 - (g) [the Flora and Fauna Management Plan \(Condition 55\)](#); and
 - (h) [the Rehabilitation Plan \(Condition 58\)](#).

21. The Applicant shall make copies of both EMPs available to Council, EPA and [DPIE Water](#) within 14 days of approval by the [Secretary](#). The Applicant shall also make a current copy of the EMPs available for inspection by the public or these agencies, for the duration of the Consent.

22. The Applicant shall, in consultation with the [Secretary](#), the EPA and the [DPIE Water](#), update the Operational EMP from time to time in order to ensure continuing compliance with the Conditions of this Consent and all relevant approvals and licenses. The EMP shall be responsible for determining if any significant changes to the Operational EMP should be referred to the [Secretary](#) for approval.

The Applicant shall implement the approved management plan as approved from time to time by the [Secretary](#).

23. *Deleted.*

24. *Deleted.*

25. *Deleted.*

Importation of VENM and ENM

26. The applicant must:
- (a) ensure only verified VENM and ENM is received at the site
 - (b) collect date on the VENM and ENM received including detail of the origin, date, and quantity received; and
 - (c) include a copy of this data in the Annual Review.

WASTE

27. No other materials classified as waste under the EPA's *Waste Classification Guidelines 2009* (or its latest version) may be received or processed on the site, except as expressly permitted in an applicable EPL, specific resource recovery order or exemption under the *Protection of the Environment Operations (Waste) Regulation 2014*.

AIR QUALITY

Air Quality Criteria

28. The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in
- 29.
30. TABLE at any residence on privately-owned land.

Table 1: *Air quality criteria*

<i>Pollutant</i>	<i>Averaging period</i>	<i>Criterion</i>
Particulate matter < 10 µm (PM ₁₀)	Annual	^{a, c} 25 µg/m ³
	24 hour	^b 50 µg/m ³
Particulate matter < 2.5 µm (PM _{2.5})	Annual	^{a, c} 8 µg/m ³
	24 hour	^b 25 µg/m ³
Total suspended particulate (TSP) matter	Annual	^{a, c} 90 µg/m ³
^d Deposited dust	Annual	^b 2 g/m ² /month ^a 4 g/m ² /month

Notes:

^a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).

^b Incremental impact (i.e. incremental increase in concentrations due to the development on its own).

^c Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Secretary.

^d Deposited dust is to be 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*.

- 28A. The air quality criteria in

A1.

Table do not apply if the Applicant has an agreement with the owner/s of the relevant residence or infrastructure to exceed the air quality criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Air Quality Management

31. The Applicant shall prepare an Air Quality Management Plan as part of the EMP. The Air Quality Management Plan shall:
- (a) identify existing and potential sources of dust deposition, TSP and fine particulates (PM₁₀ and PM_{2.5}) and specify appropriate monitoring intervals and locations. The purpose of the monitoring is to evaluate, assess and report on these emissions and the ambient impacts with the objective of understanding the development's contribution to levels of dust deposition, TSP and fine particulates in ambient air around the site;

- (b) provide a monitoring plan having regard to local meteorology and the relevant Australian Standards, identifying the methodologies to be used, including justification for monitoring intervals, weather conditions, seasonal variations, selecting locations, periods and times of measurements;
- (c) provide details of dust suppression measures for all sources of dust from the development, including a planting and watering regime to ensure that areas of the site which are exposed and active at any one time are minimised to the greatest extent practicable. The use of a polymer in the water to minimise dust impacts shall be investigated as part of this Plan;
- (d) provide details of actions to ameliorate impacts if they exceed the relevant criteria; and
- (e) provide the design of the reactive management system intended to reduce the day-to-day impacts of dust and fine particulates due to the development.

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

- 29A. The Applicant must commission an expert review of air quality monitoring at the site. This review must:
- (a) be undertaken by a suitably qualified and experience person(s) whose appointment has been endorsed by the Secretary;
 - (b) review the accuracy of air quality monitoring at the site over a 12 month period, in general accordance with the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007)* and with a particular focus on PM_{2.5} monitoring;
 - (c) provide recommendations (where required) to improve the accuracy of air quality monitoring at the site; and
 - (d) be undertaken in consultation with the EPA.

- 29B. A copy of the expert review report along with a timetable for implementing any recommendations arising from the review required under condition 29A of this Schedule, must be submitted by 1 October 2022, or as otherwise agreed by the Planning Secretary.

The Applicant must implement the recommendations of the expert review to the satisfaction of the Secretary.

- 32. Activities occurring at the premises must be carried out in a manner that will minimise emissions of dust from the premises.¹
- 33. The Applicant shall cease offending work at such times when the operations are resulting in visible dust emissions blowing in a direction so as to cross onto public roads or lands not owned by the Applicant.
- 34. The Applicant shall install, operate and maintain a sprinkler system to adequately water all cleared areas and stockpiles so as to minimise dust emissions to acceptable levels.
- 35. The Applicant shall ensure that all vehicular movements on unsealed areas are restricted to specific routes and that all vehicles within the subject site keep to a speed limit of 30 km/h.
- 36. The Applicant shall ensure that trucks are covered when entering and leaving the premises carrying loads of potentially dust generating material.

Air Quality Monitoring

- 37. All monitoring equipment is to be installed and operational prior to commencement of construction.
- 38. Operation of dust deposition gauges and monitoring must be carried out in accordance with;

¹ Environment Protection Authority General Term of Approval

- (a) Australian Standard 3580.10. 01 (1991) Particulates – Deposited Matter – Gravimetric Method. Approved method AM-19 referred to in *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*, December 1999.
- (b) Australian Standard 2724.3 (1984) Particulate Matter – Determination of Total Suspended Particulates (TSP) - High Volume Sampler Gravimetric Method. Approved method AM 15 referred to in *Approved Methods for the sampling and Analysis of Air Pollutants in New South Wales*, December 1999.
- (c) Australian Standard 3580.9.6 (1990) for Suspended Particulate Matter – PM10 High Volume Sampler with Size Selective Inlet-Gravimetric Method. Approved method AM-18 referred to in *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*, December 1999.²

39. A meteorological station measuring wind speed and direction must be installed and operated by the Applicant at a site determined in consultation with the EPA.³

SOIL AND WATER

Note: The Applicant is required to obtain the necessary water licences for the development under the Water Act 1912 and/or Water Management Act 2000.

Limits on Extraction

40. The Applicant shall not extract:
- (a) below a depth of 182 m AHD in the footprint of the Process Water Dam, if not already extracted as at the date of Modification 2; and
 - (b) below a depth of 186.1 m AHD in all other areas of the site; unless in accordance with Condition 17, and following written notification to the Secretary and DPIE Water.

Groundwater Study and Remediation Works

41. Within six weeks of the date of approval of Modification 2, the Applicant shall commission a comprehensive groundwater study of the site. This study must:
- (a) be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Secretary and DPIE Water;
 - (b) consult with DPIE Water;
 - (c) examine all existing records of groundwater levels at the site;
 - (d) develop an interim contour map of the wet weather high groundwater level of the regional aquifer, based on all available records (see also Condition 44); and
 - (e) provide advice and recommendations on the Groundwater Monitoring Program as set out in Condition 43.
42. Unless otherwise agreed by the Secretary, the Applicant shall submit a report of the study to the Secretary and DPIE Water within six months of commissioning the study. The report must be accompanied by a Groundwater Management Improvement Program, based on the study's findings and recommendations which includes a program of proposed timeframes for implementation. Should the Applicant propose not to implement any of the report's recommendations, it must provide detailed justification to this effect.

² Environment Protection Authority General Term of Approval

³ Environment Protection Authority General Term of Approval

The Groundwater Management Improvement Program must be prepared and implemented to the satisfaction of the Secretary. Progress against the Program shall be reported through Annual Reviews and considered as part of the Independent Environmental Audit.

43. Within six months of the submission of the Groundwater Study and accompanying documents (see Conditions 39 and 40), the Applicant must infill any area of the site identified as being below the wet weather high groundwater level to at least that level as mapped (see Condition 39(d)).

Within six months of any update of the groundwater level contour map, the Applicant must infill any area of the site identified as being below the wet weather high groundwater level to at least that level as mapped (see Condition 44).

Water Management Plan

44. The Applicant shall prepare a Water Management Plan for the development to the satisfaction of the Secretary. This plan must be prepared in consultation with **DPIE Water** by suitably qualified and experienced person/s whose appointment has been approved by the Secretary, and be submitted to the Secretary for approval by 31 December 2016. The plan must be updated on an annual basis in consultation with **DPIE Water** for three years from the date of approval of Modification 2 and thereafter as agreed with by the Secretary.

In addition to the standard requirements for management plans (see Condition 65), this plan must include a:

- (a) Site Water Balance that:
- includes details of:
 - sources and security of water supply, including contingency planning;
 - water use on site;
 - water management on site, including groundwater inflows to the quarry voids and site discharges; and
 - audit and reporting procedures, including comparisons of the site water balance each calendar year; and
 - describes the measures that would be implemented to minimise clean water use on site and maximise recycling opportunities;
- (b) Surface Water Management Plan, that includes:
- a detailed description of the surface water management system on site, including the:
 - clean water diversion systems;
 - erosion and sediment controls;
 - effluent irrigation system;
 - water transfers from the extraction areas;
 - water storages; and
 - discharge points;
 - design objectives and performance criteria for proposed:
 - erosion and sediment control structures;
 - water storages, including quarry voids;
 - site discharges; and
 - control of water pollution from rehabilitated areas of the site;
 - performance criteria, including trigger levels for investigating any potentially adverse impacts for surface water quality;
 - a program to monitor:
 - the effectiveness of the water management system;
 - site discharge water quality; and
 - surface water level and quality in the Process Water Dam, including the quantification of rainfall inflow, groundwater inflow and evaporation;

- a plan to respond to any exceedances of the performance criteria, and mitigate and/or offset any adverse surface water impacts of the project;
 - long term water quality management objectives and the measures to achieve these objectives;
 - a plan that ensures surface stormwater runoff from the disturbed areas is directed to the sedimentation dam(s);
 - a plan that ensures tailgate drainage does not discharge into or onto any adjoining public or Crown road, any other persons land, any Crown land, any river, creek or watercourse, any groundwater aquifer, any native vegetation as described under the *Native Vegetation Conservation Act 1997* and any wetlands of environmental significance;
 - a detailed description of design and construction criteria for the Process Water Dam based on a feasibility study of:
 - capacity to construct multiple cells within the overall dam footprint (ie a two stage or three stage dam);
 - whether the dam floor and walls are able to be effectively lined with compacted clay (especially for multiple cells);
 - whether effective hydraulic separation can be achieved between such cells;
 - rehabilitating such cells to create a single dam within the final landform; and
 - the appropriateness of diverting runoff received from off-site around the dam;
 - a strategy for the decommissioning of water management structures, including storage, sedimentation and leachate dams once extraction is complete; and
 - audit and reporting procedures, including comparisons of the monitoring results each calendar year and quarterly reporting of surface water monitoring results;
- (c) Groundwater Management Plan that takes into account the *Web-based Reporting Guideline* (DPE 2015) and *Groundwater Monitoring and Modelling Plans – Information for Prospective Mining and Petroleum Exploration Activities* (DPI 2014), and includes:
- detailed baseline data on groundwater yield and quality in groundwater bores on privately-owned land, that could be affected by the project;
 - a program to undertake surveyed probe testing of all extracted areas where clay fines have been deposited to:
 - accurately determine the depth of extraction and depth of clay fines;
 - identify any ongoing intersection or other interaction between clay fines and the regional groundwater aquifer;
 - identify any geotechnical characteristics of the emplaced clay fines which may pose risks to workplace safety or implementation of the process water dam design or the final landform; and
 - identify measures which can be successfully used in rehabilitating these areas;
 - a program to monitor potential groundwater quality impacts to the regional aquifer from receiving off-site runoff water in the Process Water Dam;
 - groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts, in accordance with the *NSW Aquifer Interference Policy*;
 - a program to monitor:
 - the impacts of the project on:
 - groundwater inflows to water storages;
 - any groundwater bores on privately-owned land that could be affected by the project;
 and
 - seepage from water storages or backfilled voids on site;
 - a plan to respond to any exceedances of the groundwater assessment criteria;
 - emergency contingency plans for implementation in the event that the groundwater is encountered during excavation; and
 - audit and reporting procedures, including comparisons of the monitoring results each calendar year and quarterly reporting of groundwater monitoring results,

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

Groundwater Monitoring

45. The Applicant shall prepare a Groundwater Monitoring Program for the development to the satisfaction of the Secretary. This program must:
- be prepared in consultation with **DPIE Water** and be submitted to the Secretary for approval within four months of the date of approval of Modification 2;
 - include proposed construction of a network of at least five active monitoring bores around the south-eastern, southern, western and north-western boundaries of the extraction area (but outside of the overall extraction footprint) in proximity to extraction Phases 1 to 6 as identified in Modification 2, to collect continuous groundwater level monitoring data from the regional aquifer;
 - include proposed construction to deepen (or replace) PT84MW1 in order that a bore in that general location monitors the regional aquifer; and
 - include proposed construction of active monitoring bores within the largest components of at least the two forthcoming extraction Phases (on a rolling basis), each to collect at least 2 years of continuous baseline groundwater monitoring data prior to extraction commencing with that Phase.
46. The results of the Groundwater Monitoring Program shall be reported the Department and **DPIE Water**, using contour plans depicting the surface topography, updated contour maps of the wet weather high groundwater level of the regional aquifer and proposed depth of extraction for each extraction Phase. Reporting is to occur on a six monthly basis for the duration of extractive operations, and throughout rehabilitation of the site, unless otherwise agreed with the Secretary.

The Applicant shall implement the Groundwater Monitoring Program as approved from time to time by the Secretary.

Process Water Dam Design and Construction

47. The Applicant must ensure that the Process Water Dam is designed and constructed in a manner that satisfies the design and construction criteria for the Process Water Dam as developed under the Surface Water Management Plan (see condition 42(b) above).

NOISE

Noise Management Plan

48. The Applicant shall prepare a Noise Management Plan as part of the EMP.

The Noise Management Plan shall:

- identify existing and potential noise sources and their relative contribution to noise impacts from the development;
- specify appropriate intervals for noise monitoring to evaluate, assess and report noise emission levels due to construction and normal operations of the development under prevailing weather conditions;
- outline the methodologies to be used, including justification for monitoring intervals, weather conditions, seasonal variations, selecting locations, periods and times of measurements, the design of any noise modelling or other studies, including the means for determining the noise levels emitted by the development;
- specify measures to be taken to document any higher level of impacts or patterns of temperature inversions, and detail actions to quantify and ameliorate enhanced impacts if they occur;

- (e) provide details of noise amelioration measures, including measures to be used to reduce the impact of intermittent, low frequency and tonal noise (including truck reversing alarms) and reactive management responses for particular noise sources; and
- (f) contingency measures to be implemented should noise complaints be received.
- (g) provision for the notification of adjoining property owners of the commencement and duration of works adjoining the boundary;
- (h) construction of temporary noise shielding to residences affected by short-term noise impacts, including the bund recommended under Modification 2, and include an assessment of the effectiveness of this measure in reducing noise levels; and
- (i) include a noise reduction strategy for typical operations to ensure the noise levels from these operations do not exceed the noise criteria specified in Condition 47.

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

Noise Operating Conditions

49. The Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 1 at any residence on privately-owned land.

Table 1: Operational noise criteria dB(A)

Receiver	Day (7am-6pm) Monday to Saturday <i>L_{Aeq} (15 min)</i>	6am-7am Monday to Saturday <i>L_{A1} (1 min)</i>	6am-7am Monday to Saturday <i>L_{Aeq} (15 min)</i>
Receiver B	44	50	40
All other receivers	43	50	40

^aThe Noise Assessment Locations referred to in Table 1 are shown in Appendix 2

Noise generated by the development is to be measured in accordance with the relevant requirements of the *NSW Industrial Noise Policy* (as may be updated or replaced from time-to-time).

However, these criteria do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.”

- 47(a) The excavator to be used is to be fitted with acoustic mufflers to achieve a noise level of approximately 76dB(A) when measured at 7 metres.
- 47(b) The on-site generator is to be fitted with an acoustic enclosure to ensure that noise levels less than 44dB(A) at 30m are achieved.
- 47(c) A noise compliance investigation is to undertaken within one month of the installation of the equipment to demonstrate compliance with the noise level limits stated in Conditions 47(a) and 47(b). The results of the compliance investigation are to be provided for the approval of the Secretary within 14 days of the completion of the investigations.
- 47(d) The Applicant must ensure works associated with atypical operations, as described in Modification 2, only occur:
 - (a) for a maximum of 24 days in a year, and only between 8 am to 5 pm on those days, Monday to Saturday;
 - (b) after an investigation of options for avoiding multiple atypical operations at any one time so as to limit noise levels at affected receptors, and the outcomes of this investigation are detailed in the Noise Management Plan; and

- (c) at least 24 hours after notifying potentially affected receptors, with such notification to include information on the duration and extent of works, the likely noise to be experienced, and a contact telephone number.

TRAFFIC AND TRANSPORT

Road Noise Management Plan

50. The Applicant shall ensure that traffic noise from the development does not exceed (L Aeq(1 hr)) 55 dB(A) between 7 am and 10 pm and 50 dB(A) between 10 pm and 7 am at any affected residence under adverse weather conditions. Where ambient Leq levels already exceed these criteria, the Applicant shall ensure that traffic noise from the development does not result in an increase of more than 2 dB(A).

Note: Adverse weather conditions means in the presence of winds up to 3 metres per second and/or temperature inversions of up to 4 degrees Centigrade per 100 metres.

51. The Applicant shall prepare a Road Noise Management Plan as part of the EMP. The Plan shall document measures to be taken to meet the criteria, including a monitoring, reporting and response program; and methods for educating drivers in the reduction of road noise impacts.

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

Truck movements

52. The Applicant must ensure that truck movements associated with the development do not exceed 70 outbound and 70 inbound per day and does not exceed 10 outbound and 10 inbound per hour.

Traffic Management Plan

- 50A. The Applicant must prepare a Traffic Management Plan that must:

- (a) be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Secretary;
- (b) be prepared in consultation with TfNSW and Council;
- (c) include a Drivers' Code of Conduct that contains procedures to ensure that drivers:
 - (i) adhere to posted speed limits or other required travelling speeds;
 - (ii) adhere to designated transport routes;
 - (iii) implement safe and quiet driving practices; and
 - (iv) minimise potential conflict with school buses.
- (d) describe the measures to be put in place to ensure compliance with the Drivers' Code of Conduct; and
- (e) propose measures to minimise the transmission of dust and tracking of material onto the surface of public roads from vehicles exiting the site.

The Applicant must submit the Traffic Management Plan as approved by the Secretary by the 31 October 2021, or otherwise agreed by the Secretary. The Applicant must implement the Traffic Management Plan as approved by the Secretary.

Section 94A Contributions

53. The Applicant shall pay to Council a contribution under Section 94A of the Act at the rate of \$0.65 per tonne of all extracted/ processed material transported from the subject site.

The following conditions apply to the payment of this contribution:

- (A) The contribution will be calculated and paid monthly from the date of this Consent;
- (b) The contribution will be indexed and adjusted annually as from the date of Consent, in accordance with the Consumer Price Index. This adjustment will be applicable to each financial year for the duration of this Consent and shall take effect from and including July each year, commencing 1 July 2000;
- (c) On or before the fourteenth day of each month for the duration of the Consent, the Applicant shall deliver to Council weighbridge records showing the true quantities of extracted/processed material transported from the property during the immediately preceding month and the Council will then, as soon as it can conveniently do so, issue an invoice to the Applicant, to be paid within fourteen days;
- (d) The Council has the right to inspect and have the original records relating to any extraction/processing material, including numbers and types of laden trucks, trailers and load quantities transported from the property audited, at any time when Council makes a written request to do so;
- (e) The Council will pay all the said contribution payments into a specially identified account for payment towards the rehabilitation, restoration, repair and/or maintenance of Old Northern and Wisemans Ferry Roads within the Baulkham Hills Shire boundary.

Note: This condition has been imposed in accordance with Council's Contributions Plan No. 6 – Extractive Industries. A copy of this plan may be inspected at the Customer Service Centre, Council's Administration Complex, corner of Carrington and Showground Roads, Castle Hill, between the hours of 8:30 am and 4:30 pm weekdays.

FLORA AND FAUNA

54. Deleted.

55. The Applicant shall not clear the strip of remnant vegetation along the southern fence line (Old Northern Road) and the vegetation to the north of the site entrance (Roberts Road) containing Blue Mountains Mahogany (*Eucalyptus notabilis*). This area shall be fenced off to prevent vehicles entering the area.
56. In construction of the bund walls at the corner of Roberts Road and Old Northern Road, the Applicant shall minimise disturbance to existing native vegetation.

Flora and Fauna Management Plan

57. The Applicant shall prepare a Flora and Fauna Management Plan as part of the EMP. The Plan shall be prepared in consultation with National Parks and Wildlife Service and Council, and shall:
 - (a) describe the characteristics and location of species, populations and communities that the proposal may impact upon;
 - (b) consider the feasibility and practicality of salvaging trees removed for the development for relocation to conserved or rehabilitated areas, for the purposes of reconstructing habitat for ground fauna
 - (c) contain a program for the active management and maintenance of all conserved and rehabilitated vegetation (as detailed in the EIS and required under this Consent) including consideration of:
 - post-extraction land use objectives for the site;
 - utilisation of local endemic species or species naturally occurring in the Maroota area;
 - planting around the conservation area to further buffer this area and enhance its long term viability as a bushland ecosystem;

- connection of existing areas and future areas of revegetation to form a network of wildlife corridors throughout site and to adjoining lands to facilitate species recruitment through natural immigration;
 - provision of rocks of varying sizes to provide refuge and basking sites for herpetofauna;
 - fencing of revegetated areas to prohibit grazing by stock; and
 - provision of artificial nest boxes for a range of arboreal fauna.
- (d) mitigation measures to be implemented should operations compromise the significant flora and fauna communities identified in the EIS;
- (e) an ongoing monitoring program of the existing and proposed revegetated areas to assess their floristical structure and diversity, resilience and robustness to disturbance, and fauna species diversity. The information obtained from the monitoring shall be used to guide future revegetation and management efforts; and
- (f) include detailed performance and completion criteria for evaluating the performance of the flora and fauna management measures and rehabilitation of the site, including triggers for any necessary remedial action.
58. The Applicant shall maintain the revegetated areas for the duration of the Consent. Maintenance may include:
- replanting failed or unsatisfactory areas
 - repairing erosion problems
 - fire management – fire suppression or fire encouragement
 - pest and weed control
 - control of feral animal populations
 - maintain and repair fencing
 - fertiliser application
 - watering plants in drier areas, especially in the establishment phase
 - application of lime or gypsum to control pH and improve soil structure.

HERITAGE

59. If, during the development, the Applicant becomes aware of any heritage or archaeological material, all work likely to affect the material shall cease immediately and the relevant authorities consulted about an appropriate course of action prior to recommencement of work. The relevant authorities may include [Heritage NSW](#), and the Local Aboriginal Land Councils. Any necessary permits or consents shall be obtained and complied with prior to recommencement of work.

LANDSCAPE AND REHABILITATION

Rehabilitation Objectives

60. The Applicant shall rehabilitate the site in a manner that is generally consistent with the final landform designs in [Appendix 1](#), to the satisfaction of the Secretary. All rehabilitation must comply with the objectives in [Table 1](#):

Table 1: Rehabilitation Objectives

Feature	Objective
Site (as a whole)	<ul style="list-style-type: none"> • Safe, stable and non-polluting • Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land •
Surface Infrastructure	<ul style="list-style-type: none"> • Decommissioned and removed, unless the Secretary agrees otherwise

Quarry Pit Floor	<ul style="list-style-type: none"> • Landscaped and revegetated using improved pasture species, native trees and understorey species
Final Void	<ul style="list-style-type: none"> • Minimise the height and slope of batters • Minimise the drainage catchment
Community	<ul style="list-style-type: none"> • Ensure public safety • Minimise the adverse socio-economic effects of quarry closure

Progressive Rehabilitation

59. The Applicant shall rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim stabilisation measures must be implemented where reasonable and feasible to control dust emissions in disturbed areas that are not active and which are not ready for final rehabilitation.

Note: It is accepted that parts of the site that are progressively rehabilitated may be subject to further disturbance in future.

Landscape and Rehabilitation Management Plan

60. The Applicant shall prepare a Landscape and Rehabilitation Management Plan for the development to the satisfaction of the Secretary. This plan must:
- be submitted to the Secretary for approval by 30 June 2017, unless otherwise agreed by the Secretary;
 - provide details of the conceptual final landform and associated land uses for the site;
 - describe the short, medium and long-term measures that would be implemented to ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this consent;
 - include a detailed description of the measures that would be implemented over the next 3 years (to be updated for each 3 year period following the 3 years covered by the initial approval of the plan) including the procedures to be implemented for:
 - maximising the salvage of environmental resources within the approved disturbance area for beneficial reuse;
 - protecting vegetation and fauna habitat outside the approved disturbance area on-site;
 - minimising the impacts on native fauna;
 - landscaping the site to minimise visual and lighting impacts;
 - reviewing improved pasture species and application rates;
 - controlling weeds and feral pests;
 - controlling erosion;
 - controlling access; and
 - bushfire management;
 - include a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;
 - include a mass balance calculation to ensure that appropriate volumes of material are available to implement the final landform as described in this plan;
 - provide for the construction and maintenance of the process water dam in accordance with the approved design and construction criteria (see Condition 42(b));
 - identify the potential risks to the successful rehabilitation of the site, and include a description of the contingency measures that would be implemented to mitigate these risks; and
 - include details of who would be responsible for monitoring, reviewing, and implementing the plan.

The Applicant shall implement the management plan as approved from time to time by the Secretary

Conservation and Rehabilitation Bond

61. By 31 December 2017, the Applicant shall lodge a Conservation and Rehabilitation Bond with the Department to ensure that the management of biodiversity and the rehabilitation of the site are implemented in accordance with the performance and completion criteria set out in the Flora and Fauna Management Plan and Landscape and Rehabilitation Plan. The sum of the bond shall be determined by:
- (a) calculating the cost of rehabilitating the site taking into account the likely surface disturbance over the following 3 years of quarrying operations; and
 - (b) employing a suitably qualified quantity surveyor or other expert to verify the calculated costs, to the satisfaction of the Secretary.

Note: If the rehabilitation of the site is completed to the satisfaction of the Secretary, then the Secretary will release the bond. If the rehabilitation of the site is not completed to the satisfaction of the Secretary, then the Secretary will call in all or part of the bond, and arrange for the completion of the relevant works.

62. Within 3 months of each Independent Environmental Audit (see Condition 70), the Applicant shall review, and if necessary revise, the sum of the Conservation and Rehabilitation Bond to the satisfaction of the Secretary. This review must consider the:
- (a) effects of inflation;
 - (b) likely cost of rehabilitating the site (taking into account the likely surface disturbance over the next 3 years of the development); and
 - (c) performance of the implementation of the rehabilitation of the site to date.

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

63. The Applicant shall prepare an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must:
- (a) be submitted to the Secretary for approval by 30 June 2016;
 - (b) provide the strategic framework for environmental management of the development;
 - (c) identify the statutory approvals that apply to the development;
 - (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;
 - (e) describe the procedures that would be implemented to:
 - keep the local community and relevant agencies informed about the operation and environmental performance of the development;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the course of the development;
 - respond to any non-compliance;
 - respond to emergencies; and
 - (f) include:
 - copies of any strategies, plans and programs approved under the conditions of this consent; and
 - a clear plan depicting all the monitoring required to be carried out in relation to the development.

The Environmental Management Strategy is to include a copy of the sequence of extraction as updated under Modification 2, with all dam areas on the site clearly labelled and described.

The Applicant shall implement the approved strategy as approved from time to time by the Secretary.

Adaptive Management

64. The Applicant shall assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in this Consent. Any exceedance of these criteria and/or performance measures constitutes a breach of this Consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.

Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity:

- (a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;
- (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and
- (c) implement remediation measures as directed by the Secretary, to the satisfaction of the Secretary.

Management Plan Requirements

65. The Applicant shall ensure that the management plans required under this Consent are prepared in accordance with any relevant guidelines, and include:
- (a) detailed baseline data;
 - (b) a description of:
 - the relevant statutory requirements (including any relevant approval, licence or lease conditions);
 - any relevant limits or performance measures/criteria;
 - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;
 - (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
 - (d) a program to monitor and report on the:
 - impacts and environmental performance of the development;
 - effectiveness of any management measures (see c above);
 - (e) a contingency plan to manage any unpredicted impacts and their consequences;
 - (f) a program to investigate and implement ways to improve the environmental performance of the development over time;
 - (g) a protocol for managing and reporting any:
 - incidents;
 - complaints;
 - non-compliances with statutory requirements; and
 - exceedances of the impact assessment criteria and/or performance criteria; and
 - (h) a protocol for periodic review of the plan.

Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.

Annual Review

66. By the end of March each year (or as otherwise agreed by the Secretary), the Applicant shall review the environmental performance of the development for the previous calendar year to the satisfaction of the Secretary. This review must:
- (a) describe the development (including any rehabilitation) that was carried out in the past calendar year, and the development that is proposed to be carried out over the current calendar year;
 - (b) include a comprehensive review of the monitoring results and complaints records of the development over the past year, which includes a comparison of these results against the:

- relevant statutory requirements, limits or performance measures/criteria;
 - monitoring results of previous years; and
 - relevant predictions in the EIS, Modification 1 and Modification 2;
- (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
- (d) identify any trends in the monitoring data over the life of the development;
- (e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
- (f) describe what measures will be implemented over the next year to improve the environmental performance of the development.

Revision of Strategies, Plans and Programs

67. Within 3 months of the submission of:
- (a) an annual review under Condition 66 above;
 - (b) an incident report under Condition 68 below;
 - (c) an audit report under Condition 70 below; or
 - (d) any modification to the conditions of this Consent (unless the conditions require otherwise), the Applicant shall review, and if necessary revise, the strategies, plans, and programs required under this Consent to the satisfaction of the Secretary.

Where this review leads to revisions in any such document, then within 4 weeks of the review, unless the Secretary agrees otherwise, the revised document must be submitted to the Secretary for approval.

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 development.

REPORTING AND AUDITING

Incident Notification

68. The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing via the Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident.

Non-Compliance Notification

- 68A. Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing via the Major Projects Website and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

Regular Reporting

69. The Applicant shall provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this Consent.

INDEPENDENT ENVIRONMENTAL AUDIT

70. Every 3 years from the date of this consent and at the completion of works under this consent, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:
- (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;
 - (b) include consultation with the relevant agencies;
 - (c) assess the environmental performance of the development and assess whether it is complying with the requirements in this Consent and any relevant EPL (including any assessment, plan or program required under these approvals);
 - (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; and
 - (e) recommend appropriate measures or actions to improve the environmental performance of the development, and/or any assessment, plan or program required under the abovementioned approvals.

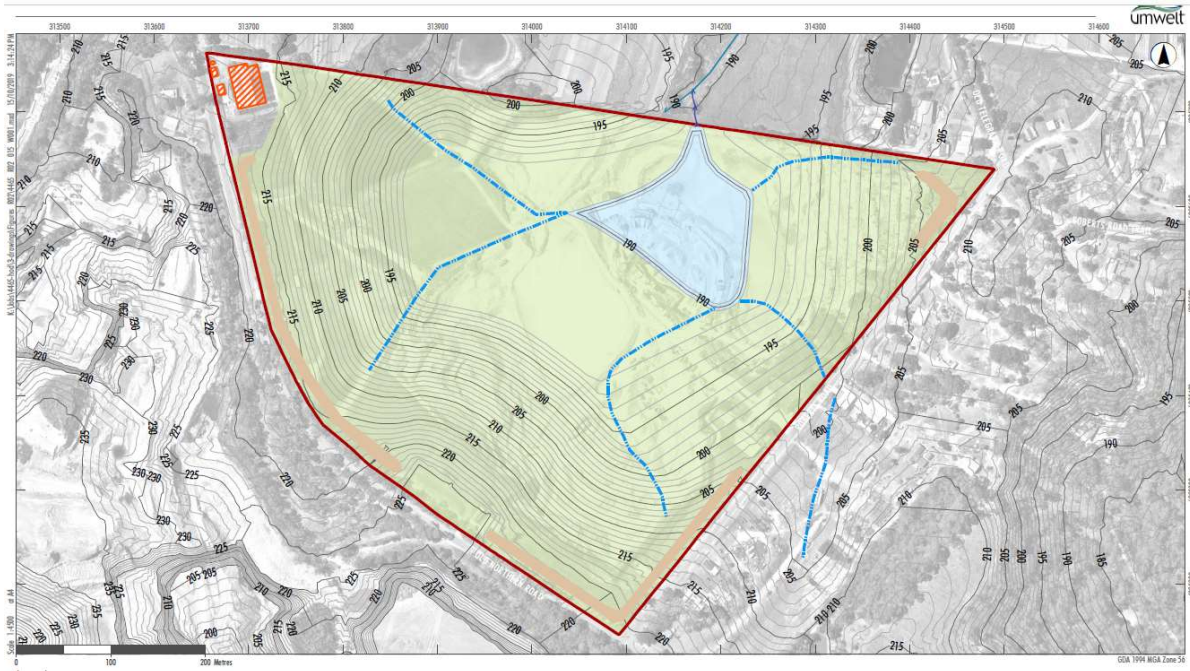
Note: This audit team must be led by a suitably qualified auditor and include experts in any field specified by the Secretary.

71. Within 6 weeks of the completion of this audit, unless the Secretary agrees otherwise, the Applicant shall submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report.

ACCESS TO INFORMATION

72. By 30 June 2016 the Applicant shall:
- (a) make copies of the following publicly available on its website:
 - the documents identified in Condition 2(a) above;
 - current statutory approvals for the development;
 - approved strategies, plans and programs required under the conditions of this Consent;
 - a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this Consent, or any approved plans and programs;
 - a complaints register, which is to be updated monthly;
 - the annual reviews of the development (for the last 5 years, if applicable);
 - any independent environmental audit of the development, and the Applicant's response to the recommendations in any audit;
 - any other matter required by the Secretary; and
 - (b) keep this information up-to-date, to the satisfaction of the Secretary.'

APPENDIX 1 FINAL LANDFORM DESIGN

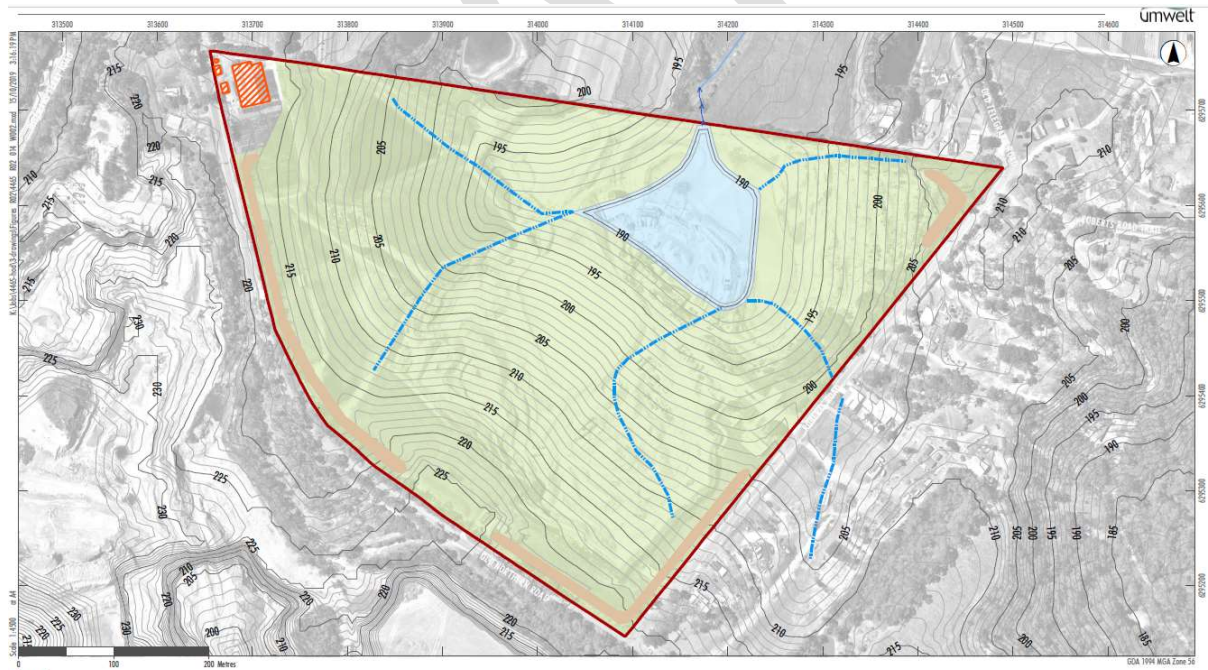


Legend

 Quarry Site	 Final Landform / landuse	 Option 1 - Final Landform
 Sediment Dam 1 Discharge Drain	 Revegetated Area	 Major Countours (5m)
 Existing Watercourse	 Final Dam	 Minor Countours (1m)
 Retained Nursery Infrastructure		
 Bundwall (indicative)		
 Internal Drainage Lines (indicative)		

FIGURE 4.2
Proposed Final Landform – 1,200,000 m3 Fill

Final Landform Concept 1



Legend

 Quarry Site	 Final Landform / landuse	 Option 2 - Final Landform
 Sediment Dam 1 Discharge Drain	 Revegetated Area	 Major Countours (5m)
 Existing Watercourse	 Final Dam	 Minor Countours (1m)
 Retained Nursery Infrastructure		
 Bundwall (indicative)		
 Internal Drainage Lines (indicative)		

FIGURE 4.3
Proposed Final Landform – 2,000,000 m3 Fill

Final Landform Concept 2

APPENDIX 2 RECEIVER LOCATION PLAN



Appendix D: EPA Licence

Environment Protection Licence

Licence - 6535

Licence Details

Number:	6535
Anniversary Date:	12-March

Licensee

HB MARROOTA PTY LTD

PO BOX 1778

GOSFORD NSW 2250

Premises

HB MARROOTA PTY LTD

CNR ROBERTS & OLD NORTHERN ROADS

MARROOTA NSW 2756

Scheduled Activity

Crushing, grinding or separating

Extractive activities

Fee Based Activity

Scale

Crushing, grinding or separating	> 100000-500000 T annual processing capacity
Extractive activities	> 100000-500000 T annually extracted or processed

Region

Metropolitan West - Sydney

4 Parramatta Square, 12 Darcy Street

PARRAMATTA NSW 2150

Phone: (02) 9995 5000

Fax: (02) 9995 6900

Locked Bag 5022

PARRAMATTA NSW 2124

Environment Protection Licence



Licence - 6535

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Environment Protection Licence

Licence - 6535



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Environment Protection Licence

Licence - 6535



Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 (“the Act”) and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

Environment Protection Licence

Licence - 6535



The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

HB MARROOTA PTY LTD
PO BOX 1778
GOSFORD NSW 2250

subject to the conditions which follow.

Environment Protection Licence

Licence - 6535

1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Crushing, grinding or separating	Crushing, grinding or separating	> 100000 - 500000 T annual processing capacity
Extractive activities	Extractive activities	> 100000 - 500000 T annually extracted or processed

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
HB MAROOTA PTY LTD
CNR ROBERTS & OLD NORTHERN ROADS
MAROOTA
NSW 2756
LOT 1 DP 228308, LOT 2 DP 228308, LOT 2 DP 312327

A2.2 The premises location is shown on the map below.

Environment Protection Licence

Licence - 6535



A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

3 Limit Conditions

Environment Protection Licence

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L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Noise limits

L2.1 Noise from the premises must not exceed the sound pressure level expressed as LA10 (15 minute) of 45 dB(A), except as expressly provided by this licence.

L2.2 Noise from the premises is to be measured or computed at any point within one metre of any residential boundary, or at any point within 30 metres of the dwelling where the dwelling is more than 30 metres from the boundary, to determine compliance with the noise level limits in Condition L2.1.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.

This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:

- a) must be maintained in a proper and efficient condition; and
- b) must be operated in a proper and efficient manner.

O3 Dust

O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

O3.2 All loaded trucks entering or leaving the premises must have their loads covered.

O4 Other operating conditions

O4.1 The licensee must prevent any tracking of mud on to public roads by vehicles leaving the premises.

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5 Monitoring and Recording Conditions

M1 Monitoring records

- M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.
- M1.2 All records required to be kept by this licence must be:
- a) in a legible form, or in a form that can readily be reduced to a legible form;
 - b) kept for at least 4 years after the monitoring or event to which they relate took place; and
 - c) produced in a legible form to any authorised officer of the EPA who asks to see them.
- M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
- a) the date(s) on which the sample was taken;
 - b) the time(s) at which the sample was collected;
 - c) the point at which the sample was taken; and
 - d) the name of the person who collected the sample.

M2 Recording of pollution complaints

- M2.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.
- M2.2 The record must include details of the following:
- a) the date and time of the complaint;
 - b) the method by which the complaint was made;
 - c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
 - d) the nature of the complaint;
 - e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
 - f) if no action was taken by the licensee, the reasons why no action was taken.
- M2.3 The record of a complaint must be kept for at least 4 years after the complaint was made.
- M2.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M3 Telephone complaints line

- M3.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.
- M3.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a

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complaints line so that the impacted community knows how to make a complaint.

M3.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

6 Reporting Conditions

R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

1. a Statement of Compliance,
2. a Monitoring and Complaints Summary,
3. a Statement of Compliance - Licence Conditions,
4. a Statement of Compliance - Load based Fee,
5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
7. a Statement of Compliance - Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

R1.3 Where this licence is transferred from the licensee to a new licensee:

- a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
- b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:

- a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
- b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA via eConnect *EPA* or by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.7 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:

- a) the licence holder; or

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b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:

- a) where this licence applies to premises, an event has occurred at the premises; or
- b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:

- a) the cause, time and duration of the event;
- b) the type, volume and concentration of every pollutant discharged as a result of the event;
- c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
- d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
- e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
- f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
- g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the

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EPA within the time specified in the request.

7 General Conditions

G1 Copy of licence kept at the premises or plant

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

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Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

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flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .

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TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste

Mr Nigel Sargent

Environment Protection Authority

(By Delegation)

Date of this edition: 14-June-2000

Environment Protection Licence

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End Notes

- 1 Licence varied by change to Common Name field, issued on 15-Oct-2001, which came into effect on 15-Oct-2001.
- 2 Licence transferred through application 140865, approved on 29-Oct-2001, which came into effect on 24-Sep-2001.
- 3 Licence varied by notice 1012523, issued on 21-May-2002, which came into effect on 15-Jun-2002.
- 4 Licence varied by correction to EPA Sub Region data record, issued on 20-Sep-2002, which came into effect on 20-Sep-2002.
- 5 Licence transferred through application 141899, approved on 23-Apr-2003, which came into effect on 21-Apr-2003.
- 6 Licence varied by notice 1034428, issued on 13-Dec-2004, which came into effect on 07-Jan-2005.
- 7 Licence varied by notice 1081877, issued on 10-Mar-2008, which came into effect on 10-Mar-2008.
- 8 Licence varied by Change to schedule 1, issued on 07-May-2008, which came into effect on 07-May-2008.
- 9 Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
- 10 Licence varied by notice 1111632, issued on 01-Apr-2010, which came into effect on 01-Apr-2010.
- 11 Licence varied by notice 1527501 issued on 09-Mar-2015
- 12 Licence varied by notice 1529566 issued on 03-Jun-2015
- 13 Licence varied by notice 1603067 issued on 26-Nov-2020

Appendix E: EPA Consultation

From: [Lisa Thomson](#)
To: info@epa.nsw.gov.au
Cc: [hodgsonquarries](#)
Subject: Roberts Road Quarry - EPL 6535 DA267/11/99 Mod 4
Date: Tuesday, 1 November 2022 2:13:00 PM
Attachments: [Notice of Modification Mod 4.pdf](#)
[Consolidated Consent Mod 4.pdf](#)
[EPA Response - 22_09_2020.pdf](#)
[image002.png](#)
Importance: High

To whom it may concern.

As part of a modification to consent number 267-11-99, the operators of the Robert Rd Sand Quarry at Maroota are required to commission an expert review of the air quality monitoring system at the site. See the reproduced condition of consent below. For your background information, the Notice of Modification, Consolidated Consent and the EPA Notice No 1600632 providing background into the requirement are attached.

29A. The Applicant must commission an expert review of the air quality monitoring system at the site. This review must:

- (a) be undertaken by a suitably qualified and experience person(s) whose appointment has been approved by the Secretary;
- (b) review the accuracy of the air quality monitoring system at the site over a 12 month period, in general accordance with the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007)* and with a particular focus on PM_{2.5} monitoring;
- (c) provide recommendations (where required) to improve the accuracy of air quality monitoring system at the site; and
- (d) be undertaken in consultation with the EPA.

29B. A copy of the expert review report along with a timetable for implementing any recommendations arising from the review required under condition 29A of this Schedule, must be submitted by 30 November 2022, or as otherwise agreed by the Planning Secretary.

The Applicant must implement the recommendations of the expert review to the satisfaction of the Secretary.

As a suitably qualified expert in air quality monitoring, I was approved to undertake this investigation by the Dept of Planning and Environment earlier this year (a copy of the approval can be provided on request).

The review is due **prior to the 30th November 2022**, and is to be undertaken **in consultation with the EPA**.

Please let me know as soon as possible, any requirements you have for inclusion in the review.

Regards,
Lisa Thomson
BAppSc, CChem

Phone: (02) 4028 6412 | Mobile: 0427 334471
www.vgt.com.au



From: [Evan Guyatt](#)
To: [Lisa Thomson](#)
Subject: RE: Roberts Road Quarry - DA2671199 Mod 4 - HB Maroota Pty Ltd
Date: Wednesday, 16 November 2022 3:59:57 PM
Attachments: [image001.png](#)
[Roberts Road Quarry - DA2671199 Mod 4 - HB Maroota Pty Ltd - No Comment Response.pdf](#)

Dear Lisa

Thank you for your email regarding Roberts Road Quarry EPL 6535 (DA267/11/99 Mod 4) – HB Maroota Pty Ltd.

The NSW EPA has no comment to provide towards the expert review of the air quality monitoring systems at the site.

Kind Regards,
Evan

Evan Guyatt
Operations Assistant
Regulatory Operations – Metropolitan West
NSW Environment Protection Authority
D 02 9995 6220



www.epa.nsw.gov.au @NSW_EPA

The EPA acknowledges the Traditional Custodians of the land, waters and sky where we work. As part of the world's oldest surviving cultures we pay our respect to Aboriginal Elders past, present and emerging.

I work on Burramattagal Country of the Dharug Nation.



Report pollution and environmental incidents 131 555 or +61 2 9995 5555

This email is intended for the addressee(s) named and may contain confidential and/or privileged information.
If you are not the intended recipient, please notify the sender and then delete it immediately. Any views expressed in this email are those of the individual sender except where the sender expressly and with authority states them to be the views of the Environment Protection Authority.

PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL

Appendix F: Laboratory Scope of Accreditation

Scope of Accreditation

VGT Laboratories Pty Ltd

Site

VGT Laboratory

Accreditation No.	Site No.	Date of Accreditation
20375	15825	05 May 2006

Address	Contact	Availability
Unit 4, 30 Glenwood Drive Thornton, NSW 2322 Australia vgt.com.au	Mr Anthony Crane P: +61 (02) 40286412 lisa@vgt.com.au	Services available to external clients

VGT Laboratory

ISO/IEC 17025 (2017)

Environment

SERVICE	PRODUCT	DETERMINANT	TECHNIQUE	PROCEDURE
Analysis for physical and chemical characteristics	Air - Ambient	Suspended particulate matter - Total	Gravimetric	in-house method VGT WI/44
		Ash; Combustible matter; Solids - Insoluble	Gravimetric	AS 3580.10.1, NSW EPA AM-19 and in-house method VGT WI/14
		Particulate matter - PM10; Particulate matter - PM2.5	Gravimetric	in-house method VGT WI/44
	Fresh waters; Ground waters; Industrial waters - Treated; Irrigation and stock waters; Steam-raising waters; Surface waters	Conductivity - In-situ	Direct reading instrument	APHA 2510 B and in-house method VGT WI/02

SERVICE	PRODUCT	DETERMINANT	TECHNIQUE	PROCEDURE
		Solids - Total suspended	Gravimetric	AS 3550.4 and in-house method VGT WI/03A
		Turbidity	Nephelometry	APHA 2130 B and in-house method VGT WI/04
		Oil and grease	Gravimetric	APHA 5220 B
		Biochemical oxygen demand (BOD)	Direct reading instrument	APHA 5210 B
		Conductivity	Direct reading instrument	APHA 2510 B and in-house method VGT WI/02
		Dissolved oxygen (DO) - In-situ	Dissolved oxygen (DO) analyser	APHA 4500 O-G
		pH	Direct reading instrument	APHA 4500 H-B and in-house method VGT WI/01
		Solids - In-situ, total suspended	Gravimetric	in-house method VGT WI/03B
		pH - In-situ	Direct reading instrument	APHA 4500 H-B and in-house method VGT WI/01
		Solids - Total dissolved (TDS)	Gravimetric	AS 3550.4 and in-house method VGT WI/49
		Turbidity - In-situ	Nephelometry	APHA 2130 B and in-house method VGT WI/04
	Soils	Foreign matter	Sieve analysis	RMS T276

SERVICE	PRODUCT	DETERMINANT	TECHNIQUE	PROCEDURE
Sample collection	Air - Ambient	Not applicable	Deposit gauge	AS 3580.10.1, NSW EPA AM-19 and in-house method VGTWI/15
	Fresh waters; Ground waters; Industrial and steam-raising waters; Irrigation and stock waters; Surface waters	Not applicable	Grab; Manual by hand	AS 5667 parts 1, 4, 6, 11 and in-house method VGT-WI/10

ISO/IEC 17025 (2017)

Food and Beverage

SERVICE	PRODUCT	DETERMINANT	TECHNIQUE	PROCEDURE
Analysis of physical and nutritional characteristics	Waters for potable and domestic purposes	Solids - Total dissolved (TDS)	Gravimetric	AS 3550.4 and in-house method VGT WI/49
		Turbidity	Nephelometry	APHA 2130 B and in-house method VGT WI/04
		Conductivity - In-situ	Direct reading instrument	APHA 2510 B and in-house method VGT WI/02
		Oil and grease	Gravimetric	APHA 5220 B
		Dissolved oxygen (DO) - In-situ	Direct reading instrument	APHA 4500 O-G
		Solids - In-situ, total suspended	Gravimetric	in-house method VGT WI/03B
		Turbidity - In-situ	Nephelometry	APHA 2130 B and in-house method VGT WI/04
		pH	Direct reading instrument	APHA 4500 H-B and in-house method VGT WI/01
		Conductivity	Direct reading instrument	APHA 2510 B and in-house method VGT WI/02
		pH - In-situ	Direct reading instrument	APHA 4500 H-B and in-house method VGT WI/01
		Biochemical oxygen demand (BOD)	Direct reading instrument	APHA 5210 B

SERVICE	PRODUCT	DETERMINANT	TECHNIQUE	PROCEDURE
		Solids - Total suspended	Gravimetric	AS 3550.4 and in-house method VGT WI/03A
Sample collection	Waters for potable and domestic purposes	Not applicable	Grab; Manual by hand	AS 5667 parts 1, 4, 6, 11 and in-house method VGT-WI/10

The only data displayed is that deemed relevant and necessary for the clear description of the activities and services covered by the scope of accreditation.

Grey text appearing in a SoA is additional freetext providing further refinement or information on the data in the preceding line entry.

Accreditation No.	Site No.	Print date
20375	15825	21 Nov 2022

END OF SCOPE

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**Appendix G: DPE Request for
Additional Information
18/1/23**

Mr Stuart Reed
Environmental Officer
PO Box 1778
Gosford New South Wales, 2250
18/01/2023

Dear Mr Reed

Roberts Road Quarry, Air Quality Monitoring Review - Request for Additional Information

I refer to your submission dated 28/11/2022 to the Department of Planning and Environment (the Department) titled Air Quality Monitoring Review, as required under the conditions of consent DA267-11-99.

After careful consideration, the Department is requesting that you provide the following additional information.

- Please provide a timetable for implementing the recommendations made in section 6 of the review.
- Please provide an explanation regarding the exceedance of PM2.5 on the 09/10/2021 noted in table 9, as part of the explanation please consider relevant consent conditions including but not limited to condition 68A.

Please provide this information by 3/02/2023.

If you have any questions, please contact Paul-James Caruana, who can be contacted on 8229 2900 or via email at paul-james.caruana@dpie.nsw.gov.au.

Yours sincerely



Carl Dumpleton
Team Leader
Resource Assessments

Appendix H: PM2.5 Results 09/10/2021

29A.	The Applicant must commission an expert review of air quality monitoring at the site. This review must	(a) be undertaken by a suitably qualified and experience person(s) whose appointment has been endorsed by the Secretary;	Appendix A Letter regarding approval of expert	Yes	Appendix A is an approval of expert Lisa Thomson, who is the Author of the review provided.
		(b) review the accuracy of air quality monitoring at the site over a 12-month period, in general accordance with the Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007) and with a particular focus on PM2.5 monitoring;	Entire document	Yes	Report reviews 12 months of data against the approved methods and standards. Report makes the following assessment of accuracy "The air quality monitoring at the Roberts Rd Maroota Sand Quarry is fit for purpose, as accurate as can be reasonably expected" However, it does not acknowledge the exceedance PM2.5 09/10/2021.
		(c) provide recommendations (where required) to improve the accuracy of air quality monitoring at the site; and	Section 6 Conclusion Recommendations	Yes	Following recommendations made Ensure site conditions and observations for the monitoring period are included on the sample sheet for all air quality samples, along with name of the technician, date and time sampled, and compliance with the siting and instrument requirements of the relevant method. Ensure that the procedure for sampling is documented and that all sampling technicians are trained in it regularly. Update the site Air Quality Management Plan (AQMP) to include the modification 4 requirements. The author recommends that, in consultation with the DPE, monitoring for TSP be discontinued as this is a less critical parameter, and instead replaced by a ratio calculation from PM10 based on monitoring data collected from the site over as long a

					<p>period as possible, without including the extraordinary events of the 2019-2020 bushfires.</p> <p>The explanation for how this is to be calculated would be included in the updated AQMP</p>
		(d) be undertaken in consultation with the EPA.	Appendix B Response to Submissions EPA Appendix E EPA Consultation	Yes	Evidence of EPA consultation is provided in email form, EPA provided no comment.
29B.	A copy of the expert review report along with a timetable for implementing any recommendations arising from the review required under condition 29A of this Schedule, must be submitted by 1 October 2022, or as otherwise agreed by the Planning Secretary.	The Applicant must implement the recommendations of the expert review to the satisfaction of the Secretary.		Partially	<p>Please provide a timetable for implementing the recommendations made in section 6 of the review.</p> <p>Alternatively, please provide updated Air Quality Management Plan incorporating the recommendations if available.</p>

Explanation of Particulate Matter Less than 2.5 µm Results 9/10/2021

Excerpt from Annual Report and Compliance Review 2021:

6.3.3 Interpretation and Effectiveness of Controls

6.3.3.1 Interpretation of Monitoring Results

Dust deposition (Insoluble Solids), Total Suspended Particulates (TSP) and PM_{2.5} and PM₁₀ Annual Averages for 2021 were compliant with DA criteria. Particulate Matter less than 2.5 µm in diameter (PM₁₀) exceeded the Mod 4 24-hour criteria on one occasion in October 2021 during a local grass fire. This does not represent a non-compliance as it was not due to site activities.

Particulate Matter less than 2.5 µm in diameter (PM_{2.5}) for the 2021 report period was below the Mod 4 annual limit, despite the elevated result in October.

All air quality monitoring results show the results as fairly stable when compared with the previous reporting period. Dust Gauge 1A Site Office results have stabilised since the December 2021 elevated reading and continue to have a 12-month average under 4g/m²/month.

Excerpt from Modification 4 consent:

Table 1: Air quality criteria

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM ₁₀)	Annual	^{a, c} 25 µg/m ³
	24 hour	^b 50 µg/m ³
Particulate matter < 2.5 µm (PM _{2.5})	Annual	^{a, c} 8 µg/m ³
	24 hour	^b 25 µg/m ³
Total suspended particulate (TSP) matter	Annual	^{a, c} 90 µg/m ³
^d Deposited dust	Annual	^b 2 g/m ² /month ^a 4 g/m ² /month

Notes:

^a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).

^b Incremental impact (i.e. incremental increase in concentrations due to the development on its own).

^c Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Secretary.

^d Deposited dust is to be 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*.

Note that point (b) above states that the PM_{2.5} 24 hour criteria of 25 µg/m³ applies to an **incremental increase due to the development alone**. Since the result recorded on the 9th October 2021 was due to a local grass and not due to the development, this result does not represent a non-compliance, and therefore does not require notification in accordance with condition 68A.



Beyond Compliance

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