Albion Park Quarry
Annual Review

Period 01 July 2019 – 30 June 2020

Cleary Bros (Bombo) Pty Ltd
39 Five Islands Road
Port Kembla NSW 2505
PO Box 210, Port Kembla

Telephone 02 4275 1000
Facsimile 02 4274 1125
www.clearybros.com.au

Title Block

Name of operation	Albion Park Quarry
Name of operator	Cleary Bros (Bombo) Pty Ltd
Development consent #	10639/2005
Name of holder of development consent	Cleary Bros (Bombo) Pty Ltd
Annual Review start date	1/7/2019
Annual Review end date	30/6/2020
I, Helen Cleary, certify that this audit report is a true and accurate record of the compliance status of the Albion Park Quarry for the period 1 July 2019 to 30 June 2020 and that I am authorised to make this statement on behalf of Cleary Bros (Bombo) Pty Ltd. *Note* *a) The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000.* *b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or $22,000, or both).*	
Name of authorised reporting officer	Helen Cleary
Title of authorised reporting officer	Executive General Manager
Signature of authorised reporting officer	
Date	16/7/2020

Table of Contents

Annexures

Annexure A	NSW Trade and Investment Return
Annexure B	Environmental Monitoring Locations
Annexure C	Biannual Ecological and Rehabilitation Monitoring – Good Bush Pty Ltd
Annexure D	Annual Ecological and Rehabilitation Monitoring – Good Bush Pty Ltd
Annexure E	Environmental Monitoring Results from the 2019-2020 reporting period
Annexure F	Annual Noise Survey – August 2019
Annexure G	Environmental Protection Licence – Revised 2 June 2020

Abbreviations

AR	Annual Review
CB	Cleary Bros (Bombo) Pty Ltd
DC	Development Consent 10639/2005
DP	Deposited Plan
DRG	Department of Resources and Geoscience of the Department
DPIE	Department of Planning Industry and Environment
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EPL	Environment Protection Licence
HVAS	High Volume Air Sampler
$L_{Aeq(15min)}$	Continuous Equivalent Noise Level for a 15 Minute Period
MW	Monitoring Well
OEH	Office of Environment and Heritage
QEMP	Quarry Environmental Management Plan
WMP	Water Management Plan

Internal Document Control

Version	Description	Prepared By	Reviewed By	Prepared Date
1	Initial Draft	M Hammond		15/7/2020
2	Final	M Hammond	H Cleary	16/7/2020

1. INTRODUCTION

1.1 Statement of Compliance

Were all conditions of the relevant approvals complied with?	
Development Consent #10639/2005	Yes
Environmental Protection licence #299	Yes

1.2 Background

Cleary Bros (CB) has extracted and processed hard rock from a succession of quarries in the Albion Park area since the middle of last century. On 21 February 2006 the Land and Environment Court (LEC) granted development consent for the company to extend quarrying into a new area, about 400 metres south east from the then operating quarry.

Following negotiations with the adjacent land owner, Rinker (now Holcim), Shellharbour City Council on 10 May 2007 granted development consent for an access road linking the quarry extension with the existing haul road to Cleary Bros crushing plant. A short road crossing the approved quarry access road to maintain access to Holcim property from Dunsters Lane was also approved.

On 30 June 2009, a modification was approved to increase the maximum production from the quarry to 600,000 tonnes of quarry product per annum. On 25 June 2015, a second modification was determined and granted to increase the annual production to 900,000 tonnes of quarry products per annum. On 7 June 2017, a third modification was determined and granted to permit extraction from Stage 5 and 6 of the quarry. The 2017 modification of Development Consent 10639/2005 is hereafter referred to as the Development Consent or DC.

Operation of the hard rock quarry is licensed by the Environment Protection Authority (EPA) under Environmental Protection Licence 299. The Environmental Protection Licence (EPL) was amended by the EPA on 2 June 2020 as part of a five-yearly review of the licence. Changes to the licence as part of this review included corrections to the scheduled activities, incorporation of a site plan, and various minor updates to align with current industry policies and guidelines. CB operates in accordance with the site's Quarry Environmental Management Plan (QEMP) consistent with the requirements of the court approval and Environment Protection Licence (EPL) as amended by the EPA on 2 June 2020. A copy of this updated EPL is attached to this Annual Report as Annexure G.

The location of the property is shown on Figure 1.

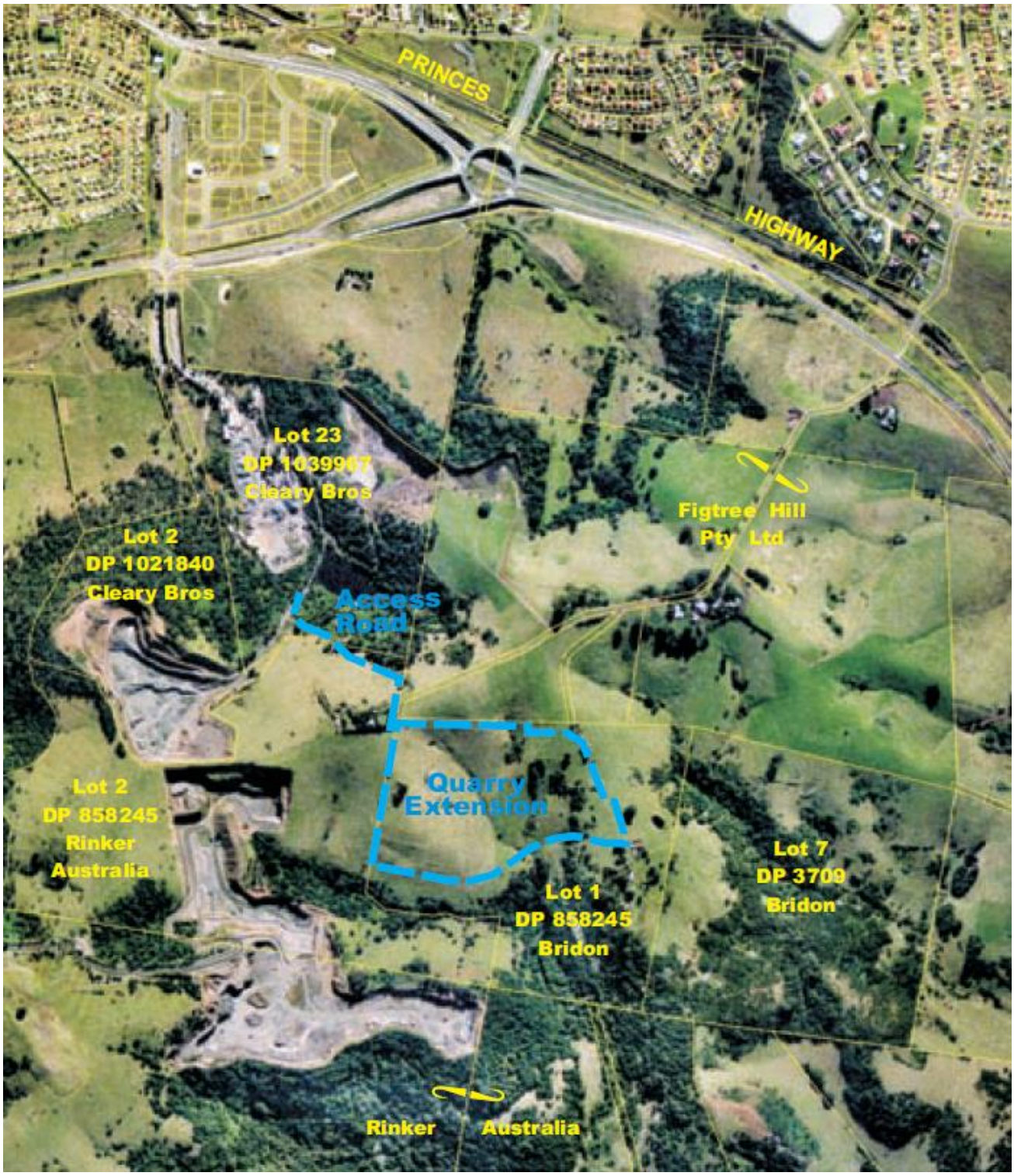


Figure 1 – Regional context and site boundaries

1.3 Objectives of the Annual Review

The objectives of this Annual Review are to satisfy the reporting requirements of the Development Consent as reproduced below:

Condition	Requirement	Where addressed
Schedule 3 Condition 9	The Applicant must: a) provide annual production data to the DRG using the standard form for that purpose; and b) include a copy of this data in the **Annual Review**.	Annexure A

Schedule 4 Condition 33	Each year, the Applicant must:
	• review the Water Management Plan;
	• update each sub-plan; and
	• report the results of this review in the **Annual Review**, Including:
	  • the results of monitoring;
	  • details of the review for each sub-plan;
	  • amendments to the sub-plans; and
	  • details of the measures undertaken/ proposed to address any identified issues.
		Sections 3 & 5.1

Schedule 4 Condition 38	The Applicant must include a progress report on the implementation of the Vegetation Management Plan in the **Annual Review**.	Sections 3.7 & 5.4
Schedule 4 Condition 44	The Applicant must include a progress report on the Rehabilitation Management Plan in the **Annual Review**.	Section 3.7 & 5.5
Schedule 4 Condition 53	The Applicant must include a progress report on the Heritage Management Plan in the **Annual Review**	Section 5.6
Schedule 4 Condition 60	The Applicant must describe what measures have been implemented to minimise the amount of waste generated by the development in the **Annual Review.**	Section 5.7
Schedule 6 Condition 2	By the end of September each year, or other timing as may be agreed by the Secretary, the Applicant must submit a report to the Department reviewing the environmental performance of the development to the satisfaction of the Secretary. This review must: (a) describe the development (including rehabilitation) that was carried out in the previous financial year, and the development that is proposed to be carried out over the current financial year; (b) include a comprehensive review of the monitoring results and complaints records of the development over the previous financial year, which includes a comparison of these results against: • the relevant statutory requirements, limits or performance measures/criteria; • the monitoring results of previous years; and • the relevant predictions in the documents referred to in condition 2 of Schedule 3; (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 current calendar year to improve the environmental performance of the development.	This Document

2. SITE DESCRIPTION AND ACTIVITIES

2.1 Site Identification

The site comprises Lot 1 DP 858245 (active quarry) and Lot 23 DP 1039967 (processing plant, site entrance product storage and sale). The haul road connecting the quarry to the processing plant traverses Lot 2 DP 858245. Lot 1 is owned by Bridon Pty Ltd, a member of the Cleary Bros group of companies. Lot 23 is owned by CB and Lot 2 is owned by Holcim. The site is located within the City of Shellharbour. Access to the extraction area is from East-West Link Road via the processing plant. The land approved for extraction has an area of 16.96 hectares.

The quarrying process involves removing overburden from the hard rock resource, loosening the rock by blasting, excavating the broken basalt and loading to off-road trucks for delivery to the processing plant. At the processing plant hard rock is crushed, screened and classified into various products for stockpiling on site prior to sale and delivery. There are two layers of hard rock in the extraction area over a sandstone base. Backfilling of the western parts of the sandstone base has commenced using overburden extracted during the quarrying process.

2.2 Works Completed in Period

Normal quarry production was carried out during the reporting period of July 2019 to June 2020 and has continued across the base of the extraction area as shown on Figure 2. Quarrying in the current reporting period progressed to the east along the northern extent. Rehabilitation works continue in Stages 1, 2 and 4 of the quarry, with overburden material placed in these areas in general accordance with the Rehabilitation Management Plan.

Cleary Bros installed new dust suppression atomisers throughout the main processing plant in the past year, which has had the dual benefits of reduced dust emissions from the main plant as well as reducing water usage. Repairs were made to the dry stone wall at the entrance to the Belmont property off Dunsters Lane, as the wall had been damaged over time due to cattle and the elements.

2.3 Works to be completed in the Next Period

In the period July 2020 to June 2021 quarry extraction will progress from the northeastern extent to the south through Stages 5 and 6 of the quarry. The stripped overburden will continue to be utilised for rehabilitation activities (placement of infill material) in Stages 1, 2 and 4 of the quarry.

2.4 Quarry Production

During the reporting period covered by this Annual Review, one annual return was forwarded to NSW Trade and Investment (formerly Department of Primary Industries), covering the 12 months ending 30 June 2019. This return indicates a total of 620,813 tonnes of hard rock material was extracted from the extended quarry area which is the subject of this consent, and an additional 186 tonnes of topsoil, which equates to the total reported figure of 620,999 tonnes.

In the current reporting period, 589,433 tonnes of blue rock (basalt) and 245,772 tonnes of red rock (agglomerate) were extracted from the extension area and sold. The hard rock quarry products produced in the reporting period were below the maximum of 900,000 tonnes permitted under the current DC. An additional 388 tonnes of sand and 5,824 tonnes of material produced from concrete returns were sold from the site during the reporting period.

A copy of the return up to 30 June 2019 to NSW Industry and Investment is included as Annexure A. The next annual return to NSW Industry and Investment is due by November 2020.

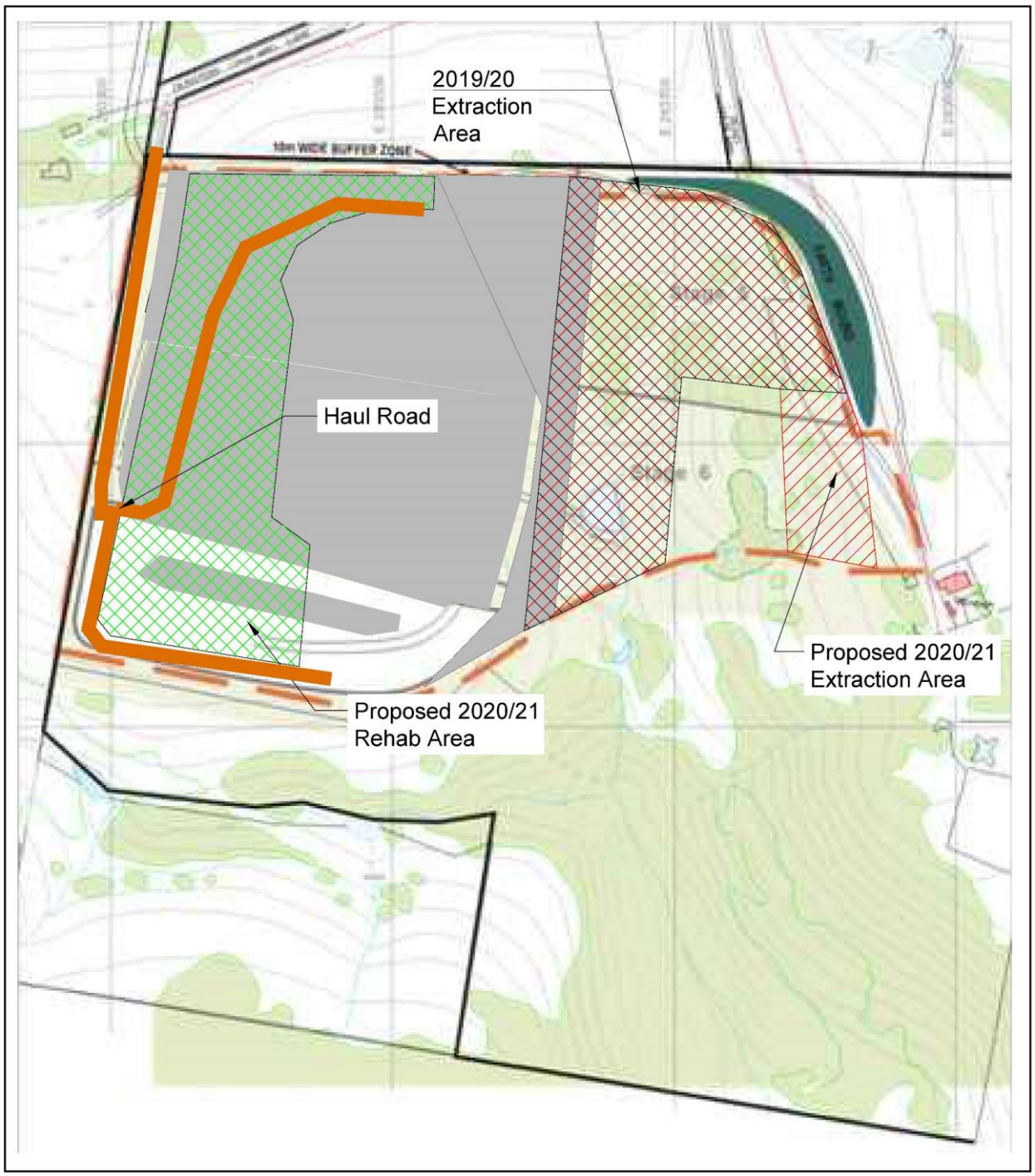


Figure 2 – Works Completed and Works Programmed

3. REVIEW OF ENVIRONMENTAL PERFORMANCE

This is the eleventh Annual Review submitted for the Albion Park Quarry following its extension into Lot 1 DP 858245. Monitoring data refers primarily to the reporting period from 1 July 2019 to 30 June 2020.

3.1 Meteorological Monitoring

3.1.1 Standards and Performance Measures

The Development Consent and Environmental Protection Licence require the monitoring of meteorological parameters on the site for the life of the project. Section 7.2 of the QEMP details the following parameters will be continuously monitored at the site and averaged over 10 minute intervals.

Parameter	Units
Temperature at 2 and metres	°C
Total Solar Radiation at 10 metres	W/m^2
Wind direction at 10 metres	degrees
Wind speed at 10 metres	m/s
Sigma theta at 10 metres	degrees
Rainfall	mm/hr

3.1.2 Environmental Performance

Cleary Bros operated a weather station for the duration of the current reporting period adjacent to the *Belmont* homestead, which has been in operation in this location since 2005. The weather station is capable of monitoring all of the parameters required by the QEMP, and can be contacted in near real time through the mobile telecommunications network. This data has been reviewed regularly throughout the current reporting period to ensure the continued functionality of the system.

Rainfall in the current reporting period has been highly variable, with average rainfall in late Winter and early Spring 2019, followed by a hot and dry late Spring 2019 to mid Summer 2020. February saw 356mm of rainfall (more than a third of the 966mm annual total), while Autumn and early Winter 2020 were dry. Despite the significant rain in February (with over half of this falling on a single day), rainfall for the year was still significantly below the long term average, which has contributed to the cumulative rainfall deficit that has continued to build up over the past three years. The reduction in regular rainfall has continued to impact on surface water flows and groundwater levels, as will be described in the following sections. The graph below shows the pattern of rainfall over the past 3 years, and the growing rainfall deficit.

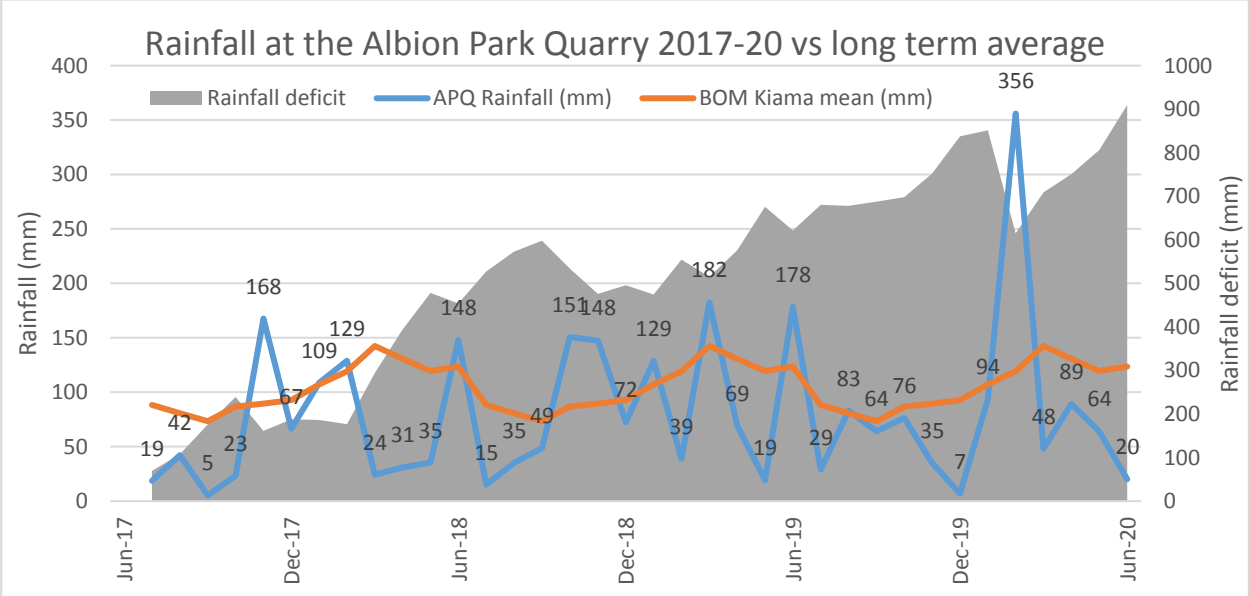


Figure 3 – Rainfall measured on site FY19-FY20, reported with rainfall from Jun 2017

3.1.3 Compliance Assessment

The weather station was operated continuously throughout the reporting period, demonstrating compliance with this condition.

3.2 Groundwater Management

3.2.1 Standards and Performance Measures

There are no groundwater monitoring requirements in the EPL.

The DC requires the implementation of a Water Management Plan (incorporating a Groundwater Monitoring Program), which outlines the monitoring requirements related to groundwater management. The Water Management Plan was most recently revised and approved on 29 May 2018. The current groundwater monitoring programme requires the biannual sampling of the four groundwater monitoring bores within the network for a range of parameters, as described in the table below.

Analyte	Units
Water level	mbgl
Electrical Conductivity	µS/cm
Total Dissolved Solids	mg/L
pH	pH units
Alkalinity	mg/L
Temperature	°C
Total Suspended Solids	mg/L
Major Cations (Na, K, Ca)	mg/L
Major Anions (SO_4, Cl)	mg/L
Nitrogen species (NO_3, NH_3, TKN)	mg/L
Total Phosphorus	mg/L
Oil and Grease	mg/L
BOD; TOC	mg/L
Dissolved Metals (Cu, Fe, Ni, Zn)	mg/L

Furthermore, where the electrical conductivity of the bore exceeds specific levels (as described in the table below), the sampling suite will be extended to include additional dissolved metals for analysis (As, Cd, Cr, Pb, Hg). There are no groundwater quality criteria in the DC, with the aim of the groundwater monitoring programme to assess the possible relationships between surface water and groundwater and to determine the origin of the variation in creek water quality.

Monitoring Bore	EC trigger level for additional analysis
MW1S	1600
MW1D	1300
MW2S	1300
MW2D	1800

The EIS for the Albion Park Quarry predicted that the quarrying operations would have little impact on flows in the eastward flowing creek (from Holcim), however as quarrying progressed, an increasing proportion of the catchment of the southward flowing creek would be intercepted. Groundwater bores would be monitored to provide groundwater flow information from the various levels in the strata. The two boreholes MW1 and

MW2 provide this information through a shallow and deep borehole at each location and the depths are currently monitored quarterly. The results are described below.

3.2.2 Environmental Performance

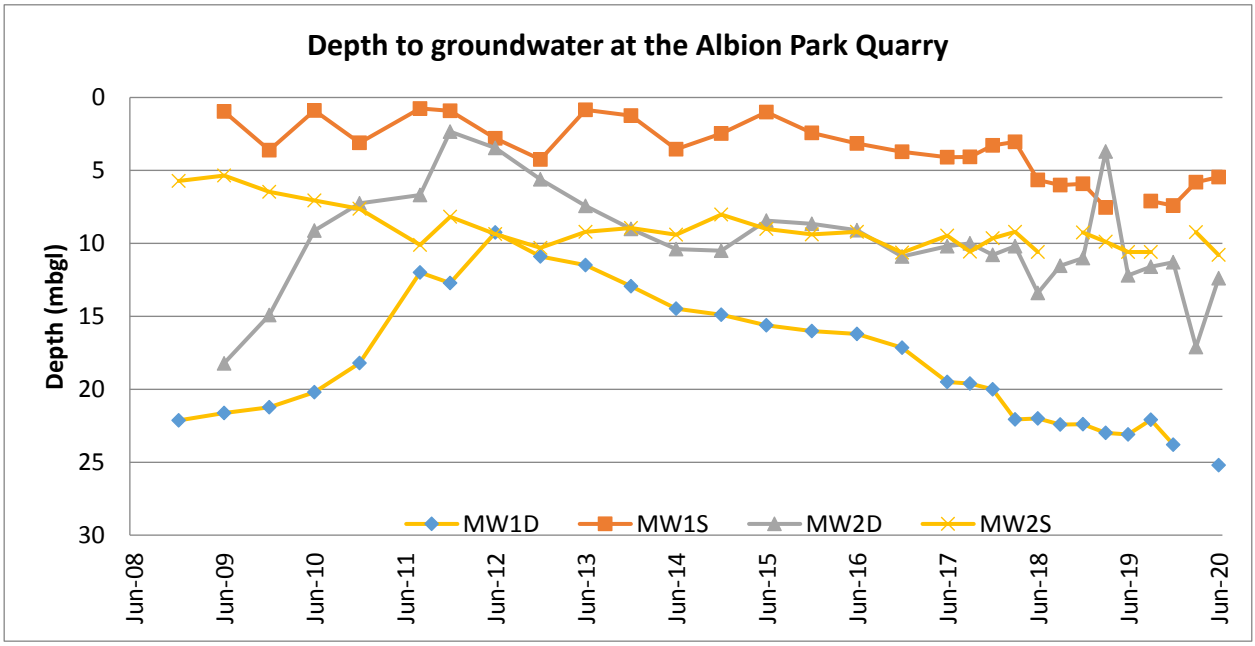
CB has implemented the Groundwater Monitoring Programme at the Albion Park Quarry, with the two shallow and two deep groundwater monitoring bores measured quarterly each during the reporting period for the parameters listed in the table above. MW1S and MW2S represent the shallow groundwater monitoring bores, screened between 4 and 11 metres and 6 and 13 metres respectively below ground level. Monitoring bores MW1D and MW2D represent the deep groundwater monitoring bores located adjacent to the respective shallow bores, and are both screened between 18 and 25 metres below ground level. The wells are located down gradient to the south of the quarry as shown on Annexure B.

3.2.3 Groundwater Monitoring Results

A summary of groundwater monitoring results for the period is displayed in this section, separated into analyte groupings monitored under the Water Management Plan. For each analyte, the range and average of the current period's monitoring are tabulated, alongside the historical range and average. For each analyte, a graph is also included showing the historical variations in measurements for each groundwater bore since establishment. As no criteria are specified for groundwater level or quality in the EIS or Development Consent, no comparison is available in relation to groundwater monitoring.

Depth (mbgl)

BORE HOLE	2019/20 Reporting Period			Historical Results		
	Min	Ave	Max	Min	Ave	Max
MW1D	22.1	23.70	25.2	9.26	17.74	23.1
MW1S	5.45	6.44	7.4	0.75	3.14	7.55
MW2D	11.3	13.10	17.1	2.34	9.41	18.22
MW2S	9.23	10.21	10.8	5.35	8.93	10.64

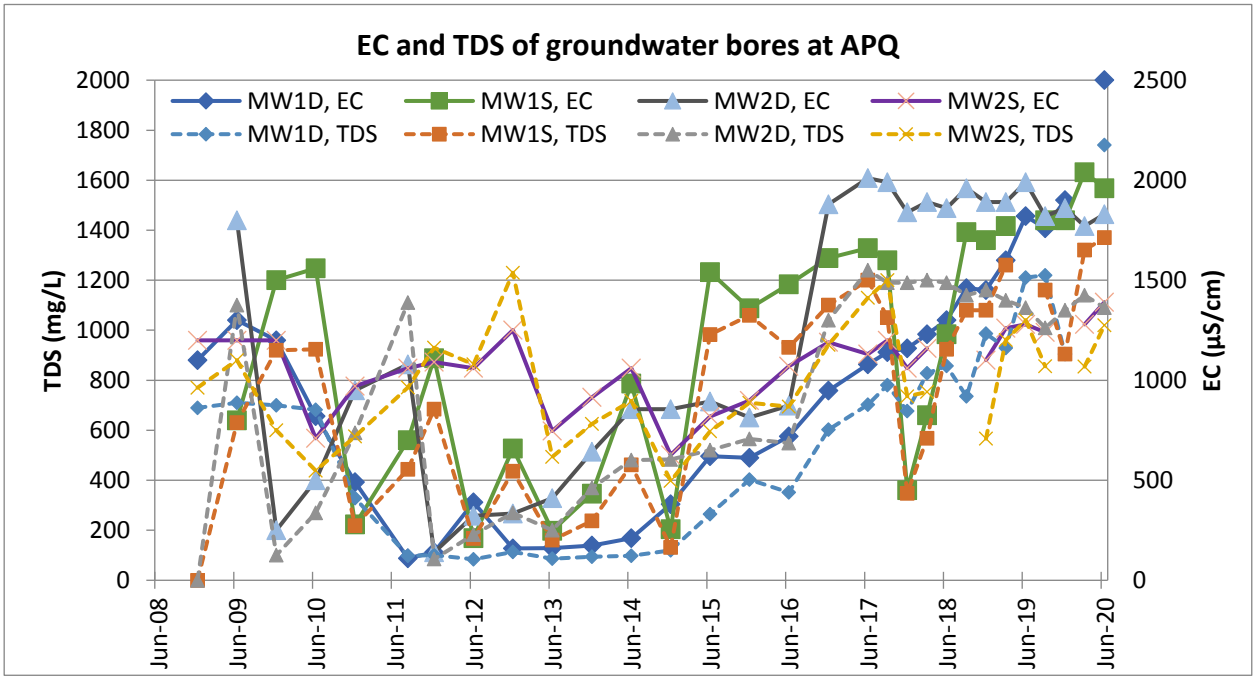


Groundwater levels in the deep monitoring bores have generally declined in the previous 12 months, while the shallow monitoring bores have generally remained stable. The shallow monitoring bores recorded a sharp increase in the groundwater level in the March sampling event, which is likely attributable to the excellent rainfall observed in February. Meanwhile, the deeper groundwater monitoring bores did not respond to this rainfall spike, with groundwater levels reflecting the much longer term rainfall deficit. Bores MW1D and MW2S both experienced water levels below the historical range of records, and MW2S was observed dry in the December 2019 sample. Quarry extraction included the closest point to the MW1 bores

during the current reporting period, with bore MW1S showing no obvious effect of this trend, while MW1D continued the overall downward trend expressed over the past 8 years, to be at similar levels to what it was at the commencement of quarrying in the Quarry Extension Area.

Electrical Conductivity (µS/cm) and Total Dissolved Solids (mg/L)

EC µS/cm	2019/20 Reporting Period			Historical Results			Pre-quarrying maximum
	Min	Ave	Max	Min	Ave	Max	
MW1D	1760	2053	2500	110	837	1820	2700
MW1S	1800	1900	2040	211	1071	1770	1236
MW2D	1770	1820	1860	140	1197	2010	2000
MW2S	1240	1303	1390	627	1052	1280	1305
TDS mg/L	**2019/20 Reporting Period**			**Historical Results**			
	Min	Ave	Max	Min	Ave	Max	
MW1D	736	966	1210	84	426	857	
MW1S	1080	1140	1260	131	647	1200	
MW2D	1090	1128	1160	85	663	1240	
MW2S	566	856	1040	397	765	1230	

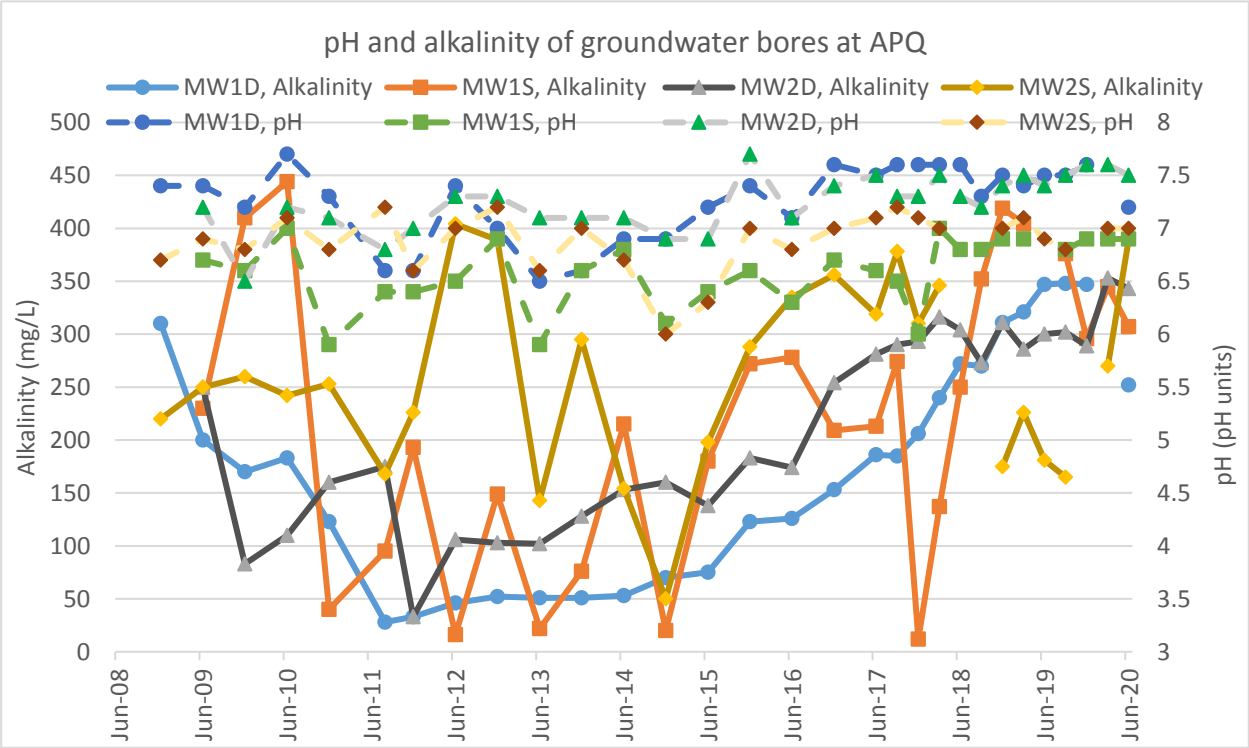


The electrical conductivity (EC) and total dissolved solids (TDS) of groundwater bores have been highly varied throughout the historical period of monitoring. During the current monitoring period, the EC and TDS of all bores have continued to increase in bores MW1S and MW1D, while measurements in bores MW2S and MW2D have remained stable, with fluctuations in the shallow bores greater than the deeper monitoring bores, as has been the pattern historically. During the current reporting period, the EC of the shallow bores was recorded above the historical ranges of the respective bores. Furthermore, the TDS of MW1S and MW1D were both recorded above the historical ranges for the respective bores. The electrical conductivity and TDS of the deeper groundwater monitoring bores appears to be following a rough inverse of water level, suggesting higher volumes of water in the aquifer are mirrored by lower ion concentrations, which may be expected in a localised groundwater system that is dependent on rainfall.

The electrical conductivity levels recorded in all bores were at times above the levels nominated in the Water Management Plan requiring additional monitoring for dissolved metals. The testing for the full metals suite confirmed that the increase in electrical conductivity was not associated with any decrease in groundwater quality in relation to dissolved metals concentration and likely to be associated with the ongoing rainfall deficit experienced during the reporting period.

pH and Alkalinity

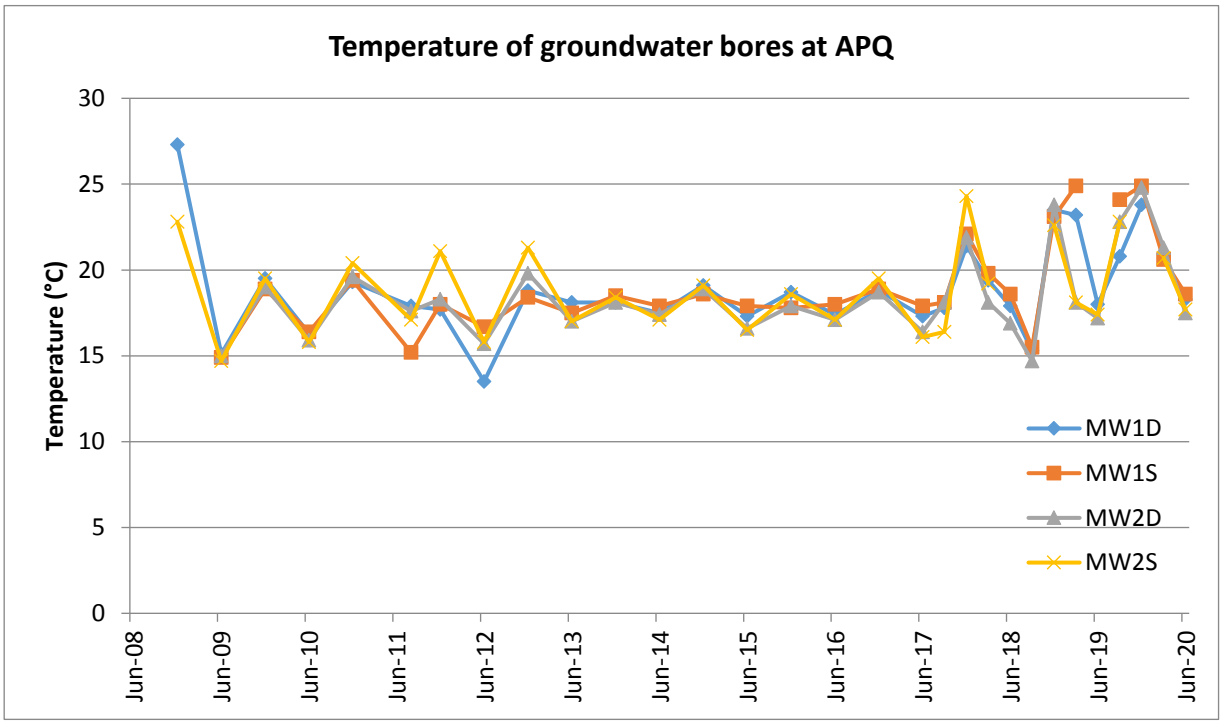
pH pH units	2019/20 Reporting Period			Historical Results		
	Min	Ave	Max	Min	Ave	Max
MW1D	7.2	7.4	7.6	6.5	7.2	7.7
MW1S	6.8	6.9	6.9	5.9	6.6	7.0
MW2D	7.5	7.6	7.6	6.5	7.2	7.7
MW2S	6.8	6.9	7.0	6.0	6.9	7.2
Alkalinity mg/L as $CaCO_3$	**2019/20 Reporting Period**			**Historical Results**		
	Min	Ave	Max	Min	Ave	Max
MW1D	252	316	348	28	161	347
MW1S	296	331	376	12	205	444
MW2D	289	322	353	33	199	316
MW2S	165	275	390	50	257	404



The pH measured in all groundwater bores has remained stable within a very narrow range in the current reporting period and within the historical averages of the respective bores. Alkalinity has also largely stabilised from increases seen in previous reporting periods, with the exception of bore MW2D which reported an increase above the historical range for this bore, albeit within the typical variability observed. These steady alkalinity concentrations indicate the buffering capacity of the groundwater has remained appropriate in recent times, ensuring the chemistry of the groundwater resource is well placed to respond to any adverse external influences.

Temperature (°C)

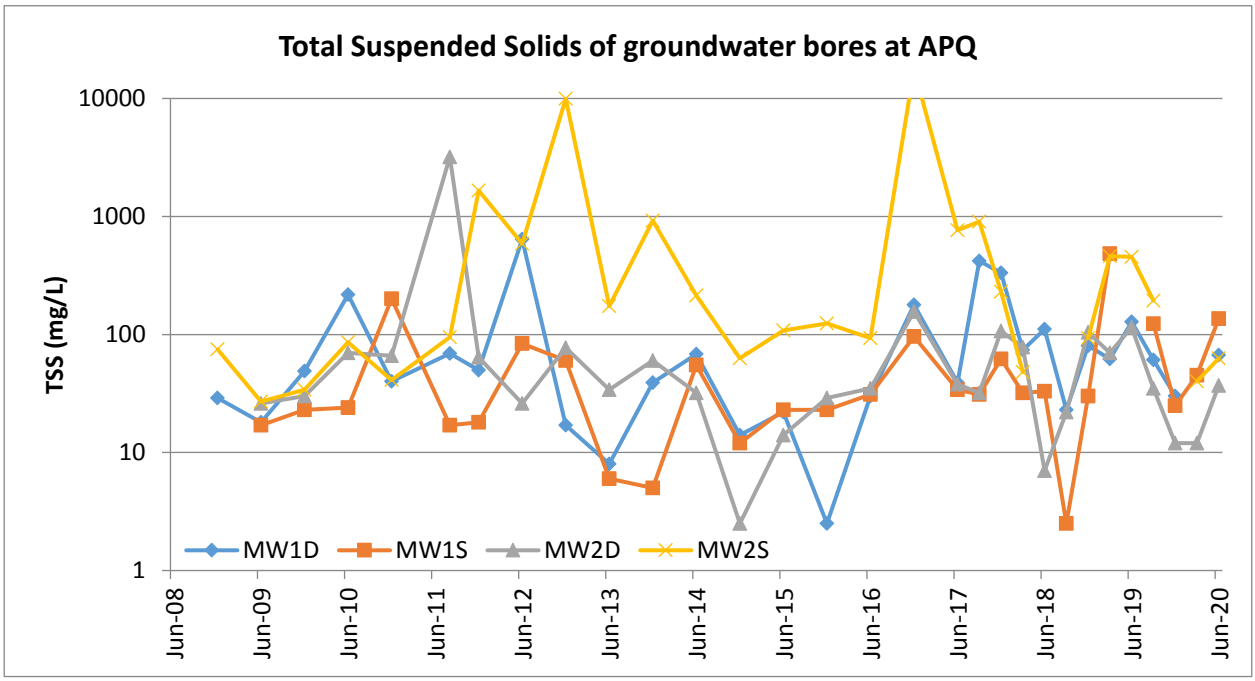
Temperature °C	2019/20 Reporting Period			Historical Results		
	Min	Ave	Max	Min	Ave	Max
MW1D	18.3	21.0	23.8	13.5	18.6	27.3
MW1S	18.6	22.1	24.9	14.9	18.5	24.9
MW2D	17.5	21.6	24.8	14.7	17.9	23.8
MW2S	17.7	20.4	22.8	14.7	18.6	24.3



As expected, water temperature has fluctuated according to the season and remains generally consistent with the historical range.

Total Suspended Solids (mg/L)

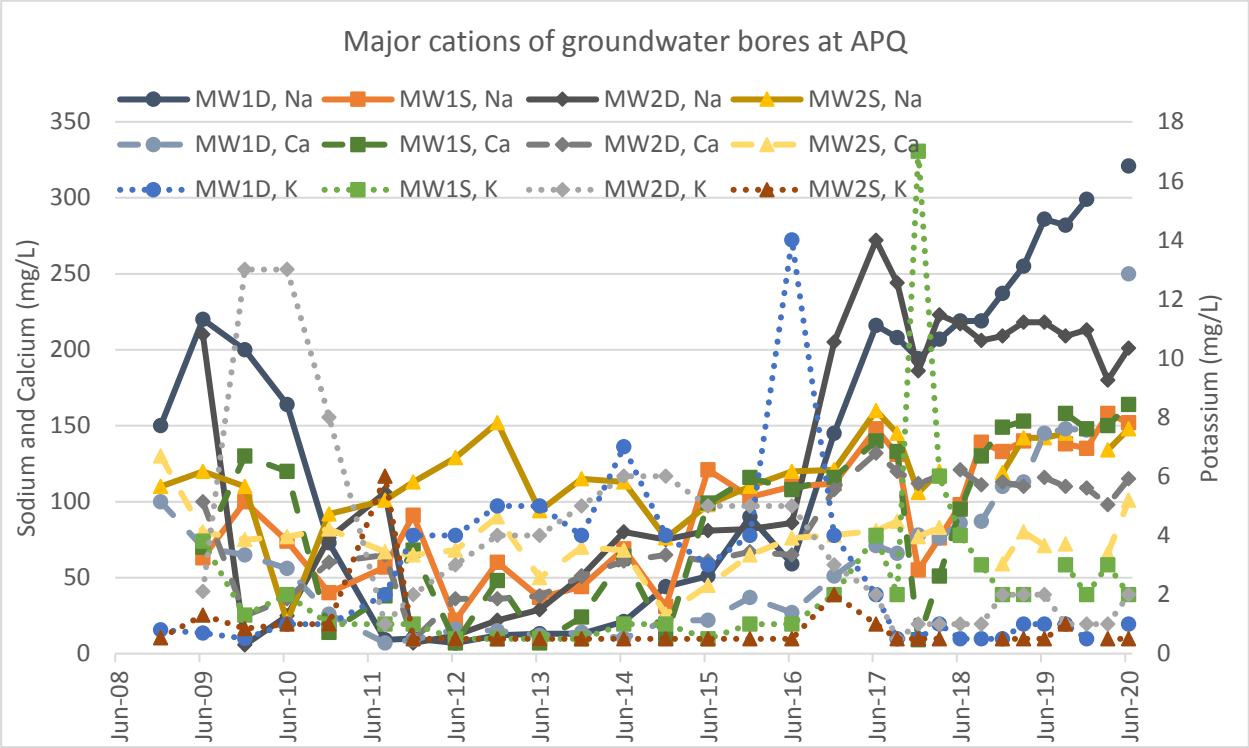
TSS mg/L	2019/20 Reporting Period			Historical Results		
	Min	Ave	Max	Min	Ave	Max
MW1D	30	53	67	<5	106	640
MW1S	25	82	136	<5	58	483
MW2D	12	24	37	<5	180	3200
MW2S	40	99	194	27	1459	17800



The total suspended solids (TSS) measured in all bores has remained within historical levels for the respective bores in the current reporting period. TSS has shown significant variability in the current reporting period, consistent with the historical trend of inherent variability. Note a logarithmic scale has been used in the historical graph above to show variation across the full range of magnitudes.

Major Cations (Sodium, Potassium, Calcium – mg/L)

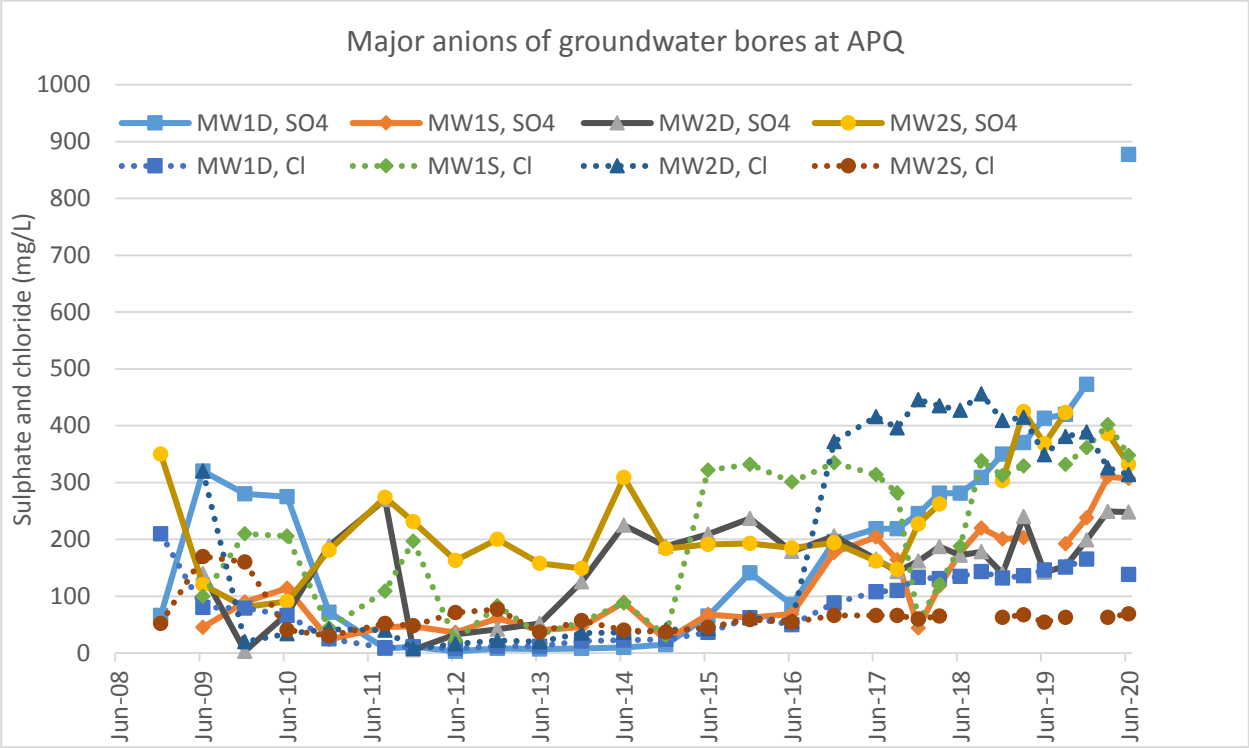
Sodium mg/L	2019/20 Reporting Period			Historical Results		
	Min	Ave	Max	Min	Ave	Max
MW1D	282	301	321	7	128	286
MW1S	135	146	158	22	86	148
MW2D	180	201	213	5.7	126	272
MW2S	134	142	148	21	114	160
Potassium mg/L	**2019/20 Reporting Period**			**Historical Results**		
	Min	Ave	Max	Min	Ave	Max
MW1D	<1	1	1	<1	3	14
MW1S	2	3	3	<1	2	17
MW2D	1	1	2	<1	4	13
MW2S	<1	<1	1	<1	1	6
Calcium mg/L	**2019/20 Reporting Period**			**Historical Results**		
	Min	Ave	Max	Min	Ave	Max
MW1D	147	182	250	7	54	145
MW1S	148	155	164	7	79	153
MW2D	98	108	115	9	77	132
MW2S	66	80	101	26	73	130



Concentrations of all major cations have for the most part stabilised in the current reporting period, with the exception of sodium and calcium ions in bore MW1D, which have risen in line with increases in TDS. Other than these two analytes all results have been consistent with the historical ranges of the respective bores, with some inherent variability in results typical of past trends.

Major Anions (Sulphate, Chloride – mg/L)

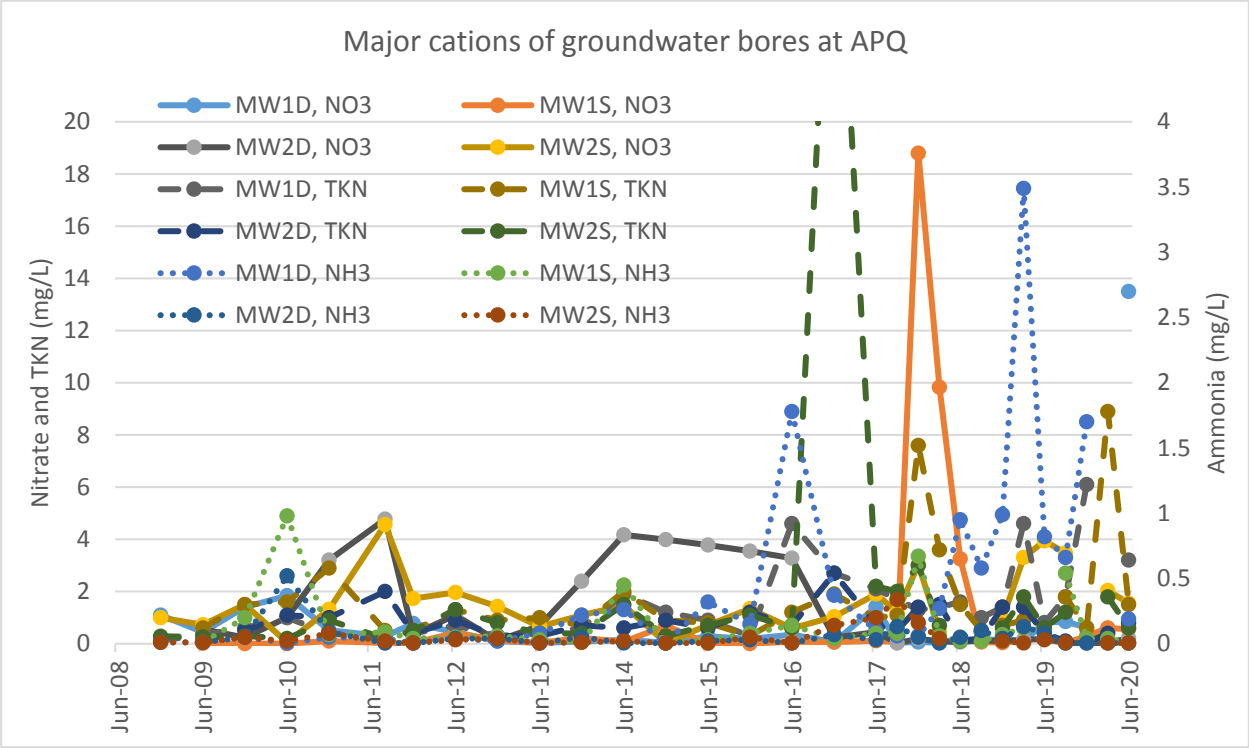
Sulphate mg/L	2019/20 Reporting Period			Historical Results		
	Min	Ave	Max	Min	Ave	Max
MW1D	420	590	877	3	164	413
MW1S	192	262	310	23	99	220
MW2D	153	212	249	3.3	148	270
MW2S	332	380	423	81	215	425
Chloride mg/L	**2019/20 Reporting Period**			**Historical Results**		
	Min	Ave	Max	Min	Ave	Max
MW1D	138	151	165	8	77	210
MW1S	332	361	402	22	184	338
MW2D	314	353	389	8	197	456
MW2S	63	65	69	30	64	170



Sulphate concentrations have largely mirrored recent changes in TDS, while chloride ion concentrations have generally remained stable and consistent with the historical record. All bores have shown significant variability in chloride and sulphate concentrations in the current reporting period, which is a common feature observed throughout the historical monitoring record.

Nitrogen Species (Nitrate, Ammonia and Total Kjeldahl Nitrogen – mg/L)

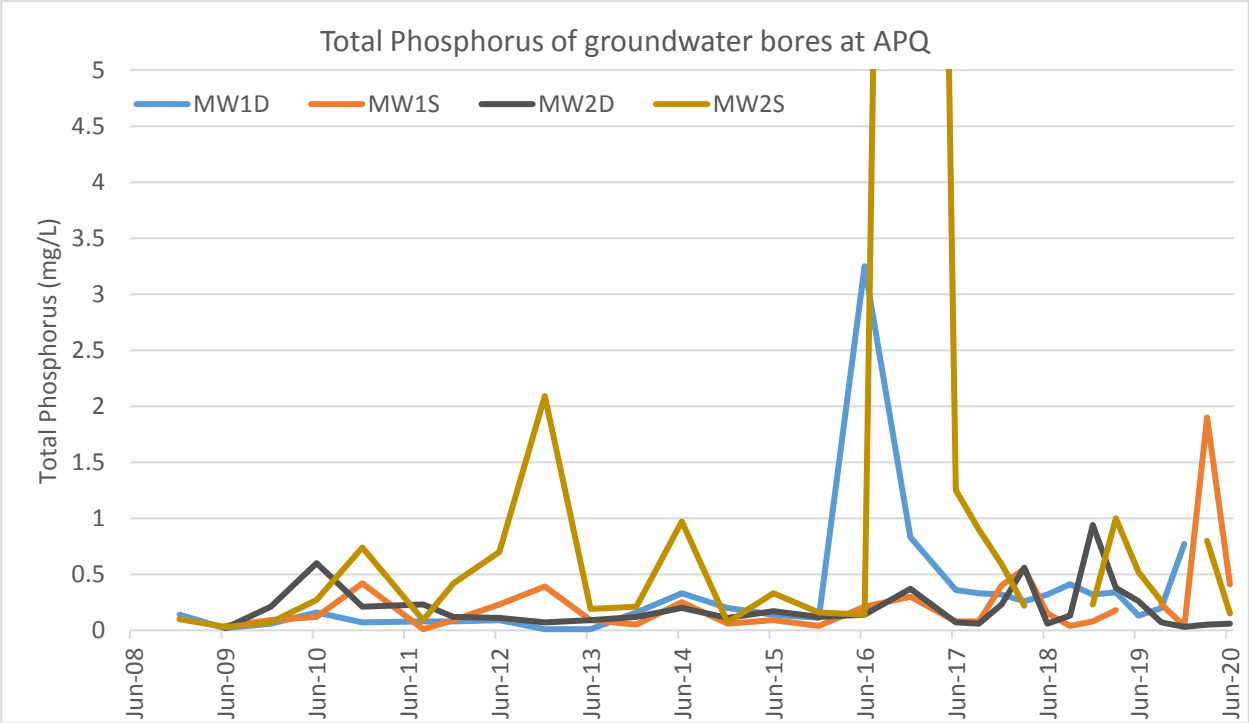
Nitrate as N mg/L	2019/20 Reporting Period			Historical Results		
	Min	Ave	Max	Min	Ave	Max
MW1D	0.62	4.99	13.5	0.03	0.43	1.84
MW1S	0.03	0.37	0.61	0.005	1.42	18.8
MW2D	0.01	0.07	0.21	0.03	1.39	4.77
MW2S	1.55	2.35	3.47	0.04	1.50	4.57
Ammonia as N mg/L	**2019/20 Reporting Period**			**Historical Results**		
	Min	Ave	Max	Min	Ave	Max
MW1D	0.19	0.85	1.7	<0.01	0.41	3.49
MW1S	<0.01	0.16	0.54	<0.01	0.14	0.98
MW2D	<0.01	<0.01	<0.01	<0.01	0.06	0.52
MW2S	<0.01	<0.01	0.01	<0.01	0.05	0.34
TKN as N mg/L	**2019/20 Reporting Period**			**Historical Results**		
	Min	Ave	Max	Min	Ave	Max
MW1D	0.8	2.0	4.6	0.1	1.1	4.6
MW1S	0.5	0.7	0.9	0.3	1.6	7.6
MW2D	0.2	0.9	1.4	0.1	0.9	2.7
MW2S	0.6	1.1	1.8	0.2	2.4	31.9



Measurements of all nitrogen species during the reporting year were within the historical levels for each bore, with the exception of a single nitrate sample in bore MW1D. All species show variations consistent with the fluctuations observed over the past four years with the growing rainfall deficit.

Total Phosphorus (mg/L)

Phosphorus mg/L	2019/20 Reporting Period			Historical Results		
	Min	Ave	Max	Min	Ave	Max
MW1D	0.04	0.36	0.77	0.01	0.33	3.25
MW1S	0.03	0.65	1.9	0.01	0.17	0.55
MW2D	0.15	0.05	0.07	0.02	0.22	0.94
MW2S	0	0.40	0.8	0.03	1.56	26.2



The concentration of total phosphorus in the groundwater has been measured at typical levels during the current reporting period, with some natural variability evident consistent with past years. All bores recorded total phosphorus concentrations within their respective historical ranges, with the exception of a single sample from bore MW1S in March 2020, which returned to the historical average for the following sample.

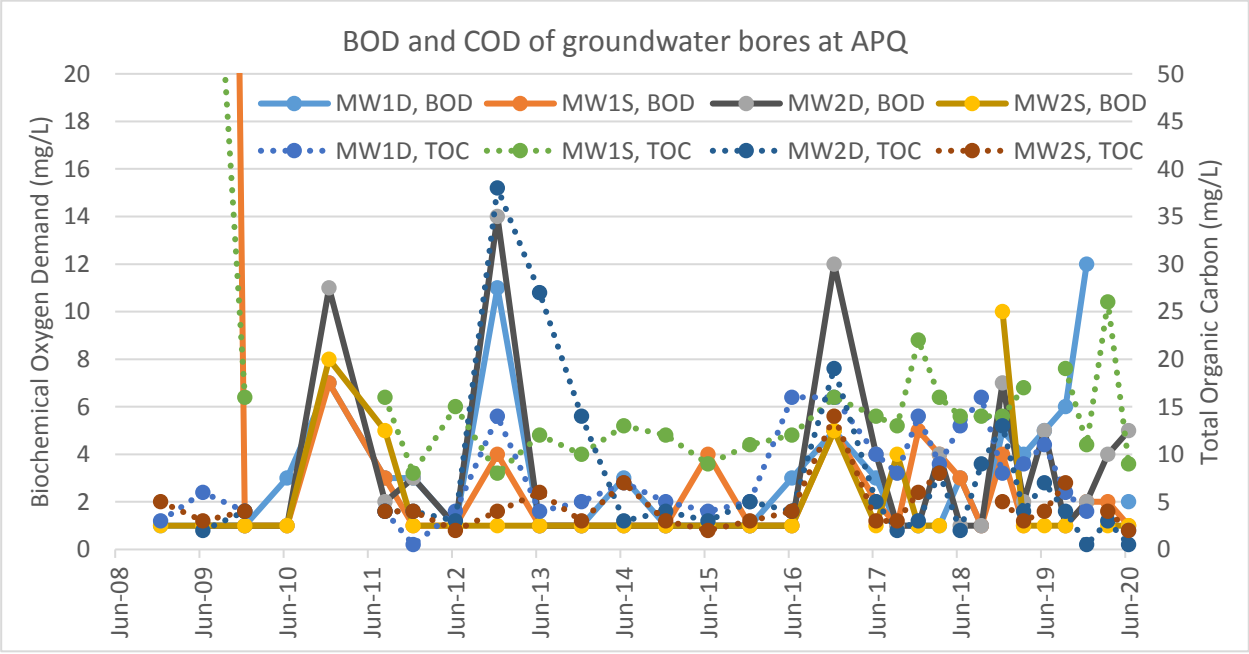
Oil and Grease (mg/L)

Oil and Grease mg/L	2019/20 Reporting Period			Historical Results		
	Min	Ave	Max	Min	Ave	Max
MW1D	<5	<5	<5	<5	<5	8
MW1S	<5	<5	<5	<5	<5	13
MW2D	<5	<5	<5	<5	<5	6
MW2S	<5	<5	<5	<5	<5	8

Concentrations of oil and grease in the groundwater monitoring bores remained below the limit of reporting throughout the current reporting period. This is consistent with historical results.

Biochemical Oxygen Demand (mg/L) and Total Organic Carbon (mg/L)

BOD mg/L	2019/20 Reporting Period			Historical Results		
	Min	Ave	Max	Min	Ave	Max
MW1D	2	7	12	<2	3	11
MW1S	<2	2	2	<2	9	150
MW2D	<2	3	5	<2	3	14
MW2S	<2	<2	<2	<2	2	10
TOC mg/L	**2019/20 Reporting Period**			**Historical Results**		
	Min	Ave	Max	Min	Ave	Max
MW1D	2	4	6	<1	8	16
MW1S	9	16	26	8	17	88
MW2D	<1	2	4	2	8	38
MW2S	2	4	7	2	5	14



The results for Biochemical Oxygen Demand and Total Organic Carbon in the current reporting period are low and generally consistent with historical results.

Total Dissolved Metals (mg/L)

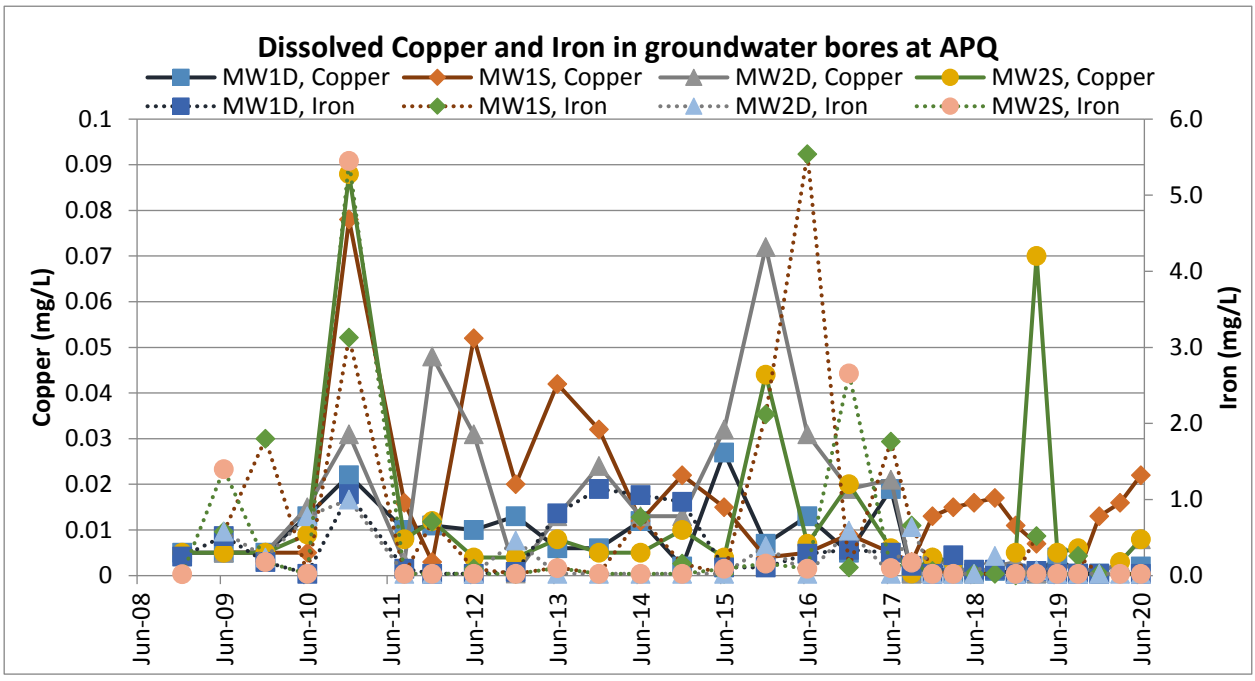
Concentrations of copper, iron, nickel and zinc are routinely measured in groundwater bores at the Albion Park Quarry, with this sampling programme extended to arsenic, cadmium, chromium, lead and mercury where the electrical conductivity triggers are met as described in Section 3.2.1.

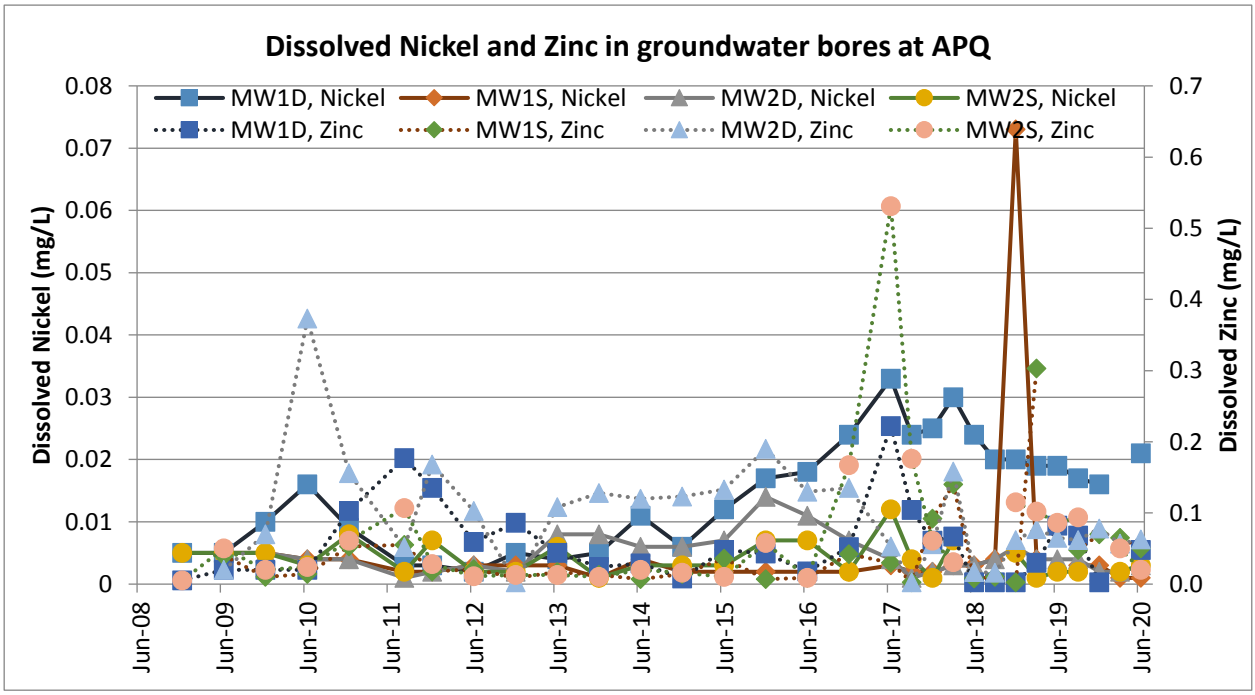
Dissolved Copper mg/L	2019/20 Reporting Period			Historical Results		
	Min	Ave	Max	Min	Ave	Max
MW1D	<0.001	0.001	0.002	<0.001	0.008	0.027
MW1S	<0.001	0.013	0.022	<0.01	0.017	0.078
MW2D	<0.001	0.003	0.008	<0.001	0.016	0.072
MW2S	<0.001	0.006	0.008	<0.001	0.014	0.088
Dissolved Iron mg/L	**2019/20 Reporting Period**			**Historical Results**		
	Min	Ave	Max	Min	Ave	Max
MW1D	<0.05	<0.05	<0.05	<0.05	0.31	1.14
MW1S	<0.05	0.08	0.26	<0.05	0.76	5.54
MW2D	<0.05	<0.05	<0.05	<0.05	0.22	1.00
MW2S	<0.05	<0.05	<0.05	<0.05	0.45	5.45
Dissolved Nickel mg/L	**2019/20 Reporting Period**			**Historical Results**		
	Min	Ave	Max	Min	Ave	Max
MW1D	0.016	0.018	0.021	<0.01	0.014	0.033
MW1S	0.001	0.002	0.003	<0.01	0.006	0.073
MW2D	0.002	0.003	0.004	<0.01	0.005	0.014
MW2S	0.002	0.002	0.003	<0.01	0.004	0.012
Dissolved Zinc mg/L	**2019/20 Reporting Period**			**Historical Results**		
	Min	Ave	Max	Min	Ave	Max
MW1D	<0.005	0.040	0.068	<0.005	0.056	0.22
MW1S	0.048	0.058	0.070	<0.005	0.040	0.30
MW2D	0.057	0.065	0.078	<0.005	0.101	0.37
MW2S	0.020	0.055	0.094	<0.01	0.072	0.53
Dissolved Arsenic mg/L	**2019/20 Reporting Period**			**Historical Results**		
	Min	Ave	Max	Min	Ave	Max
MW1D	0.001	0.001	0.002	<0.001	0.002	0.005
MW1S	0.0005	0.002	0.005	<0.01	0.003	0.006
MW2D	0.002	0.003	0.004	<0.001	0.002	0.005
MW2S	<0.001	<0.001	<0.001	<0.001	0.002	0.005
Dissolved Cadmium mg/L	**2019/20 Reporting Period**			**Historical Results**		
	Min	Ave	Max	Min	Ave	Max
MW1D	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0002
MW1S	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002
MW2D	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004
MW2S	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0171
Dissolved Chromium mg/L	**2019/20 Reporting Period**			**Historical Results**		
	Min	Ave	Max	Min	Ave	Max
MW1D	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW1S	<0.001	<0.001	0.001	<0.001	<0.001	0.001
MW2D	<0.001	<0.001	<0.001	<0.001	<0.001	0.001

MW2S	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Dissolved Lead mg/L	2019/20 Reporting Period			Historical Results		
	Min	Ave	Max	Min	Ave	Max
MW1D	<0.001	<0.001	0.001	<0.001	0.005	0.047
MW1S	<0.001	<0.001	<0.001	<0.001	0.002	0.010
MW2D	<0.001	<0.001	<0.001	<0.001	0.001	0.005
MW2S	<0.001	<0.001	<0.001	<0.001	0.003	0.012

Dissolved Mercury mg/L	2019/20 Reporting Period			Historical Results		
	Min	Ave	Max	Min	Ave	Max
MW1D	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.01
MW1S	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.01
MW2D	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.01
MW2S	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.01





Concentrations of all dissolved metals remained low during the reporting period and within historical ranges of the respective analytes. Dissolved copper, iron, nickel and zinc concentrations showed similar patterns of natural variability to the historical results for these analytes, indicating no deterioration in groundwater quality related to concentrations of dissolved metals.

All bores were tested for the extended metals suite at various times throughout the reporting period where the electrical conductivity trigger for extended metals testing was met. Most results returned below the limit of reporting for the respective analytes, and all were within the historical ranges for the respective bores and analytes, evidence that the elevated electrical conductivity is not related to increases in these trace metals. The stable concentrations of all dissolved metals tested in all monitoring bores show that there was no decline in groundwater quality in relation to trace metals, despite the extended rainfall deficit and lower groundwater levels.

3.2.4 Groundwater Monitoring Results Interpretation

The groundwater monitoring program has provided an insight into the hydrogeological regime around the Albion Park Quarry, with the extended period of monitoring useful for highlighting any changes to groundwater quality and quantity that are outside of natural factors.

The extended dry period has contributed to a reduction in water levels in the groundwater monitoring bores across the site. The general increase in electrical conductivity, total dissolved solids, and concentrations of some major ions, is likely related to the general reduction in rainfall contributions of these localised aquifers. Despite this, concentrations of trace metals have been relatively unchanged in the current reporting period, with no deterioration in quality evident as a product of dissolved metal concentrations. It is expected that climatic impacts will continue to be the primary driver of groundwater quantity and quality in the vicinity of the site.

There are no specific objectives or targets for groundwater described in either the DC or EPL, and as such there is no opportunity to assess compliance against these legislative instruments. The Environmental Impact Statement for the project predicts groundwater availability in the shallow surface aquifer to decline as a result of quarrying operations, with the related impact of reduced surface water flows in the local watercourses. Certain bores exhibited trends that were outside of the historical range of measurements for groundwater level (MW1D) and certain species related to salinity (TDS, EC, major ions, in MW1S and MW1D). As a result and in line with the Water Management Plan, sampling of these species will be increased to monthly for the next 6 months to allow a better understanding of current dynamics in the groundwater system, and whether quarrying activities are contributing to these changes or if they are principally related to the current climatic environment.

All activities related to groundwater management in the current reporting period have proceeded as per the requirements of the DC and Water Management Plan for the project, and as such no non-compliances have been observed relating to groundwater management over this period.

The monitoring program has historically involved biannual sampling of each bore, which was increased in 2017 to quarterly monitoring. This has allowed greater resolution regarding variations in groundwater quantity and quality, however at this time it is proposed to increase the sampling of groundwater level and major ion concentration to monthly for the next 6 months, while other analytes will continue to be sampled quarterly.

3.3 Surface Water Monitoring

3.3.1 Standards and Performance Measures

The EPL for the Albion Park Quarry requires the monitoring of Sewage Treatment Plant effluent quality, as well as discharge and receiving water quality as detailed below.

The DC requires the implementation of a Water Management Plan (incorporating a Surface Water Monitoring Program), which outlines the monitoring requirements related to surface water management,

which was most recently revised in 2018. The DC also requires the water quality monitoring of any discharges from the quarry, mirroring the conditions of the EPL.

The following monitoring schedules are in place to meet the requirements of the EPL and surface water monitoring program.

Location	Analyte	Units	EPL Limit	Frequency
Sewage Treatment Plant	Biochemical Oxygen Demand	mg/L	150	Quarterly
	Oil and Grease	mg/L	30	
	Total Suspended Solids	mg/L	50	
Quarry Extension Discharge	pH	pH units	6.5 – 8.5#	Daily during discharge
	Turbidity	NTU	32.2#	
Main Sedimentation Pond	pH	pH units	6.5 – 8.5#	Daily during overflow
	Total Suspended Solids	mg/L	50#	
Watercourse West of Quarry Manager's Office	pH	pH units		Daily during overflow of main sedimentation pond
	Total Suspended Solids	mg/L		
Watercourse 1 and Watercourse 2	Discharge	L/s		Monthly
	Electrical Conductivity	µS/cm		Quarterly
	pH	pH units		
	Temperature	°C		
	Turbidity	NTU		
	Oil and Grease	mg/L		
	TSS & TDS	mg/L		
	Major Cations (Na, K, Ca)	mg/L		
	Major Anions (SO_4, Cl)	mg/L		
	Alkalinity	mg/L		
	Dissolved Metals (Cu, Fe)	mg/L		

Furthermore, where the electrical conductivity of Watercourse 1 exceeds 1,000 µS/cm or Watercourse 2 exceeds 1,700 µS/cm, the sampling suite will be extended to include additional dissolved metals for analysis (As, Cd, Cr, Ni, Pb, Hg, Zn). Where EPL water quality limits apply, these are included in the table above, with the symbol # depicting limits that are also contained in the development consent. Furthermore, the aim of the surface water quality monitoring programme is to ensure no exceedance of licence conditions and to assess the potential relationships between surface water and groundwater.

The EIS for the Albion Park Quarry predicted that the operations would have negligible impact on surface water quality, however releases of water captured in the quarry sump may be required to sustain natural surface water flow volumes of the local watercourses.

3.3.2 Environmental Performance

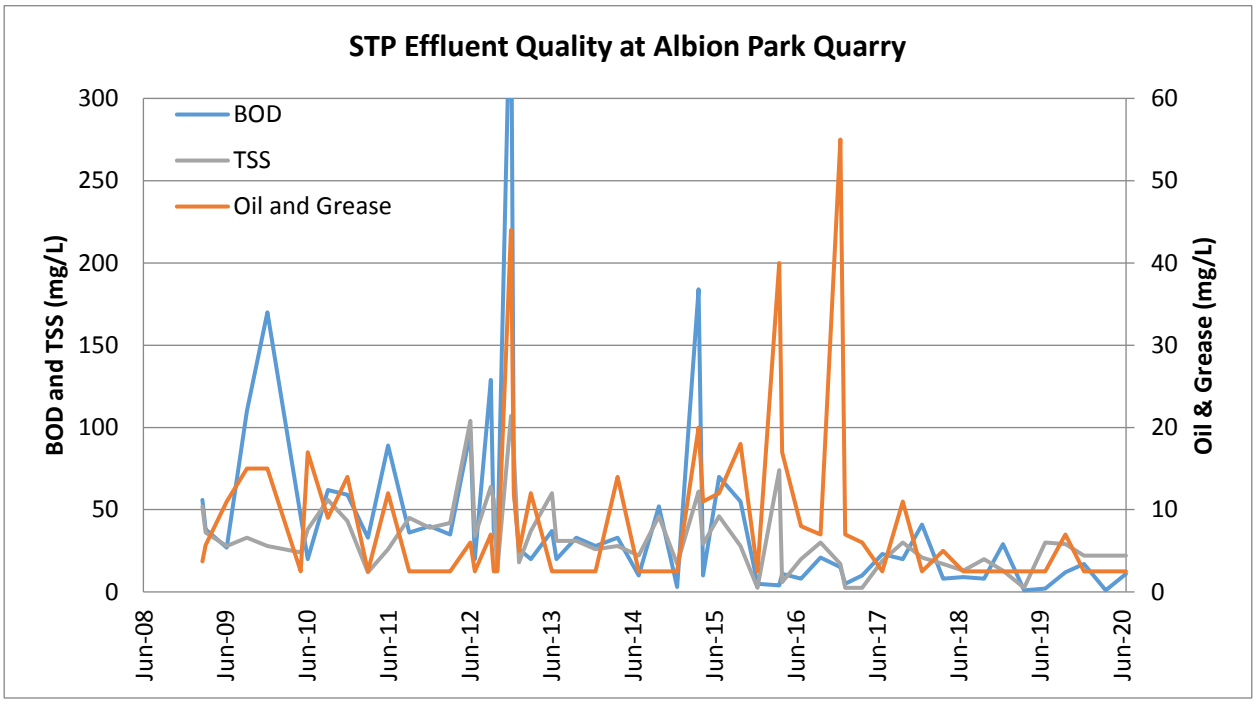
CB has implemented the Surface Water Monitoring Program at the Albion Park Quarry, with all routine sampling undertaken as required by the table above. During the reporting period, water was discharged from the sump in the Quarry Extension on 3 occasions across 11 days in February 2020, with daily sampling of water quality undertaken as specified by the table above.

3.3.3 Surface Water Monitoring Results

A summary of surface water monitoring results for the period is displayed in this section, separated into the various components as described in the table above. For each analyte, the range and average of the current period's monitoring are displayed, alongside the historical range and average. For each analyte, a historical graph is also included showing the variations in measurements for each sample point throughout the historical monitoring period. As no criteria are specified for surface water flow or quality in the EIS or Development Consent, no comparison is available in relation to surface water monitoring.

Sewage Treatment Plan Monitoring

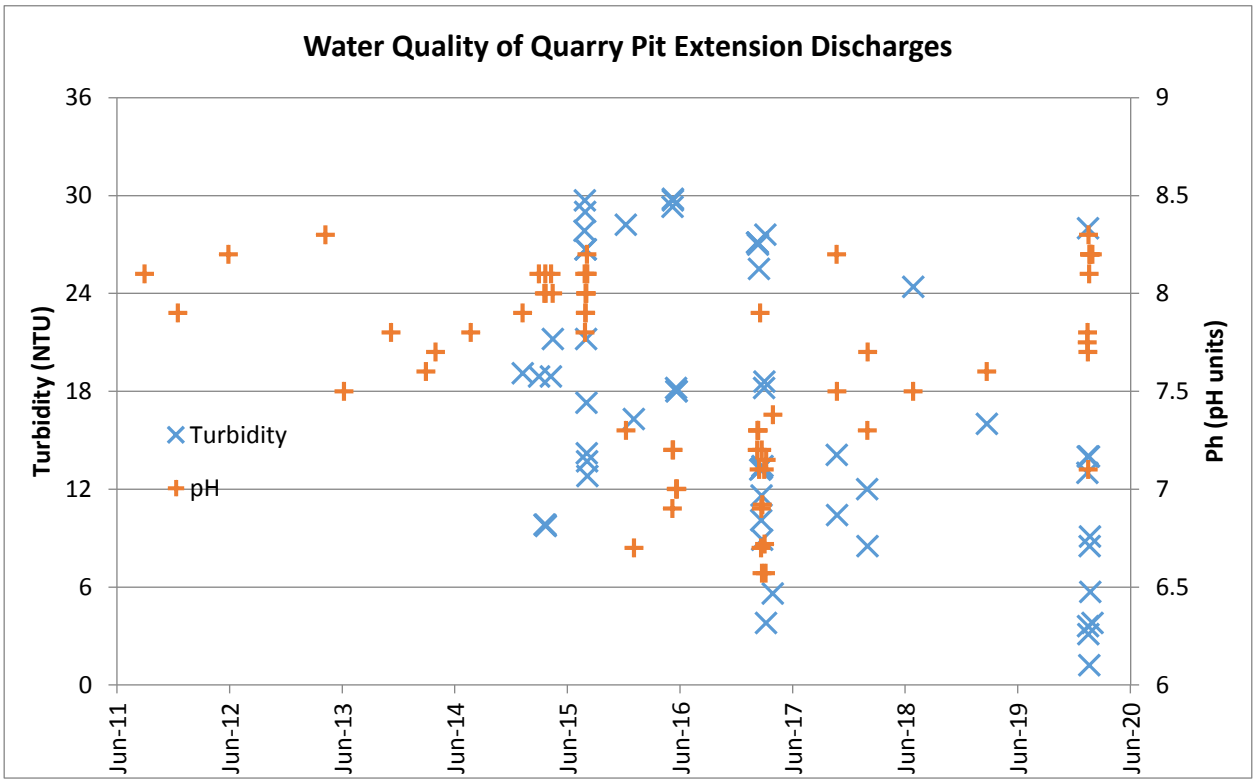
Analyte	Unit	2019/20 Reporting Period			Historical Results			DC limit	EPL trigger
		Min	Ave	Max	Min	Ave	Max		
Oil and Grease	mg/L	<5	<5	7	<5	9	55	N/A	30
TSS	mg/L	22	24	29	<5	34	107	N/A	50
BOD	mg/L	<2	10	17	<2	46	387	N/A	150



All analytes measured at the Sewage Treatment Plant were within EPL triggers in the current reporting period, and within the historical range of measurements for the respective analytes. All measurements of the STP effluent show improvements in consistency when compared to the historical performance, with average concentrations of all analytes below their historical averages. There were no predictions relevant to STP effluent in the EIS for the project.

Quarry Extension Discharge Monitoring

Analyte	Unit	2019/20 Reporting Period			Historical Results			DC limit	EPL limit
		Min	Ave	Max	Min	Ave	Max		
pH	pH units	7.1	8.0	8.3	6.2	7.4	8.2	6.5 – 8.5	6.5 – 8.5
Turbidity	NTU	1.2	9.5	28.0	3.8	18.8	29.8	32.2	32.2



All discharges from the Quarry Extension complied with the limits of the EPL and DC for turbidity and pH during the current reporting period. All results were also within or consistent with the historical ranges of the analytes tested.

The EIS recommended the surface release of captured water to be undertaken in short bursts associated with rainfall events, rather than uniform minor releases, and this has been achieved in the current reporting period through the fast release of water associated with rainfall events in February 2020. Outside of this February 2020, there were no rainfall events that contributed significant volumes of rainfall runoff to the extraction area. It is expected that discharge events will increase in number and duration in future years, as quarrying activities consume greater surface area within the catchment of Watercourse 1. The EIS predicted the project would not have a significant impact on water quality, as EPL limits are in place to govern the water quality of any discharges. As previously stated, all EPL limits were complied with in the current reporting period. The data and interpretation represents monitoring associated with discharges from the Quarry Pit Extension only.

Main Holding and Sedimentation Pond Monitoring

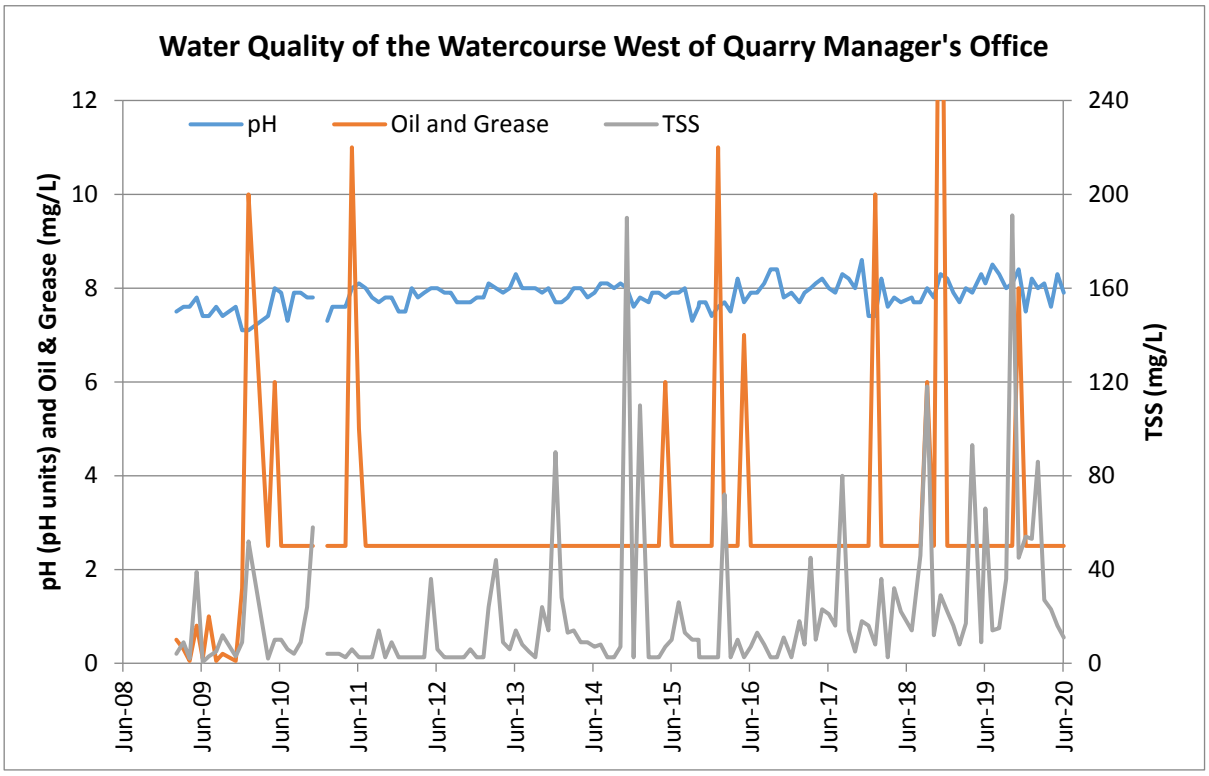
No discharges of water from the Main Holding and Sedimentation Pond Monitoring were undertaken during the current reporting period, and as such there was no requirement for any monitoring at this point.

Watercourse West of Quarry Manager's Office Monitoring

No discharges of water from the Main Holding and Sedimentation Pond Monitoring were undertaken during the current reporting period, and as such there was no requirement for any monitoring at this point. Nevertheless, monthly monitoring of water quality of the natural flows in this watercourse were undertaken for pH, Oil and Grease, and TSS. The results of this monitoring are summarised below.

Analyte	Unit	2019/20 Reporting Period			Historical Results			DC limit	EPL limit
		Min	Ave	Max	Min	Ave	Max		
pH	pH units	7.5	8.1	8.5	7.1	7.8	8.6	N/A*	N/A*
Oil & Grease	mg/L	<5	<5	8	<0.1	<5	20	N/A*	N/A*
TSS	mg/L	14	52	191	<1	17	190	N/A*	N/A*

* Not Applicable as there were no discharges of water from the Main Sedimentation Pond during the reporting period. Results reflect natural flow in watercourse.



Water quality of the watercourse was largely stable during the current reporting period, with all results in line with the historical range. No discharges were undertaken from the Main Sedimentation Pond during the period, and as such no DC or EPL limits were applicable, and there were no predictions from the EIS for this watercourse.

Watercourse 1 and Watercourse 2 Monitoring

Monitoring of the water quality of natural watercourses adjacent to the Quarry Extension were undertaken on a quarterly basis, while sampling of flow rates was undertaken monthly. The results of this monitoring have been separated into logical analyte groupings below. No DC or EPL limits are applicable in this instance, and as such there is no further discussion on their relationship to these regulatory instruments.

Flow Monitoring

Flow data is collected on a monthly basis from each of the watercourses. This data is sampled using one of two methods, depending on flow. The first method uses a flow meter measuring flow velocity across various sections of each stream, and when combined with measurements to calculate the cross-sectional area of each section, a total stream discharge in litre per second is able to be calculated. For lower flows, the flow is captured in a calibrated bucket, with the time taken to fill the bucket used to calculate stream discharge. Sampling is designed for safety and practicality reasons to be undertaken during periods of base flow outside of storm periods. Given the ephemeral nature of the streams, there are periods where no flow is measurable, with flow in Watercourse 2 often solely dependent on discharges from the adjacent quarry in the upper catchment of this stream. A summary of measured flows in the watercourses is included in the table below.

	Flow (L/sec)	
Month	WC1	WC2
Jul-19	No flow	No flow
Aug-19	No flow	No flow
Sep-19	No flow	No flow
Oct-19	No flow	No flow
Nov-19	No flow	No flow

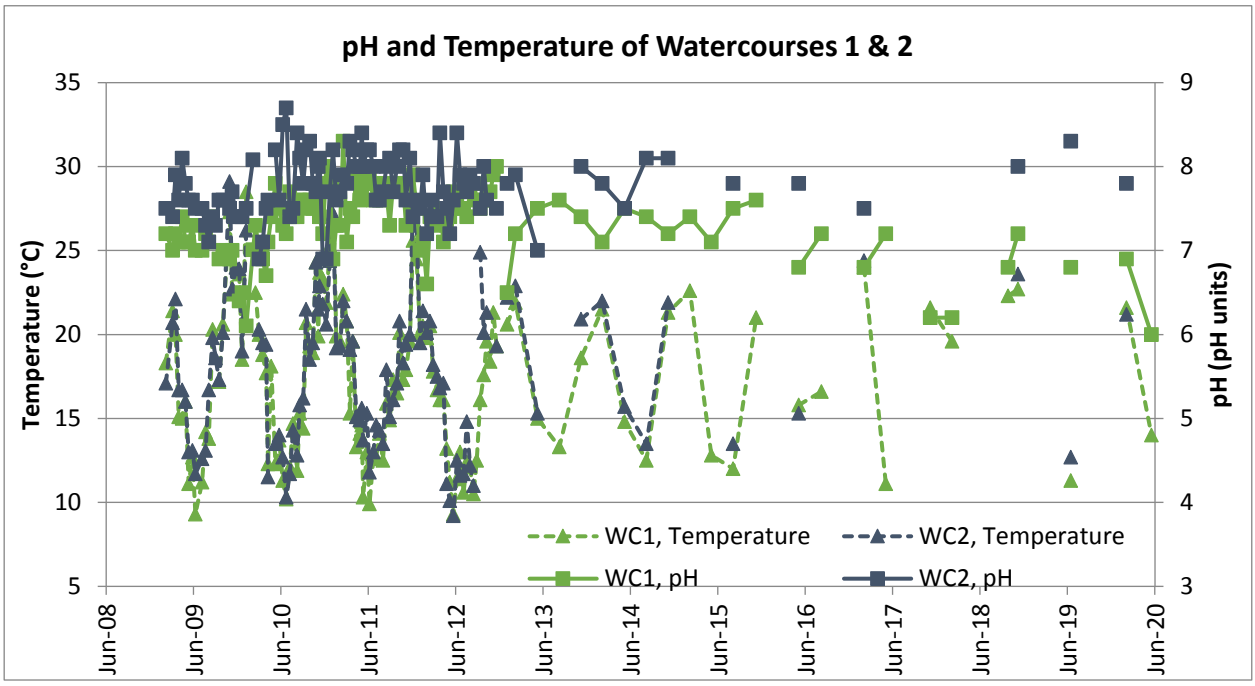
	Flow (L/sec)	
Month	WC1	WC2
Dec-19	No flow	No flow
Jan-20	No flow	No flow
Feb-20	No flow	59
Mar-20	No flow	No flow
Apr-20	No flow	No flow
May-20	No flow	No flow
Jun-20	No flow	No flow

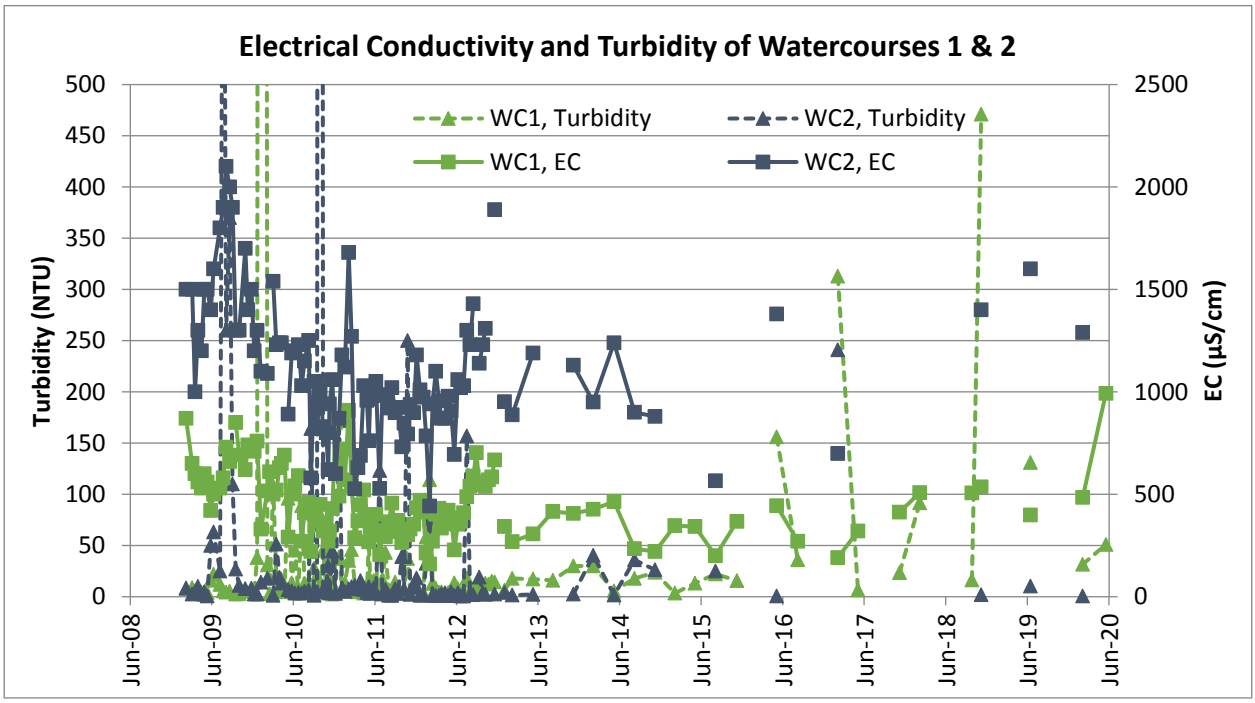
Flow monitoring undertaken during the current reporting period shows evidence of both the cumulative rainfall deficit which has affected both watercourses as well as the reduction in the catchment area of Watercourse 1. It should be noted that flow was only detected on one occasion for Water course 2 in the preceding reporting period. As described earlier, the flow monitoring is scheduled outside of rainfall events, such that only baseflow is captured, rather than the storm flows which likely make up a larger overall portion of the creek flows. Furthermore, the sampling point for Watercourse 1 is located immediately adjacent to the quarry pit, with its former tributaries absorbed into the quarry pit during the past year. As such, it would be unlikely that any baseflow would be recorded at this monitoring point, as had been forecast in previous Annual Reviews.

The EIS predicted that surface water flows in the watercourses may be affected by quarrying operations, with groundwater injection of captured water required if the rainforest vegetation associated with these watercourses showed signs of stress. Now that the catchment of Watercourse 1 has been consumed by quarrying activities, the flows in this watercourse are now largely dependent on discharges from the quarry pit. While the intermittent nature of these watercourses hinders the ability to make accurate interpretations regarding changes in flow, especially considering the rainfall dependent nature of these streams, biannual assessments of these ecosystems to date have shown no observable alterations in health, with water stress not identified in the rainforest assemblages. As such, the Albion Park Quarry has continued to manage water availability to the adjacent watercourses in line with EIS predictions and DC requirements.

Field measurements (EC, pH, Temperature, Turbidity)

pH	2019/20 Reporting Period			Historical Results			DC limit	EPL limit
pH units	Min	Ave	Max	Min	Ave	Max		
WC1	6.0	6.5	6.9	6.1	7.3	8.3	N/A	N/A
WC2	7.8	7.8	7.8	6.9	7.8	8.7	N/A	N/A
Temperature	**2019/20 Reporting Period**			**Historical Results**			**DC limit**	**EPL limit**
°C	Min	Ave	Max	Min	Ave	Max		
WC1	14.0	17.8	21.6	9.3	17.2	29.3	N/A	N/A
WC2	21.2	21.2	21.2	9.2	17.8	29.1	N/A	N/A
EC	**2019/20 Reporting Period**			**Historical Results**			**DC limit**	**EPL limit**
µS/cm	Min	Ave	Max	Min	Ave	Max		
WC1	485	739	993	160	455	910	N/A	N/A
WC2	1290	1290	1290	443	1112	2100	N/A	N/A
Turbidity	**2019/20 Reporting Period**			**Historical Results**			**DC limit**	**EPL limit**
NTU	Min	Ave	Max	Min	Ave	Max		
WC1	32	41	51	2.0	78	5890	N/A	N/A
WC2	0.5	0.5	0.5	0.5	83	5040	N/A	N/A





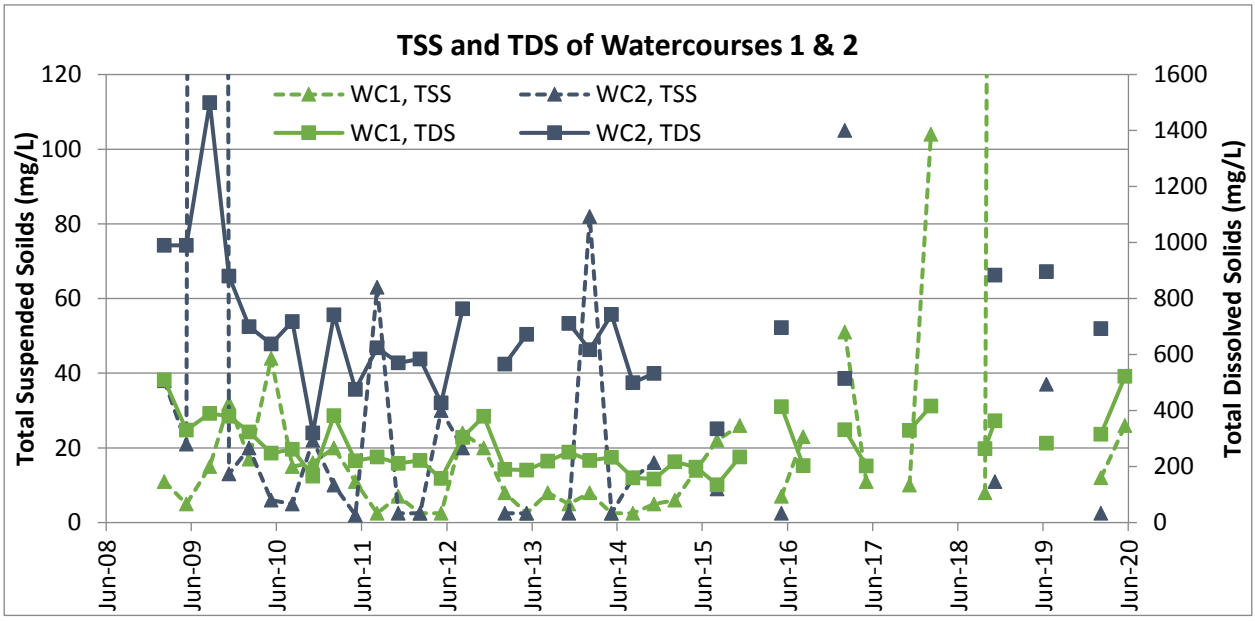
Due to the continued rainfall deficit, there was only sufficient water for sampling Watercourse 1 on two of the four sampling events, and on one of the four sampling events for Watercourse 2. This rainfall deficit has also contributed to the higher electrical conductivity recorded in the receding pool of water in Watercourse 1 in the June 2020 sample, which was slightly above the historical maximum for this site. Otherwise, all other field parameters were consistent with the historical results for each watercourse. While the lower data availability resulting from the natural rainfall deficit has made inferences harder than normal, these field observations correspond with EIS predictions, with no discernible impact on the water quality of these watercourses from the operation of the project predicted in the EIS.

Oil and Grease

Oil and Grease was measured below the limit of reporting of 5 mg/L for all but one sample during the current reporting period, which at 6 mg/L was marginally above the reporting level. These results are consistent with the historical monitoring for these sites, where the concentration of Oil and Grease has consistently remained below the limit of reporting. This is in line with EIS predictions that quarry operations would have no discernible impact on water quality.

Total Suspended Solids and Total Dissolved Solids

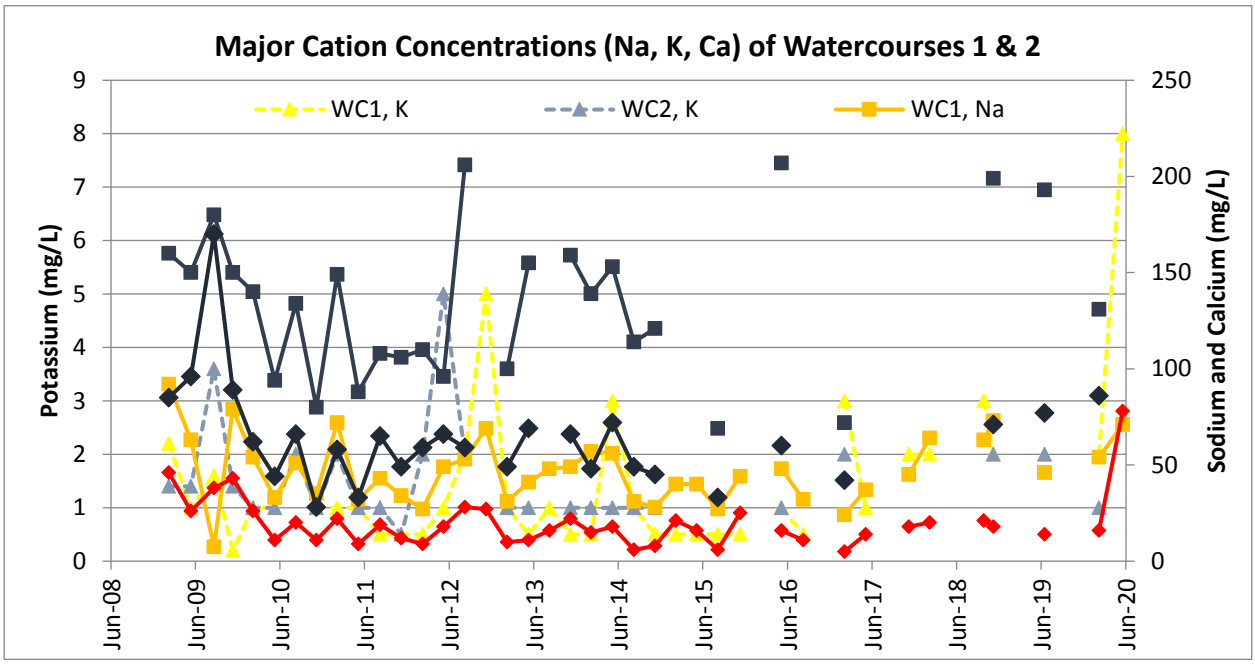
TDS	2019/20 Reporting Period			Historical Results			DC limit	EPL limit
mg/L	Min	Ave	Max	Min	Ave	Max		
WC1	315	419	522	135	269	510	N/A	N/A
WC2	693	693	693	320	689	1500	N/A	N/A
TSS	2019/20 Reporting Period			Historical Results			DC limit	EPL limit
mg/L	Min	Ave	Max	Min	Ave	Max		
WC1	12	19	26	3	39	699	N/A	N/A
WC2	3	3	3	2	116	2600	N/A	N/A



Concentrations of Total Dissolved Solids and Total Suspended Solids were within or consistent with the historical range for Watercourse 1 and Watercourse 2 during the reporting period. TDS results were in line with electrical conductivity results while TSS results were consistent with turbidity results, as is expected.

Major Cations (Sodium, Potassium, Calcium)

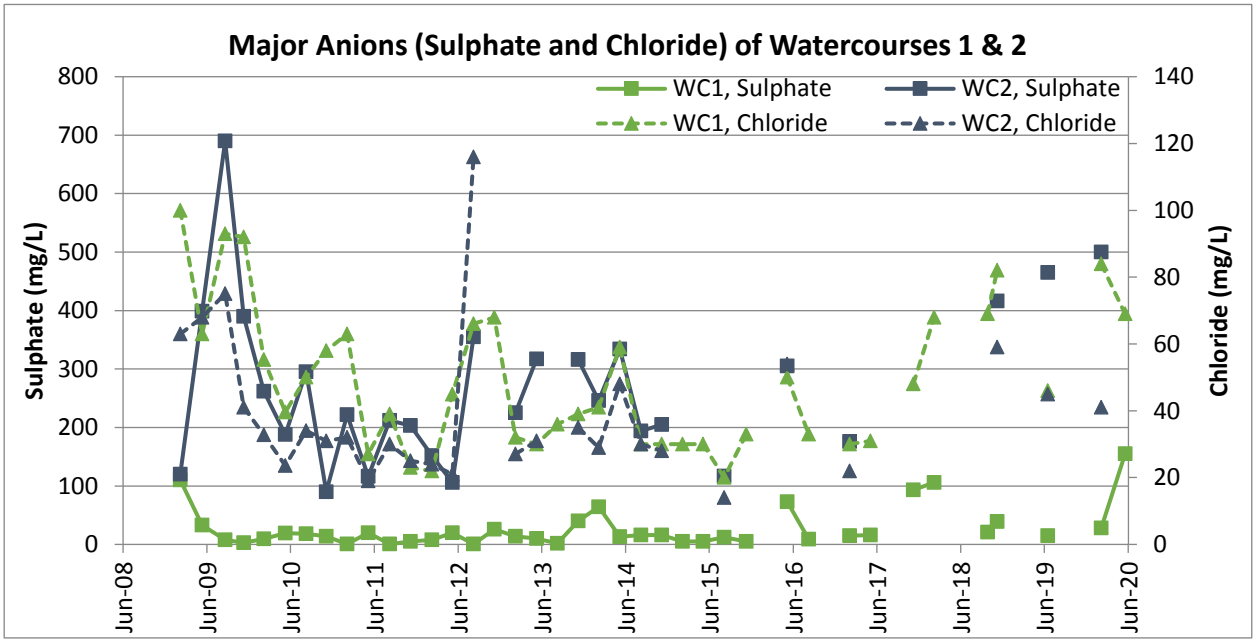
Sodium	2019/20 Reporting Period			Historical Results			DC limit	EPL limit
mg/L	Min	Ave	Max	Min	Ave	Max		
WC1	54	63	71	7	46	92	N/A	N/A
WC2	131	131	131	69	135	207	N/A	N/A
Potassium	2019/20 Reporting Period			Historical Results			DC limit	EPL limit
mg/L	Min	Ave	Max	Min	Ave	Max		
WC1	2	5	8	<1	1	5	N/A	N/A
WC2	1	1	1	<1	2	5	N/A	N/A
Calcium	2019/20 Reporting Period			Historical Results			DC limit	EPL limit
mg/L	Min	Ave	Max	Min	Ave	Max		
WC1	16	47	78	5	18	46	N/A	N/A
WC2	86	86	86	28	63	170	N/A	N/A



Concentrations of all major cations have remained within the respective historical ranges for Watercourse 1 and Watercourse 2 during the current reporting period with the exception of the June 2020 sample for Watercourse 1, where evaporative concentration of the standing water sampled is likely to have led to the higher values for all major cations. With the exception of this sample, all other measurements were very much in line with historical averages for each watercourse. The current monitoring suggests there has been no deterioration in surface water quality related to cation concentrations.

Major Anions (Chloride, Sulphate)

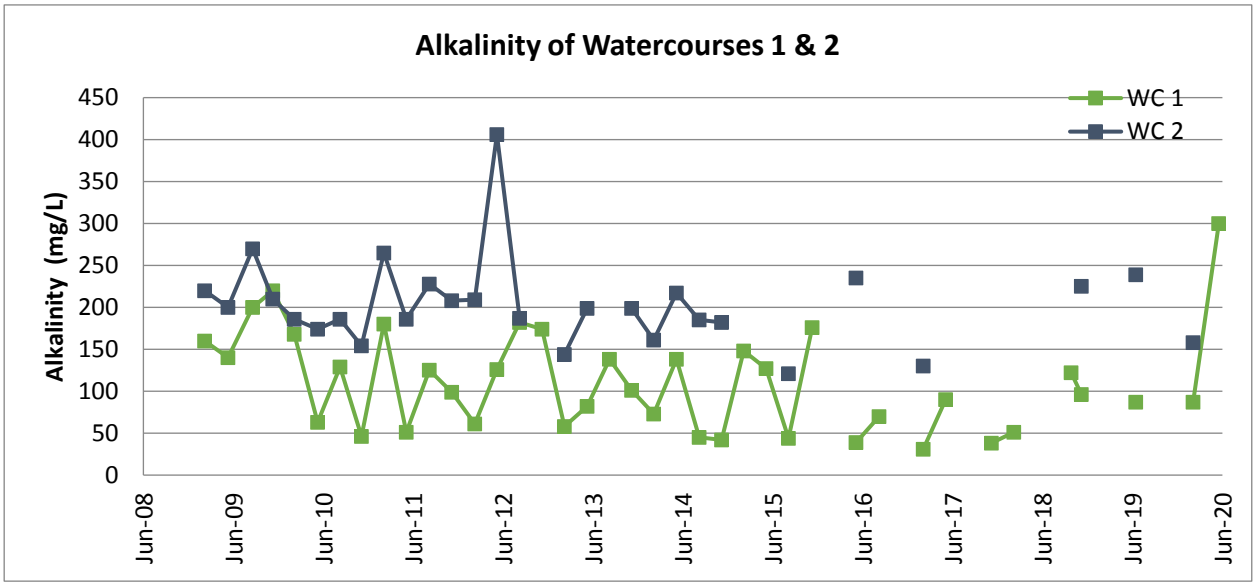
Sulphate	2019/20 Reporting Period			Historical Results			DC limit	EPL limit
mg/L	Min	Ave	Max	Min	Ave	Max		
WC1	28	92	155	<1	24	110	N/A	N/A
WC2	500	500	500	90	264	690	N/A	N/A
Chloride	**2019/20 Reporting Period**			**Historical Results**			**DC limit**	**EPL limit**
mg/L	Min	Ave	Max	Min	Ave	Max		
WC1	69	77	84	20	48	100	N/A	N/A
WC2	41	41	41	14	39	116	N/A	N/A



Concentrations of these major anions have remained within the historical ranges for Watercourse 1 and Watercourse 2 during the current reporting period, with the exception of sulphate in the June 2020 sample, which was sampled from standing water and is likely affected by evaporative concentration. All analytes have continued to exhibit their natural levels of variability and commensurate with total concentration of dissolved solids. The current monitoring suggests there has been no deterioration in surface water quality related to anion concentrations.

Alkalinity

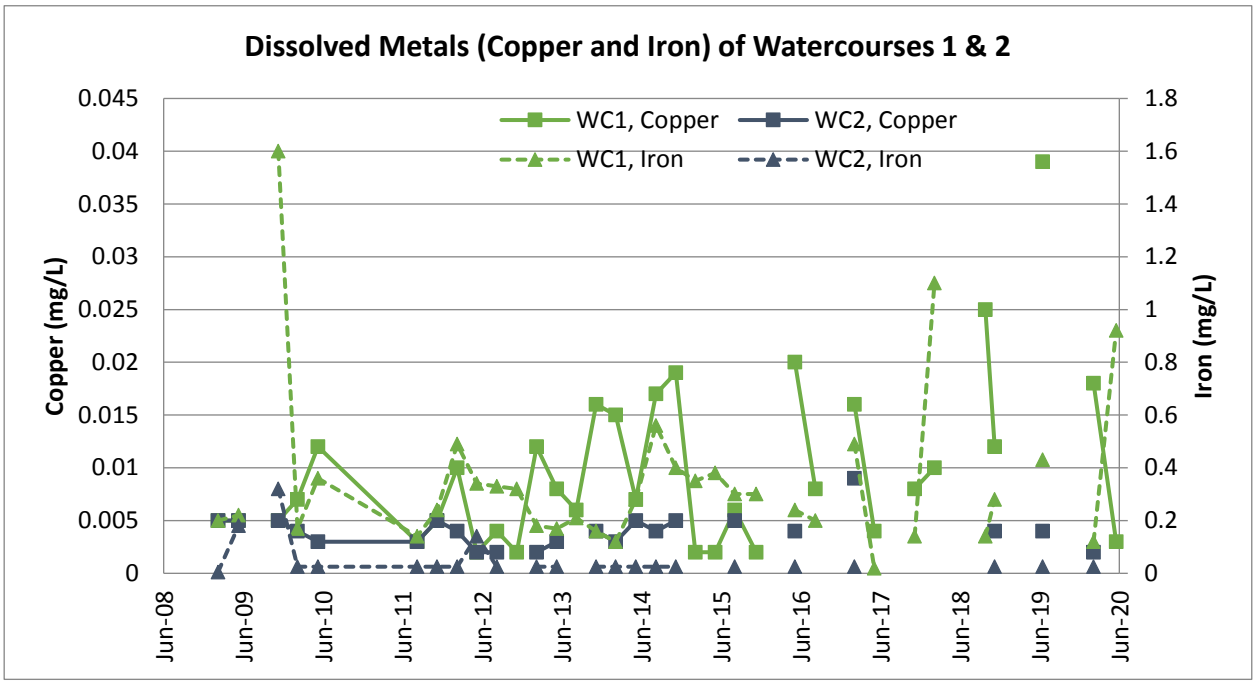
Alkalinity	2019/20 Reporting Period			Historical Results			DC limit	EPL limit
mg/L	Min	Ave	Max	Min	Ave	Max		
WC1	87	194	300	31	106	220	N/A	N/A
WC2	158	158	158	121	205	406	N/A	N/A



Alkalinity levels in Watercourse 1 and Watercourse 2 were measured at concentrations in line with the historical range, with the exception of the sample in June 2020 which was measured on standing water likely affected by evaporative concentration. The observed levels of alkalinity are consistent with the natural variability over the historical period, and do not represent any deterioration in surface water quality of the watercourses.

Dissolved Metals (Copper, Iron)

Copper	2019/20 Reporting Period			Historical Results			DC limit	EPL limit
mg/L	Min	Ave	Max	Min	Ave	Max		
WC1	0.003	0.011	0.018	0.002	0.010	0.039	N/A	N/A
WC2	0.002	0.002	0.002	0.002	0.004	0.009	N/A	N/A
Iron	**2019/20 Reporting Period**			**Historical Results**			**DC limit**	**EPL limit**
mg/L	**Min**	**Ave**	**Max**	**Min**	**Ave**	**Max**		
WC1	0.12	0.52	0.92	0.019	0.34	1.60	N/A	N/A
WC2	<0.05	<0.05	<0.05	<0.01	0.05	0.32	N/A	N/A



Concentrations of dissolved metals in Watercourse 1 and Watercourse 2 have followed historical trends in the current reporting period, consistent with the natural variability of the watercourses, and as such do not represent any deterioration in water quality, as predicted in the EIS.

3.3.4 Surface Water Monitoring Results Interpretation

The current low surface water flows have followed the trend of below average rainfall in the current reporting period. With surface water sampling undertaken at times to avoid significant rainfall, as described in the Water Management Plan, the ongoing rainfall deficit will have reduced baseflows to the watercourses, contributing to the absence of flows during some of the sample periods during the current reporting period. Furthermore, as the quarry extraction area has now consumed the majority of the natural catchment of Watercourse 1, natural flows in this watercourse have reduced in turn. These natural flows have been supplemented by active discharges from the quarry pit, which enter Watercourse 2 below the monitoring site, and as such are not captured in the watercourse monitoring. For these reasons, actual flows in the watercourses are underrepresented in the current monitoring program, however provide a consistent method of comparison with the historical record and EIS predictions. Nevertheless, the biannual flora and fauna survey allows for the determination of any impacts related to water availability on the rainforest ecosystems adjacent to the Quarry Extension.

The water monitoring program has demonstrated that in the current reporting period, water quality of discharges and in the watercourses complies with the DC and EPL, and demonstrates no deterioration in water quality as predicted in the EIS for the project. It is envisaged that surface water discharges will continue to increase in future years to compensate for the increased catchment area of the quarry excavation. Current procedures allow for an accurate representation of any longer term trends in surface water quality and any potential impacts on surface and groundwater quality in areas adjacent to the quarrying operations.

3.4 Air Quality Monitoring

3.4.1 Standards and Performance Measures

The Development Consent contains specific limits relating to air quality, including for particulate matter and total suspended particulates, while the Environmental Protection Licence contains specific requirements for the monitoring of deposited ash and insoluble solids with no specific compliance limits listed in the EPL. Section 5.8 of the QEMP details the air quality testing requirements and specifies that four depositional dust gauges and one PM_{10} High Volume Air Sampler are used to measure compliance against the criteria. The locations of these monitoring sites, monitoring frequencies, and DC compliance are as follows:

EPL ID Station ID	Location	Analyte	Units	Frequency	DC Limit
1 APD1	Within 100m of the premises entrance gate	Ash Insoluble Solids	g/m2/mth	Monthly	N/A
2 APD2	Rinker property, north west of Kyawana	Ash Insoluble Solids	g/m2/mth	Monthly	N/A
3 APD3	Dunsters Land, southwest of The Cottage	Ash Insoluble Solids	g/m2/mth	Monthly	N/A
8 APD4	Northern boundary, east of the gate to Belmont	Ash Insoluble Solids	g/m2/mth	Monthly	N/A
N/A HVAS	Belmont homestead	PM10	µg/m3	24hr every 6 days Annual average	50* 30

* Incremental impact – increase due to development on its own

3.4.2 Environmental Performance

CB has implemented a range of controls to minimise the potential generation of dust from the project, as described in the QEMP. The Air Quality Monitoring Programme is also in place as described above to assess the effectiveness of these controls. ALS Laboratory Group were engaged during the reporting period to service these monitoring stations, with depositional dust assessed in accordance with *AS/NZS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particulates – Deposited Matter – Gravimetric Method.* Samples collected from the HVAS are collected on a monthly basis for sampling in accordance with *AS/NZS3580.9.6-2015: Methods for Sampling and Analysis of Ambient Air – Determination of Suspended Particulate Matter – PM10 High Volume Sampler with Size Selective Inlet – Gravimetric Method.*

3.4.3 Air Quality Monitoring

Deposited Dust

The following table provides a summary of concentrations of Total Insoluble Solids and Ash (g/m^2/month) for the four deposited dust monitoring gauges at the Albion Park Quarry.

Insoluble Solids	2019/20 Reporting Period			Historical Results			EIS Average Prediction
	Min	Ave	Max	Min	Ave	Max	
APD 1	4.8	11.8	26.8	0.1	3.9	18.7	<= 2.6
APD 2	0.7	3.1	7.2	0.1	2.5	12.6	<= 3.5
APD 3	0.2	1.6	5.1	0.1	1.5	8.6	<= 2.2
APD 4	0.6	2.9	6.7	0.1	2.0	13.3	<= 3.2

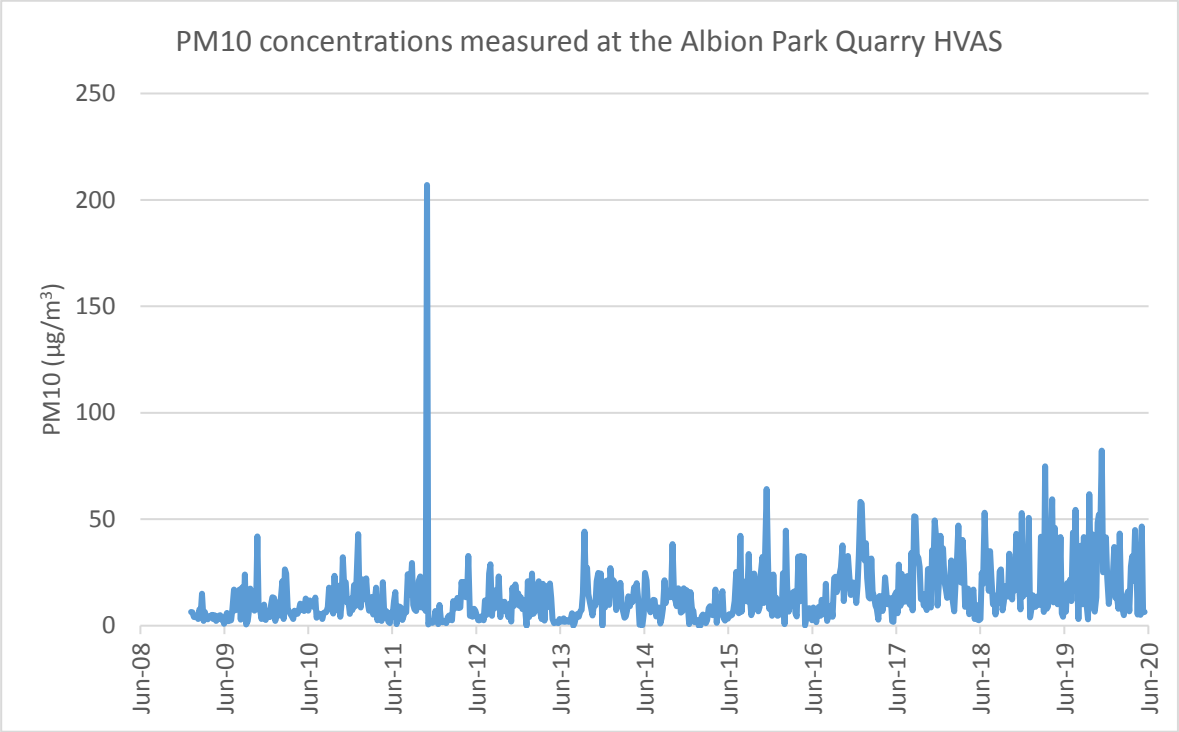
PM_{10}

The following table provides a summary of PM_{10} concentrations (µg/m^3) for the High Volume Air Sampler at the Albion Park Quarry, with the following graph showing the historical trend in PM_{10} concentrations. Incremental impacts were determined by subtracting the average PM10 levels measured by the Illawarra region OEH air quality monitors (TEOM units) from the data recorded by the site HVAS unit.

HVAS PM_{10}	2019/20 Reporting Period				Historical Results			EIS Average Prediction
	Min	Ave	Inc. max	Max	Min	Ave	Max	
HVAS#	3.0	23.7	47.5	82.2	0.0	13.4	207.0	< 25
DC criteria		30	50*					

\# total PM_{10} measured at the site – not incremental impact

* Limit applies to incremental impact – increase due to development on its own



3.4.4 Air Quality Monitoring Results Interpretation

Average annual deposited dust measurements in three of the four monitoring gauges show an increase in depositional dust levels from the longer term average, which can be related to the presence of significant dust storms and ash fallout as a result of the extended dry Spring – Summer period and related regional bushfires. Furthermore, DDG1 is located at the entrance to the site, and has experienced significant dust contributions from the Albion Park Rail bypass project, which involves the construction of a new motorway, who have been undertaking extensive earthworks directly adjacent to the gauge for the entirety of the reporting period. It is expected that dust deposition at this gauge will continue to be elevated due to this external source for the following reporting period, before returning to historical concentrations once the major earthworks of the motorway are completed. Due to the close proximity of the gauge to the motorway construction, the results recorded by this gauge are not expected to be indicative of dust impacts attributable to the Albion Park Quarry, nor dust deposition in the sensitive receivers to the north of the site. Excluding dust gauge DDG1, all average deposition dust levels remained below the EIS predictions in the current reporting period, despite the regional dust and ash events.

The results above show that development consent limit related to annual average PM_{10} was met during the current reporting period. On five occasions, the total PM_{10} concentrations measured at the High Volume Air Sampler located at the project-related Belmont homestead were greater than the 50 µg/m^3 daily trigger related to incremental increases from the project. On these occasions the levels of PM_{10} measured at the monitor ranged between 50.1 and 82.2 µg/m^3. The NSW Government Office of Environment and Heritage (OEH) operate Tapered Element Oscillating Microbalances (TEOMs) at three sites in the Illawarra, which measure PM_{10} concentrations in real time. These OEH monitors provides a suitable background (based on the average of the units) on which to assess the project's incremental impact. On these days, the OEH monitors recorded average PM_{10} concentrations between 14.3 and 77.7 µg/m^3. This allows a determination of the incremental impact of the Albion Park Quarry of between 3.6 µg/m^3 and 47.5 µg/m^3 on these days, compliant with the DC trigger for daily incremental impact. As such, the project has complied with all development consent limits related to air quality in the current reporting period.

Average PM_{10} concentrations for the current reporting period are higher than the longer term average, which can be attributable to two factors. Firstly, the continuing drought has led to higher particulate matter concentrations in the regional airshed, both from the occasional dust storm, and the longer period of bushfire related poor air quality observed from October 2019 to February 2020 (particularly late November to early January). Secondly, quarry stripping activities were located significantly closer to the HVAS monitoring site in the reporting period than in previous reporting periods. Despite these factors, the average

PM_{10} levels represent *very good* air quality in the vicinity of the quarry, as per the NSW Office of Environment and Heritage's Air Quality Index values, notwithstanding the fact that the OEH monitors recorded *hazardous* regional air quality at times during the reporting period, due to the particulate matter generated by bushfires in the surrounding regions.

As part of Modification 3 of the DC, Cleary Bros committed to establishing real-time particulate monitors at three locations around the site. During the period, Cleary Bros attempted calibration of the new real time PM_{10} monitors against the existing High Volume Air Sampler (HVAS), however encountered difficulties with this process. The real time particulate monitors have shown excellent consistency between the monitors, but less than acceptable correlation with the HVAS unit, especially during the cooler months of the year. These units are currently with the manufacturer for an update which is hoped will improve their performance, and which will then allow for their deployment at the designated locations described in the Air Quality Management Plan.

3.5 Noise Monitoring

3.5.1 Standards and Performance Measures

The Development Consent specifies limits on noise generated by the quarry operations at four sensitive receptors surrounding the project site. There are no specific requirements related to noise or noise monitoring in the EPL for the project. Section 5.5 of the QEMP details these noise monitoring requirements and with the DC compliance limits as follows:

Receiver Locations	Noise Limits $L_{Aeq15minute}$		
	Stages 1-2	Stages 3-4	Stages 5-6
"The Hill" residence (Dunster premises)	35	38	35
"The Cottage" residence (Dunster premises)	35	38	35
Approved rural worker's dwelling (Dunster premises)	35	38	35
Greenmeadows residential estate	41	41	41

The above noise limits apply to operational noise under conditions of wind speeds (10 m above ground) of up to 0.5 m/s and temperature gradients of up to 0°C per 100 metres. To measure the noise levels at these sensitive receptors, CB has engaged SLR Consulting Australia Pty Ltd to undertake an annual survey of noise levels related to quarrying and processing operations. To ensure the measured noise levels are related to project noise only (and exclude non-project or background noise), unattended monitoring was undertaking in close proximity to the noise-generating activities on site for a period of 8 days across July and August 2019. Measured noise levels were then modelled for the sensitive receptors based on most recent noise model for the project, to calculate the project-related noise impacts at the sensitive receivers. Technician- attended noise monitoring was undertaken to supplement and verify the unattended noise monitoring, however the weather conditions at the time of monitoring were outside of those nominated in the Development Consent, despite the best efforts of the monitoring technician.

3.5.2 Environmental Performance

CB has constructed a three metre high and 350 metre long visual/acoustic bund along the north-eastern corner of the Quarry Extension to attenuate noise transmission in the direction of the closest sensitive receptors to the quarrying operation. Furthermore operations were restricted to the approved hours of operation as per the DC during the current report period. The annual Noise Monitoring Program is also in place, as described above, to verify the adequacy of noise mitigation measures on site.

3.5.3 Noise Monitoring Results

The annual noise survey was conducted in July and August 2019. During the survey, prevailing weather conditions were at times outside those nominated in the development consent, with the consequence that the limits indicated were not always applicable. Interpolation of the dataset with the data gathered from the onsite meteorological station allowed the extraction of noise monitoring data under complying conditions.

Based on this extracted dataset, the noise contribution from quarrying and processing operations at each of the sensitive receptors is outlined in the table below. For further information, see Annexure F, which refers to the complete Noise Monitoring Report. Monitoring results from the previous 2 annual surveys are also included for comparative purposes.

Monitoring Location	July-19 results	Criteria (stages 5-6)	EIS Prediction	2018-19 results	2017-18 results
The Cottage	33	35	N/A	30	35
The Hill	31	35	33	27	35
Greenmeadows Estate	41	41	41	36	37

3.5.4 Noise Monitoring Results Interpretation

All modelled noise levels based on actual measurements in the quarry and the processing plant are within the relevant DC criteria. Modelled noise levels at all sensitive receivers in the current reporting period were comparable to those predicted by the EIS, and are generally in line with previous years results. Noise levels from quarrying and processing operations at the Cleary Bros project have continued to be within acceptable limits during the current reporting period.

3.6 Blast Monitoring

3.6.1 Standards and Performance Measures

The Development Consent and Environmental Protection Licence for the project are consistent in their approved blasting criteria at nearby sensitive receptors. Section 5.7 of the QEMP details how these criteria are to be met, with a blast monitoring station permanently installed adjacent to the nearest non-project related sensitive receptor, *The Cottage* residence on the neighbouring Fig Tree Hill property. These criteria are described in the table below. When blasting is to occur within 40 metres of the northern boundary of the quarry property, a portable blast monitor is also located at the property boundary at the point closest to the blast. The DC and EPL also set restrictions on the timing of blasts and blast frequencies.

Monitoring Location	Maximum Airblast Overpressure dB(Lin Peak)	Maximum Peak Particle Velocity mm/s	Allowable Exceedance
At any point located at least 3.5 metres from any residence on privately owned land	115	5	5% of the total number of blasts over any 12 month reporting period.
	120	10	0%
At the southern boundary of the Figtree Hill land	135	200	0%

3.6.2 Environmental Performance

Airblast overpressure and vibration from blasting was consistent with the limits in the table above, reproduced from the QEMP. All blasting was undertaken between 9am and 5pm on weekdays only, with no more than one blast per day undertaken during the current reporting period. Prior to the initiation of all blasts, the blasting methodology as described in the Blast Management Plan, including community notification via phone calls and an update to the website, as well as the design and sequencing of blast initiation to achieve the DC criteria. Cleary Bros undertook a trial of wetting down the loaded blast pattern of near-surface blasts immediately prior to firing, as a means to reduce dust emissions during blasting. This trial was successful with dust emissions less than would otherwise have been expected and no unintended adverse impacts, and as such will be used for drier ground in near-surface blasts in the future. All blasts were monitored as per the requirements of the DC, with the results of this monitoring published on the Cleary Bros website and discussed with community representatives through the Albion Park Quarry Community Consultative Committee.

3.6.3 Blast Monitoring Results

Blast monitoring results for the 2019-2020 reporting period from the permanent blast monitor at *The Cottage* are summarised in the table below. No blasting occurred within 40 metres of the boundary of the property during the reporting period. A complete record of blast monitoring results for the period is included as Annexure E.

Blast Monitoring	2019/20 Reporting Period			Historical Results		
	Average	95th %	Max	Average	95th %	Max
Overpressure	106.9	112.9	114.5	102.9	110.2	115.6
DC limits		115	120			
EIS Prediction			< 115			
Vibration	2.63	4.22	4.74	1.43	3.21	3.97
DC limits		5	10			
EIS Prediction			< 5			

3.6.4 Blast Monitoring Results Interpretation

All blast monitoring results have been below the criteria specified in the QEMP. The highest airblast overpressure level recorded at the permanent blast monitor at *The Cottage* was 114.5 dB (lin), below the DC/EPL criteria and the EIS prediction of up to 115 dB, while the highest peak particle velocity was 4.74 mm/s, below the DC/EPL criteria and the EIS prediction of up to 5 mm/s. The average, 95th percentile, and maximum air overpressure and vibration have been higher in the current reporting period, reflecting blasting in closer proximity to the monitor during the current reporting period. The current blast monitoring program and blasting processes have been effective in ensuring blasting at the Albion Park Quarry meet compliance requirements, while reducing the disturbance to neighbours as far as practical considering continuing quarrying activities and the current progression of the quarry pit being at its closest point to the nearest sensitive receptor.

3.7 Ecological Monitoring

3.7.1 Standards and Performance Measures

The Development Consent requires the implementation of a Vegetation Management Plan, to provide a detailed plan for the protection, management and enhancement of the ecosystems and native flora and fauna adjacent to the Albion Park Quarry Extension, and for monitoring the effects of quarry operations on these communities. Section 5.10 of the QEMP outlines how the requirements of the DC are to be met, including the implementation of the Vegetation Management Plan for the project. The Vegetation Management Plan also requires that Cleary Bros engage an ecologist on a biannual basis.

The purpose of the biannual inspection is to provide expert feedback on the efforts to improve the biodiversity of the Vegetation Management Areas, and in particular guide activities in the Revegetation Areas. The ecologist will prepare a written report following each inspection, which will cover matters such as compliance with this management plan and any adverse environmental impacts, any recommendations and any additional mitigation measures considered necessary. The report will also include the number and species of seedlings planted since the last inspection, the condition of the fences, the number of hours spent controlling pest species, and any other relevant matter.

The annual inspection in June each year will include a quantitative survey of the Vegetation Management Areas. The survey is designed to assess the health of the Remnant Vegetation and the performance of the management strategies outlined in the VMP. Surveys will be undertaken in each of the 7 monitoring plots established in the remnant vegetation, as well as the monitoring plot in the Restoration Zone and one monitoring plot to be established in each of the Planting Zones.

There is no requirement in the EPL for ecological monitoring.

3.7.2 Environmental Performance

Revegetation activities during the current reporting period were focused on the maintenance of existing establishing trees in zones 2 and 3 of the rehabilitation areas, as well as the planting out of zone 4 following good rainfall in February 2020. In addition to these, animal-proof fencing of the remaining revegetation zones 4 and 5 were undertaken, and infill planting was undertaken in zone 1 to boost diversity and abundance of the existing plantings. Weed control across all areas was undertaken to encourage native plant growth.

Revegetation contractors from Good Bush Pty Ltd were engaged to assist with these efforts. An ecologist from Good Bush Pty Ltd undertook the biannual inspection (Annexure C) and annual survey (Annexure D) of the vegetation management areas. The eleven permanent survey plots were surveyed this year as part of the annual survey. Two additional plots in Zone 4 and 5 will be established in the next reporting period.

A summary of key observations from the annual survey area as follows. For further information, refer to the annual survey report included as Annexure D.

Survey method

The four corners of a 20 metre x 20 metre monitoring plot were marked with survey pegs and the GPS location of the centre of each plot was recorded using a handheld instrument. A wide-angle photograph was taken looking diagonally across the plot from the northeast corner peg.

Each plant species within the plot was identified to genus and species and the abundance and percentage cover of each species within the plot recorded.

Notes were made on the presence of significant species, evidence of browsing by feral animals and general condition of the vegetation. The survey data for the 11 survey plots along with a photograph of each plot are provided.

Significant flora species

Several listed threatened plant species and a number of regionally rare species were recorded in the vegetation management plan. During the assessment for this report the following information was gathered in relation to presence and condition of these significant plant species:

Common Name	Botanical Name	Condition
Threatened Species		
White Wax Flower	*Cynanchum elegans*	Not observed
Illawarra Zieria	*Zieria granulata*	Not observed
Illawarra Socketwood	*Daphnandra johnsoni*	Large population with many suckering stems identified within plot 8.2. Population healthy and expanding
Scrub Ironwood	*Gossia acmenoides*	Not observed
Regionally Rare Species		
Native Holly	*Alchornea ilicifolia*	Common and abundant, regenerating
Actephila	*Actephila lindleyi*	Not observed
Scrub Wilga	*Geijera salicifolia*	Common and abundant, regenerating
Olivers Sassafras	*Cinnamomum oliveri*	Single plant observed within plot 8.2
Myrtle Ebony	*Diospyros pentamera*	Single plant observed within plot 8.1

Weed control

Weeds have proliferated within the fenced revegetation areas (Zones 1,2,3) since the last report but the majority of these weeds are annual weeds and grasses. Weed control has been carried out within these areas but the focus has been to control annual weeds and grasses around the base of establishing trees to reduce competition. This method will see a reduction in overall weed control requirements once the trees have become established and there is reduced light availability for annual weeds to colonise.

Woody weeds such as Lantana and Wild Tobacco were observed within some zones of the rehabilitation areas and Moth Vine is evident due to its high seed production and wind dispersed method. Treatment of woody weeds within this site should follow the Bradley method of working from areas of intact canopy and minimal weed encroachment toward the areas where weed frequency is higher.

The most severe weed impact within this site is the Madiera Vine that appears to originate within zone 6 and is present along the riparian corridor within zones 6,7 and 8. Madiera Vine is a very challenging weed to treat once established and the populations within this site will take considerable time and effort to control.

Condition of fences

All fencing observed appears to be in good condition.

Absence of spoil or rubbish

There is little rubbish present on site with small amounts of wind blown rubbish observed.

Animal or human interference

Grazing was observed within the fenced areas however this is most likely the result of Wallabies and Eastern Grey Kangaroo that have the ability to jump or find ways under these fences. There was no evidence that goats have entered the fenced compounds.

Riparian zone

Water from the quarry has been emptying intermittently into the creek to the south for several years. This is quite variable, depending upon local rainfall and the need to de-water the quarry. In recent years, rainfall has been considerably lower than 'normal' so the need to pump water to the creek has been diminished. Inspection of the creek below the outlet pipe found no obvious negative impact from the quarry water (KMA 2018).

3.7.3 Compliance Assessment

The following recommendations were made by the ecologist as part of the annual survey, which will form the basis of revegetation efforts in 2020-21:

- Treatment of Lantana working from areas of good bush toward the more weed infested areas within all but the planted zones.
- Treatment of Madiera Vine to control further spread of this highly invasive weed.
- Continued fencing maintenance to exclude goats and allow further establishment of the planted areas.
- Continued revegetation maintenance around plantings to assist canopy establishment to eventually exclude annual weeds and grasses.
- Planting within the recently fenced Zone 5 compound with a range of grassy woodland and rainforest canopy species.
- Replacement plantings within previously planted areas to replace failed stock.

4. COMMUNITY

4.1 QEMP Requirement

The Annual Review is to include a summary of complaints received during the past year comparing this to complaints received in previous years.

The EPL requires a legible record of all complaints relating to pollution incidents. Both the QEMP and the EPL specify a protocol to be followed in relation to complaints including recording action taken regarding the complaint.

4.2 Tabulated Results

Fourteen environmental complaints were received during the current reporting period. Eight complaints were related to blast noise and vibration, four complaints were related to dust, while two complaints were related to noise. Each complaint was investigated to determine the cause and whether existing controls were adequate to reasonably minimise community impacts as a result of the project. Further information regarding each complaint is described in Section 4.3, while a comparison with previous years' complaints is summarised below.

Year	Environmental Complaints
2007/2008	1
2008/2009	2
2009/2010	0
2010/2011	5
2011/2012	6
2012/2013	4
2013/2014	2

Year	Environmental Complaints
2014/2015	5
2015/2016	2
2016/2017	7
2017/2018	6
2018/2019	3
2019/2020	14

4.3 Environmental Complaints Results Interpretation

A summary of the complaints received is provided in the table below:

Date	Description of Complaint	Status
12 July 2019	Complainant stated that vibration from blast 15/19 shook two houses. Noise and vibration levels within approved limits.	Closed out
18 July 2019	Complainant alleged that blasting on 4/6/19 and 28/6/19 has damaged residence. Review of noise and vibration levels from these blasts, and follow up monitoring of subsequent blasts in the vicinity of residence suggests that blasting activities could not have caused property damage in this instance.	Closed out
23 July 2019	Complaint regarding dust clouds and fallout in the local airshed early in the morning of 22/7/19. Cleary Bros Quarry had negligible activity in the time leading up to the complaint, and as such unlikely related to Cleary Bros quarry activities.	Closed out
2 August 2019	Complaint regarding dust clouds and fallout in the local airshed in the evening of 26/7/19. Cleary Bros Quarry had minimal activity during the time leading up to the complaint, and as such unlikely related to Cleary Bros quarry activities.	Closed out

Date	Description of Complaint	Status
3 September 2019	Complainant stated that noise and vibration from blast 21/19 was excessive. Noise and vibration levels within approved limits.	Closed out
1 October 2019	Complainant alleged that blasting at 10:20am on 1/10/19 has damaged residence. Cleary Bros had not blasted on the day at the time of the complaint. Complaint not attributable to Cleary Bros Albion Park Quarry.	Closed out
3 December 2019	Complaint received regarding dust from quarry operations. Area of concern identified and water cart immediately reassigned to respond.	Closed out
5 December 2019	Complainant stated that blast 25/19 caused significant shaking to house. Noise and vibration levels within approved limits.	Closed out
8 January 2020	Complaint received regarding quarry-related noise at residence. Noise of concern identified as reversing beacon of dozer, which was subsequently replaced with a broadband beacon to reduce intrusiveness of noise.	Closed out
21 April 2020	Complaint stated that blast 11/20 caused excessive vibration. Noise and vibration levels within approved limits.	Closed out
4 May 2020	Complaint received regarding dust from quarry operations. Site activities and control measures reviewed in light of complaint.	Closed out
4 June 2020	Complaint regarding excessive noise from blast 15/20. Noise and vibration levels within approved limits.	Closed out
5 June 2020	Complaint received alleging quarry operating outside of approved hours. Site activities reviewed, with no activity from Cleary Bros Quarry Extension audible on the outside of the acoustic bund. Investigations identified that noise emissions from other quarry sites likely to have led to the complaint.	Closed out
17 June 2020	Complaint received regarding dust emissions from blast 16/20. Investigations identified that weather conditions were suitable for blast at time of firing. A change in wind direction following the firing of the blast has likely led to the concerns raised by the complainant.	Closed out

Cleary Bros operates a Community Consultative Committee (CCC) for the Albion Park Quarry. Two meetings of the CCC were held in the current reporting period, in July and December 2019 (which included a site visit), with minutes of these meetings available on the Cleary Bros website.

5. REVIEW OF MANAGEMENT PLANS

5.1 Water Management Plan

As indicated in the Development Consent, the Water Management Plan comprises:

- a Water Balance;
- an Erosion and Sediment Control Plan;
- a Surface Water Monitoring Program;
- a Ground Water Monitoring Program; and
- an Integrated Water Management Strategy, if the water balance shows a potential demand for water above that which can be collected from rainfall.

The various requirements of the WMP were addressed in the QEMP and associated documents. Parts a) and e) refer to the water balance, which predicted that the quarry could operate within a water budget capable of being satisfied from rainwater collected on site. The quarry has operated throughout the reporting period with a surplus of water. This surplus has been discharged following storm events in line with the conditions of the DC.

The Erosion and Sediment Control Plan was implemented during the construction phase of the quarry. Erosion and sediment controls will be monitored and maintained throughout the life of the quarry. The Erosion and Sediment Control Plan included in the current WMP was last updated in April 2018, and is due for update due to continued quarry pit progression. Cleary Bros continues to look at modifications that can be made to reduce sediment loading in waterways leaving the site.

A review of the Water Management Plan has recently been undertaken, with the current revision approved by the DP&E on 29th May 2018. This Water Management Plan remains current for the site with the exception of the Erosion and Sediment Control Plan, which will be updated.

5.2 Blast Management Plan

The Blast Management Plan was most recently revised and approved by the DP&E on the 15th November 2017. This Blast Management Plan remains current and relevant to the site, and will continue to guide blast management practices on the site.

5.3 Vegetation Management Plan

The Vegetation Management Plan applies primarily to the revegetation and restoration areas to the south of the quarry. These locations are the subject of management and maintenance throughout the quarry life. The Vegetation Management Plan was most recently updated and approved by the DP&E on the 9th May 2018. A review of the Vegetation Management Plan undertaken as part of the Annual Review has identified that the approved Vegetation Management Plan remains current and appropriate for the site, noting that Area 5 is planned for planting in the coming months pending adequate rainfall.

5.4 Rehabilitation Management Plan

The Rehabilitation Management Plan was most recently revised and approved by the DP&E on 15th November 2017. Current progress towards site rehabilitation remains in accordance with the recently approved plan, which remains current and appropriate for the site.

5.5 Heritage Management Plan

The Heritage Management Plan was most recently revised and approved by the DP&E on 18th December 2017. A review of the Heritage Management Plan undertaken as part of the Annual Review has identified that the current Heritage Management Plan remains current and appropriate for the site. During the reporting period, repairs were made to the dry stone wall erected at the entrance to the Belmont property,

in line with the Heritage Management Plan. These repairs were undertaken by an experienced dry stone waller and were required due to damage from cattle on the shared property boundary. A photo of the repaired dry stone wall is shown below.

Figure 4 – Dry stone wall at entrance to Belmont property off Dunsters Lane following repairs

5.6 Waste Minimisation

Waste management at the quarry has been carried out as indicated in the QEMP. Waste generation has been minimised as far as practicable. Quarry overburden material has been retained for placement in the base of the excavation and used to create the final landform as described in the Rehabilitation Management Plan.

In this reporting period other waste including workshop waste, office waste and waste from personnel (food scraps etc) is separated where appropriate and separately removed for recycling or disposal. Waste oil from machinery and equipment used on site is collected and recycled through a specialist waste oil recycling contractor.

5.7 Air Quality Management Plan

The Air Quality Management Plan was most recently revised and approved by the DP&E on the 13th December 2017. This revision included a significant change to the way ambient air quality is to be monitored on the site, and the way this monitoring will then feed back and influence activities on the site. During the period, Cleary Bros attempted calibration of the new real time PM_{10} monitors against the existing High Volume Air Sampler (HVAS), however encountered difficulties with this process. The real time particulate monitors have shown excellent consistency between the monitors, but less than acceptable correlation with the HVAS unit, especially during the cooler months of the year. These units are currently with the manufacturer for an update which is hoped will improve their performance, and which will then allow for their deployment at the designated locations described in the Air Quality Management Plan. With these modifications to the air quality monitoring network currently underway, the Air Quality Management Plan remains current and relevant to site activities.

5.8 Noise Management Plan

The Noise Management Plan was most recently revised and approved by the DP&E on the 15th November 2017. A review of this management plan undertaken as part of the preparation of this Annual Review, has identified that this plan remains current and relevant to site activities.

5.9 Transport Management Plan

The Transport Management Plan was most recently revised on the 21st September 2016 following an audit of the Quarry Extension by the DP&E. A review of this management plan undertaken as part of the Annual Review process has indicated that no revision to the Transport Management Plan is required, considering the complaint and incident record related to transport at the Albion Park Quarry.

5.10Cumulative Traffic Impact Study

The Cumulative Traffic Impact Study was most recently revised on the 30th November 2015 following Mod 2 of the DC, in consultation with the Hanson Bass Point and Boral Dunmore quarries. A review of this study undertaken as part of the Annual Review process has indicated that the underlying assumptions of the study remain valid, and no revision to the Cumulative Traffic Impact Study is required.

5.11Bushfire Management Plan

The Bushfire Management Plan is included within the Quarry Environmental Management Plan, and describes preventative measures taken to limit the risk of bushfire, and equipment and processes in place to respond to any fires. A review of the Bushfire Management Plan undertaken as part of the Annual Review process has indicated that no revision is required at this stage.

6. INDEPENDENT ENVIRONMENTAL AUDIT

As required by the Condition 6 of Schedule 5 of the DC, Cleary Bros commissioned ERM to carry out an Independent Environmental Audit. The audit was carried out by ERM on 9 November 2017. The report was submitted to the DP&E and was uploaded to Cleary Bros website and made publicly available.

In the Conclusions of the audit, ERM stated that "Overall, conformance was achieved with the audit documents that were reviewed." The findings identified during ERM's Independent Environmental Audit were largely administrative in nature. The below table summarises the progress of the corrective actions undertaken to address the non-conformances that were not able to be closed out during the 2017 Independent Environmental Audit. The next audit is scheduled for the coming months in late 2020.

Condition Number	Auditor Comment	Auditor Recommendation	Progress of Corrective Actions
EPL M5.1	Complaints register is made available online for the reporting period. Complaints presented in a table detailing the complaint, date and response.	Link currently not available for complaints prior to FY16/17. Update link to website.	COMPLETED Broken link on Cleary Bros website has been fixed.
EPL M5.3	Complaints summary provided in Annual Reviews. Complaints records are kept for the required four year period.	Opportunity to provide a record of complaints for four year period on company website.	COMPLETED Complaints Register page on Cleary Bros website has been updated to include past four years of records.
Sch 4 Cond 17	The Air Quality Management Plan, describes mitigative measures including site specific best management practice determination, mitigation measures specific to blasting activities, emission of products of combustion from plant and machinery, fugitive release of emissions from fuel storage areas and daily site inspections. The AQMP has undergone review and update to meet the requirements of the recent Development Consent Modification updated in June 2017. At the time of this audit the AQMP has been submitted to the EPA and DPE for review and approval.	Updated AQMP to include conditions added in June 2017. - includes ongoing real-time particulate monitoring; - includes a Trigger Action Response Plan (TARP) which describes the actions to be taken when specific trigger levels are exceeded. CB advised ERM that a revised AQMP was approved by DPE on 13/12/2017, after ERM's onsite audit.	Calibration of particulate monitors has not been successful to date. Monitors are currently with the manufacturer for repair and recalibration. Once returned, CB to again attempt to calibrate these monitors alongside the existing HVAS unit to allow their subsequent deployment.
Sch 4 Cond 52	CB has requested Fig Tree Hill provide nominations for potential persons to conduct dilapidation survey, however this has not been received to date. CB has not been permitted access by the nominees to conduct the survey.	Continue to engage with Fig Tree Hill regarding dilapidation surveys.	COMPLETED Dilapidation surveys of The Hill Complex and Belmont completed in April 2018, prior to commencement of Stage 5 & 6.
Sch 6 Cond 5	The outage of the meteorological station at Albion Park Quarry was reported on 22 June 2016. CB informed DPE of the incident 8 days after the issue was identified, this is outside the 7 day notification period.	Maintain files to demonstrate chain of communication with Secretary following an incident.	COMPLETED QEMP has been updated to include reporting timelines for external notification of any incident.

7. NON COMPLIANCES

No non-compliances with conditions of the Development Consent were identified during the reporting period.

8. CONCLUSIONS

Quarrying and processing operations at the Cleary Bros (Bombo) Pty Ltd Albion Park Quarry have continued to operate in line with the conditions of approval and the Environmental Protection Licence for the project in the current reporting period. Management practices currently in place have been effective at reducing the impacts on surface water, groundwater, air quality, biodiversity, and the amenity of nearby sensitive receivers to acceptable levels. This can be demonstrated by the continued compliance of all monitoring associated with potential environmental impacts.

Predictions and assumptions made as part of the Environmental Impact Statement have been shown to be largely valid, with most impacts less than that predicted in this original assessment.

Water monitoring has shown the receiving waters surrounding the project are meeting compliance criteria, with impacts to groundwater and surface water resources a product of the current dry climate rather than any site-specific impacts that were not predicted in the EIS. Due to the current climate-driven variability in groundwater availability, it is proposed to increase monitoring groundwater level and major ion concentrations to monthly intervals instead of quarterly for the next 6 months. Monitoring of vegetation communities adjacent to the Quarry Extension has identified no observable sign of stress related to water availability or otherwise. Similarly, vegetation management strategies implemented in the current reporting year have been highly successful in boosting revegetation areas, with extensive planting undertaken in response to favourable conditions in Autumn 2020.

Depositional dust and particulate matter monitoring have shown that the current controls to minimise dust generation on site have been effective at achieving compliance with DC and EPL criteria, with measured levels that can be attributed to the Quarry mostly below that predicted from the EIS for the project. The commissioning of the new air monitoring network will also transition the current management approach from a reactive system to a proactive real-time monitoring network.

Modelling of noise impacts of the project based on measured noise levels have demonstrated compliance with the noise criteria of the DC. Similarly, measured blast overpressure and vibration levels have demonstrated that current management strategies related to blasting have been successful in reducing these impacts to well below compliance criterion and EIS predictions for the current reporting period.

A review of all management plans and strategies was undertaken as part of the Annual Review process, with this review finding that all management plans with the exception of the Sediment and Erosion Control Plan are current and appropriate to site activities, as well as being consistent with DC conditions and company commitments. As such, the Sediment and Erosion Control Plan will be updated within the next month and provided to the DPIE for approval.

Annexure A

NSW Trade and Investment Return – 2018-2019

Form S 1

NSW GOVERNMENT | Planning, Industry & Environment

RETURN FOR EXTRACTIVE MATERIALS: YEAR ENDED 30 JUNE 2019

Quote RIMS ID in all correspondence

Quarry Id: 1290	Rims ID: 400492
Operators Name:	CLEARY BROS (BOMBO) PTY LTD
Address:	PO BOX 210 PORT KEMBLA NSW 2505
Email:	
Quarry Name:	ALBION PARK QUARRY
Quarry Address:	81 EAST WEST ROUTE, CROOM NSW 2527

Inquiries please telephone: (02) 4063 6713

Completed or Nil Returns
Email – mineral.royalty@planning.nsw.gov.au
Postal Address (see below)

Please amend name, postal address and location of mine or quarry if incorrect or incomplete.

2018-2019

The return should be completed and forwarded to **Senior Advisory Officer, RESOURCE ECONOMICS, RESOURCE PLANNING & PROJECTS, NSW DEPARTMENT OF PLANNING, INDUSTRY & ENVIRONMENT, PO BOX 344 HUNTER REGION MAIL CENTRE NSW 2310 on or before 31 October 2019**. If completion of the return is unavoidably delayed, an application for extension of time should be requested **before** the due date. If no work was done during the year, a **NIL** return must be forwarded.

The return should relate to the **above quarrying establishment** and should cover the operations of quarrying and treatment (such as crushing, screening, washing etc.) carried out at or near the quarry. A return is required even if the operations are solely of a developmental nature and whether the area being worked is held under a mining title or otherwise.

Director, Resource Planning & Projects

Please complete all of the following information to assist in identifying the location of the Quarry

Typical Geology _Basalt and Tuffaceous Agglomerate_____

Nearest Town to Quarry _Albion Park Rail_____

Local Council Name _Shellharbour City Council _____

Deposited Plan and Lot Number/s of Quarry _Lot 1 DP858245, Lot 23 DP1039967, Lot 2 DP 1021840_____

Email Address of Operator _ _____

Name of Owner or Licensee _Cleary Bros (Bombo) Pty Ltd_____

Postal Address of Licensee _PO Box 210, Port Kembla NSW 2505_____

Licence/Lease Number/s (if any)
From Mineral Resources NSW (Industry & Investment NSW) _____

From Department of Lands or other Department _____

If any output was obtained from land NOT held under licence from the above Departments, state the Name/s and Address/es of the Owners of the land _Bridon Pty Ltd, PO Box 210, Port Kembla NSW 2505_____

To the best of my knowledge, information entered in this return is correct and no blank spaces left where figures should have been inserted.

- **SIGNATURE of PROPRIETOR or MANAGER** ___ _____ **DATE** 10/10/2019
- **CONTACT PERSON for this return** _ _____
- **NAME (Block letters)** _ _____ **Telephone** _ _____

SALES During 2018-2019

Production information may be published in aggregated form for statistical reporting. However, production data for individual operations is kept strictly confidential.

Product	Description	Quantity Tonnes
• **Virgin Materials** **Crushed Coarse Aggregates**	**Blue and Red hard rock products**	
Over 75mm	Armour rock, spalls, shot rock, gabion, scour	65,776
Over 30mm to 75mm	70mm crushed rock, rock fill, ballast	37,501
5mm to 30mm	20mm, 14mm, 10mm, 7mm, 5mm aggregates and blends	267,590
Under 5mm	Crusher dust and related products, bedding sand	147,093
Natural Sand		-
Manufactured Sand	Manufactured sand	16,964
Prepared Road Base & Sub Base	DGB, DGS, SMZ	69,517
Other Unprocessed Materials		-
• **Recycled Materials** **Crushed Coarse Aggregates**		
Over 75mm		-
Over 30mm to 75mm		-
5mm to 30mm		-
Under 5mm		-
Natural Sand		-
Manufactured Sand		-
Prepared Road Base & Sub Base	Enviropave	16,373
Other Unprocessed Materials		-
• **River Gravel**		
Over 30mm		-
5mm to 30mm		-
Under 5mm		-
• **Construction Sand**	Excluding Industrial	-
• **Industrial Sand**		
Foundry, Moulding		-
Glass		-
Other (Specify)		-
• **Dimension Stone**	Building, Ornamental, Monumental	
Quarried in Blocks		-
Quarried in Slabs		-
• **Decorative Aggregate**	Including Terrazzo	-
• **Loam**	Soil for Topdressing, Garden soil, Horticultural purposes)	**186**
• **TOTAL SITE PRODUCTION**		**620,999**
• **Gross Value ($) of all Sales**		
• **Type of Material**	Basalt and tuffaceous agglomerate, overburden	
• **Number of Full-Time Equivalent (FTE) Employees**	Employees: 30	Contractors: 10

Please Note: A return for clay based products can be obtained by contacting the inquiry number.

Annexure B

Environmental Monitoring Locations

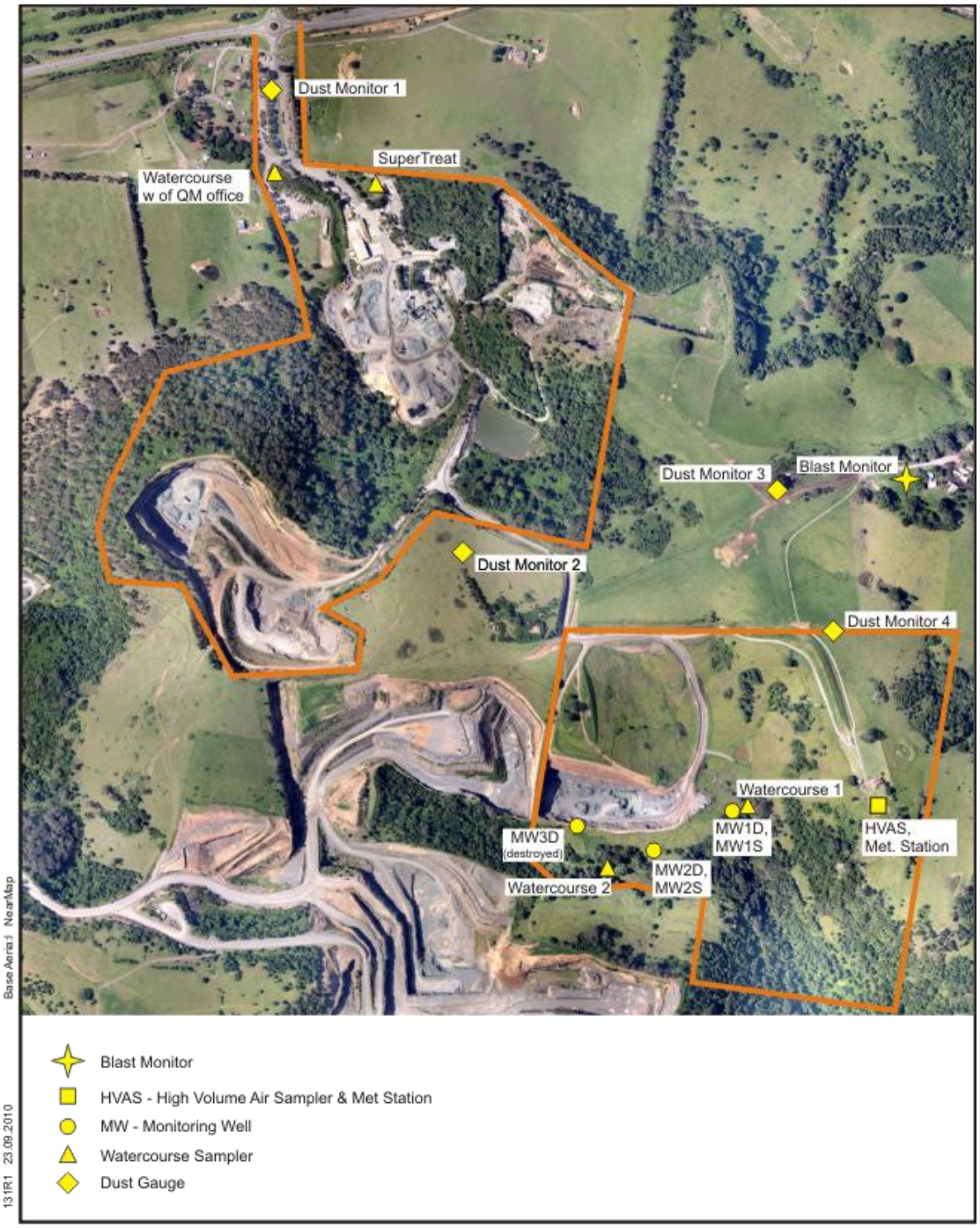


FIGURE 3 Monitoring Locations

Annexure C

Biannual Ecological and Rehabilitation Monitoring

Good Bush Pty Ltd – December 2019

Good Bush Pty Ltd
41 Gloucester Crescent
Dapto NSW 2530
Phone: 0406 215 823
ABN: 94 169 923 246
Email: brookscreekdapto@gmail.com

Mark Hammond
Quality and Environment Manager
Cleary Bros (Bombo) Pty Ltd
39 Five Islands Road (PO Box 210)
Port Kembla NSW 2505

Dear Mark

Please see attached results of the biannual inspection at Cleary Bros Albion Park Quarry carried out on 20th January 2020.

Yours Sincerely

Marcus Burgess

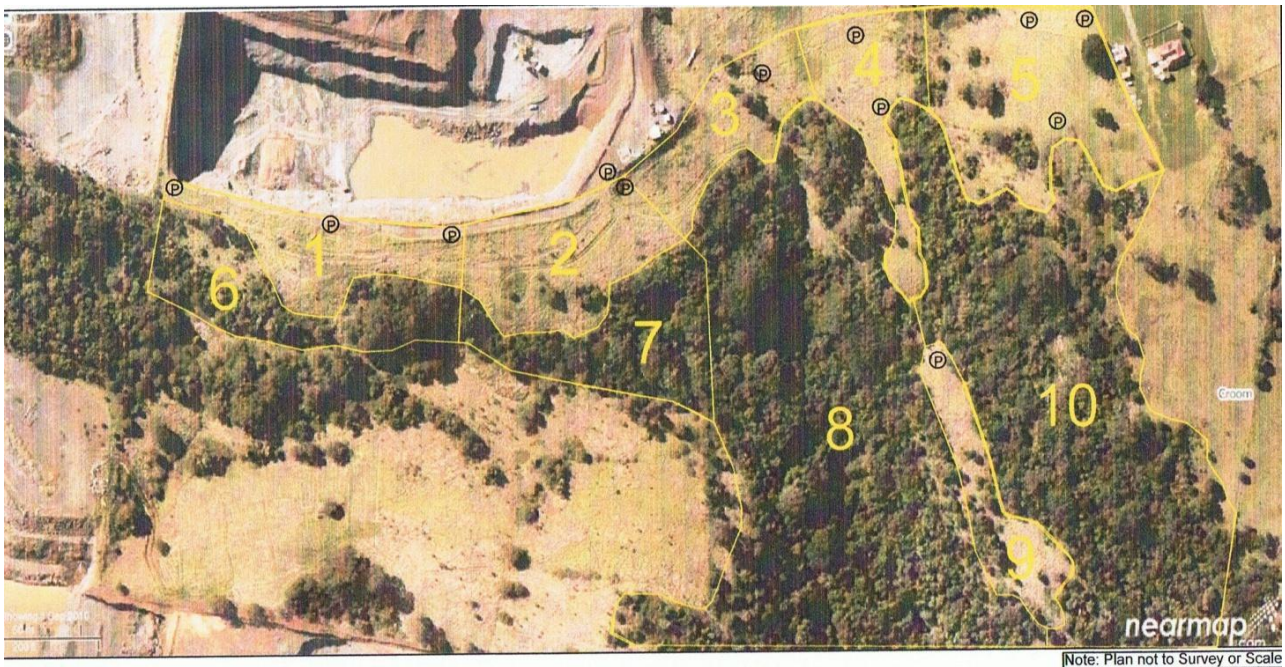
Manager – Good Bush Pty Ltd Natural Area Restoration

Cleary Bros Albion Park Quarry Biannual Inspection Report

Introduction

This report is a biannual evaluation of the bushland restoration works being carried out at Cleary Bros Albion Park Quarry.
A site inspection of the management areas was carried out on 20th January 2020 by Marcus Burgess and an evaluation of the success and failures of the recent works was carried out. These will be outlined below as well as recommendations for the future management of the sites.

Site Map



Management Zones

Zone 1, 2, 3

Zone Description

These zones consist of revegetation areas on the immediate southern side of the quarry pit. The majority of these areas have been fenced and revegetation works have been carried out over a number of years.
Prior to revegetation these areas were cleared of native vegetation and consisted of open pasture with a number of annual weeds and weed grasses present. Prior to planting these areas were heavily mulched to assist plant establishment and exclude weeds.
The plants that have been installed within these zones include a a small number of species such as Red Cedar, Cabbage Gum, Maidens Wattle and Prickly Paperbark. The Cabbage Gums have become susceptible to pests and diseases and the growth rates appear to have stunted from their original performance. All other species that have been planted within these areas have succeeded and are putting on new growth due to the recent rains.

Recommendations

The following management actions will be required within this zone:

- Planting additional canopy species at the western end of the fenced compound
- Planting additional canopy species outside of the fenced compound using recyclable chicken wire plant guards to minimise grazing
- Infill planting with pioneer species throughout all other areas within the fenced compound (see below for a list of suitable pioneer species to be used within this zone) to increase floristic diversity and reinstate natural regeneration processes
- Isolation of planted trees by removing annual weeds and grasses around the base of establishing trees to minimise competition for available moisture and light and to assist plant establishment
- Treatment of woody weeds such as Lantana, Inkweed (*Phytolacca octandra*) and Paddy's Lucerne (*Sida rhombifolia*) within the planted areas using the cut and paint method
- Treatment of highly invasive weed grasses including Red Natal Grass (*Melinis repens*)and Fountain Grass (*Pennisetum setaceum*) using hand removal and spraying methods

Zone 4, 5

Zone Description

These zones consist of mostly unworked grassy woodland remnants with large infestations of woody weeds existing around the perimeter and within the woodland areas and a high frequency of African Olive (*Olea europaea* subsp. *cuspidata*) trees at the northern edge. A small number of trees were installed within Zone 4 in Winter 2019 with minimal success. Fencing has been recently installed on the northern edges of these zones for future revegetation activities which will be planted once weather patterns are conducive to planting activities.

Recommendations

The following management actions will be required within this zone:

- Planting preparation including spraying management rings in pasture grass to minimise competition for establishing plants
- Planting within the fenced compounds to establish canopy and exclude weeds
- Treatment of woody weed incursions within the established canopy areas and around the perimeter of the rainforest remnants
- Assisted regeneration to assist expansion of the woodland remnants
- Treatment of large amounts of African Olive using frilling and cut and paint methods

Zone 6, 7

Zone Description

These zones consist of previously unworked subtropical rainforest on an ephemeral creek line with large infestations of woody weeds surrounding the perimeter of the established canopy areas. A large infestation of Madiera Vine (*Anredera cordifolia*) exists within the centre of Zone 7 that is thriving and expanding and will require treatment in the future.

Recommendations

The following management actions will be required within this zone:

- Treatment of Madiera Vine using the scrape and paint method to reduce the further spread of tubers. Spray treatment of vines that are smothering the ground layer and follow up treatment over a number of months
- Treatment of woody weed incursions within the established canopy areas and around the perimeter of the woodland remnants
- Assisted regeneration to assist expansion of the rainforest remnants

Zones 8, 10

Zone Description

These very large zones consist of previously unworked subtropical rainforest and grassy woodland communities with large infestations of woody weeds surrounding the perimeter of the established canopy areas.
The rainforest communities within these zones contain a highly diverse range of subtropical rainforest species and some regionally rare local native species such as Actephila (*Actephila lindleyi*) and Pigeonberry Ash (*Elaeocarpus kirtonii*). The area immediately below the waterfall has an interesting assemblage of tree species with all five of the local Native Fig (*Ficus superba, rubiginosa, macrophylla, coronata, obliqua*) all represented within close proximity to each other. This area has a high likelihood for the threatened species White Wax Flower (*Cynanchum elegans*) and Illawarra Socketwood (*Daphnandra johnsonii*) to be found within.
Due to the intact nature of these bushland remnants minimal planting will be required within these zones. Planting may be required in the future to create buffer edge plantings once the woody weeds have been removed. All works within these zones should focus on removal of weeds and assisted regeneration.

Recommendations

The following management actions will be required within this zone:

- Treatment of woody weed incursions within the established canopy areas and around the perimeter of the woodland and rainforest remnants
- Assisted regeneration to assist expansion of the rainforest remnants
- Monitoring for Madiera Vine populations that have been spread by floating tubers from Zones 6 and 7
- Treatment of large amounts of African Olive using frilling and cut and paint methods

Fencing

All fencing that has been installed round revegetation areas remains intact and has been effective at keeping goats out of the revegetation areas. Kangaroo and Wallaby however are not deterred by these fences and have been grazing within the compounds as evident by the occurrence of scats and grazing of annual weeds. As conditions have been very dry lately macropod grazing has become very opportunistic and species such as Fleabane that these animals would not usually graze is showing signs of grazing throughout the site.

Revegetation Species List

The following list contains a range of suitable pioneer species that will become established quickly, provide support for previously installed trees and assist regeneration by increasing floristic diversity. Species selected consist of a range of trees typically available from local revegetation specialist nurseries and are suited to the bushland types and spoil conditions of this site:

Botanical Name	**Common Name**
Acacia implexa	Hickory
Acacia maidenii	Maidens Wattle
Alphitonia excelsa	Red Ash
Commersonia fraseri	Brown Kurrajong
Dodonaea viscosa var. angustifolia	Hop Bush
Ehretia accuminata	Koda
Eucalyptus quadrangulata	White Top Box
Eucalyptus tereticornis	Forest Red Gum
Glochidion ferdinandi	Cheese Tree
Hibiscus heterophyllus	Native Hibiscus
Homolanthus populifolius	Bleeding Heart
Melia azederach	White Cedar
Pittosporum revolutum	Rough Pittosporum
Solanum aviculare	Kangaroo Apple
Trema tomentosa	Native Peach

Photographs

Zone 1, 2, 3 planting areas

Zone 1, 2, 3 planting areas

Zone 4 recently fenced future planting areas

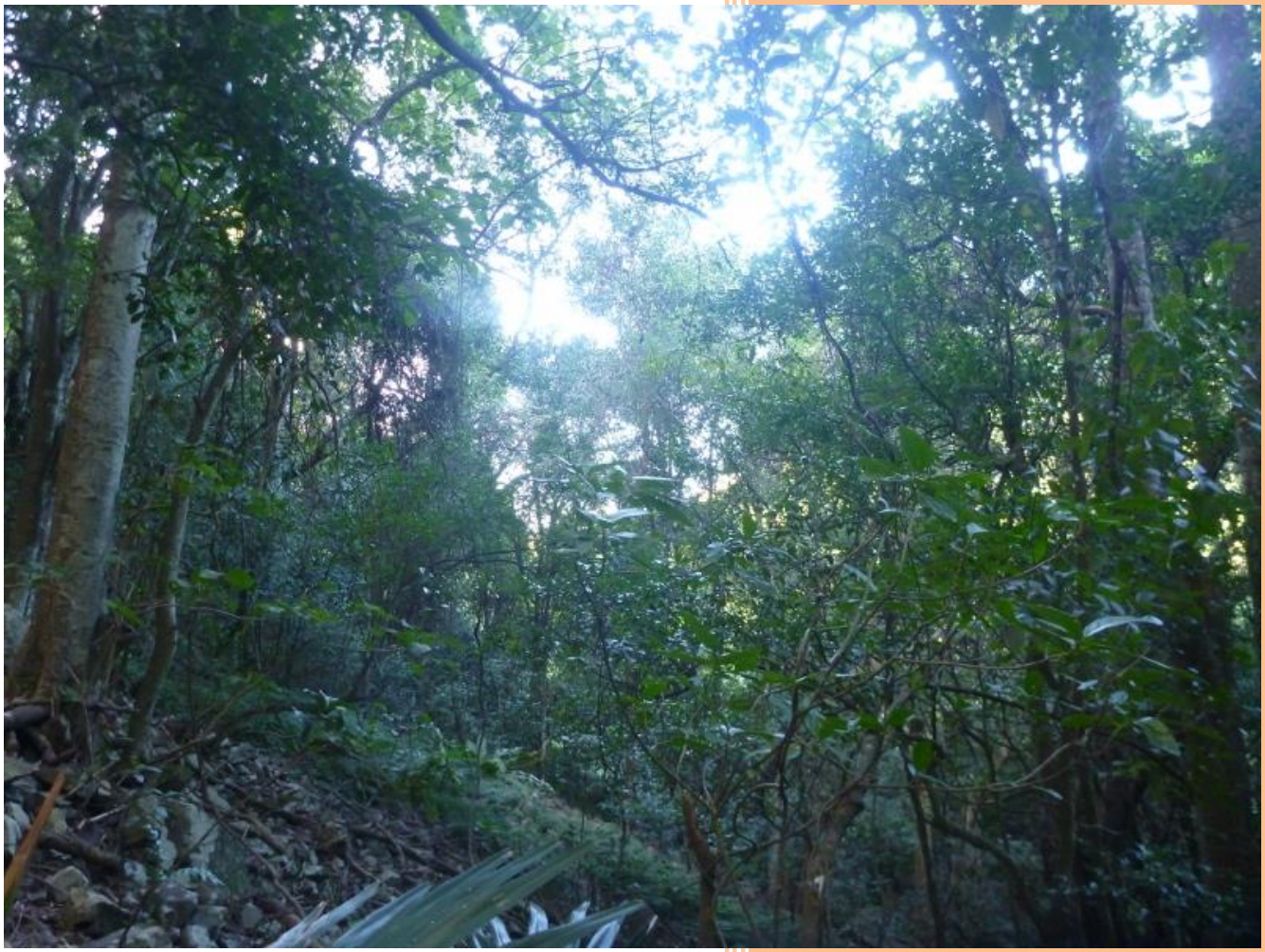
Zone 4 recently fenced future planting areas

Annexure D

Annual Ecological and Rehabilitation Monitoring

Good Bush Pty Ltd – July 2019

Albion Park Quarry Annual Monitoring Report



Report prepared by Marcus Burgess
Manager Good Bush Pty Ltd
15/07/2020

Contents

Introduction

Good Bush Pty Ltd were engaged by Cleary Bros (Bombo) to produce a report for the annual monitoring and condition assessment of the natural bushland and revegetation areas of Albion Park Hard Rock Quarry.

The objectives of this report is to assess the condition of the established monitoring plots and to provide management recommendations to assist establishment of plantings and natural regeneration of the conservation areas.

This report aims to meet the approval conditions of the NSW Land and Environment Court for the southern extension of the quarrying operational areas in 2006. A Vegetation Management Plan (VMP) was prepared for the site in 2007 and updated in 2018 (KMA) and this has guided the restoration of the site.

This report should be read in conjunction with "Vegetation Management Plan, Albion Park Hard Rock Quarry, Cleary Bros (Bombo) Pty Limited" and Kevin Mills & Associates (2018). Annual Inspection - June 2018, Vegetation Management, Albion Park Hard Rock Quarry

A condition of consent from the Court related to the implementation of the Vegetation Management Plan (VMP) states:

"*38. The Applicant shall include a progress report on the implementation of the Vegetation Management Plan in the AEMR*."

The Albion Park Quarry Environmental Management Plan (EMP) at Clause 7.7 requires reporting upon:

- The revegetation/rehabilitation areas shown on Appendix 1 of the LEC consent;
- The strip of riparian bushland immediately downhill from the quarry that could potentially be affected by changes to groundwater or surface water.

As noted in the EMP, the report shall comment on:

- Success of planted stock in the regeneration area;
- Natural seeding and growth of native vegetation in the restoration area;
- Weed control;
- Absence of spoil or rubbish;
- Any damage caused by animals or human interference;
- Recommendations for remedial action (if any)."

After a review of the Vegetation Management Plan (KMA 2007) which was subsequently approved by the Department of Planning and Environment. This has resulted in changes to the way the site is monitored; these new requirements are followed in this annual report.

The following requirements in the 2018 Vegetation Management Plan are relevant to the annual monitoring inspections.

5.1.2 Biannual Inspections

The ecologist will prepare a written report following each inspection, which will cover matters such as compliance with this management plan and any adverse environmental impacts, any recommendations and any additional mitigation measures considered necessary. The report will

also include the number and species of seedlings planted since the last inspection, the condition of the fences, the number of hours spent controlling pest species, and any other relevant matter. The written reports will include feedback from the Quarry Manager and will be included in the Annual Review for the relevant reporting period.

5.1.3 Annual Survey

Surveys will be undertaken in each of the monitoring plots to be established in the remnant vegetation as described in Section 2.1.3, as well as a monitoring plot to be established in the Restoration Zone and one monitoring plot to be established in each of the Planting Zones shown in Figure 5 (once plantings have commenced in the respective zone). The corners of each 20m x 20m monitoring plot will be marked with survey pegs, and the location of the centre of each plot logged using a GPS.

A survey of the known populations of threatened species in the Vegetation Management Areas will be undertaken as part of the annual survey. The aim of this inspection will be to confirm the known threatened species on site have not been adversely affected by quarrying operations. An assessment will be made as to the health of the population, as well as confirming existing controls to prevent quarry incursion on the threatened species are effective

Good Bush Pty Ltd were engaged by Cleary Bros (Bombo) Pty Ltd and report on the progress in implementing the above conditions. The latest site inspections and surveys were carried out on 2nd July 2020 for the purpose of addressing the requirements of the 2018 Vegetation Management Plan.

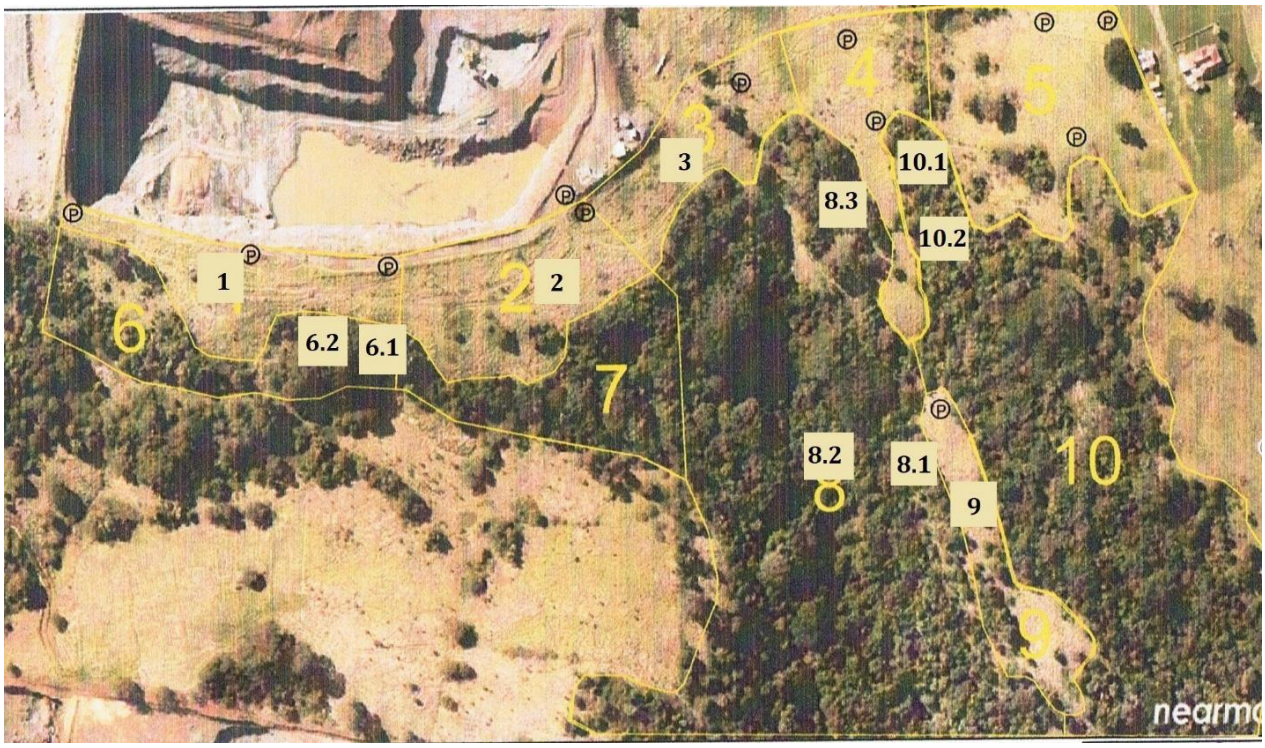
Site Location

Albion park hard Rock Quarry is located south of the East Week Link in Oak Flats. The total area of the hard rock quarry covered by this vegetation survey consists of approximately 9 hectares including bushland areas, revegetation areas and operational areas.

Location Map

Site Map

The rehabilitation areas were divided into 10 zones and the plan required 11 plots to be permanently established. The zones and location of the monitoring plots are shown on the map below (KMA 2018):



Survey Method

The four corners of a 20 metre x 20 metre monitoring plot were marked with survey pegs and the GPS location of the centre of each plot was recorded using a handheld instrument. A wide-angle photograph was taken looking diagonally across the plot from the northeast corner peg.
Each plant species within the plot was identified to genus and species and the abundance and percentage cover of each species within the plot recorded.
Notes were made on the presence of significant species, evidence of browsing by feral animals and general condition of the vegetation. The survey data for the 11 survey plots along with a photograph of each plot are provided.

Significant Plant Species

Several listed threatened plant species and a number of regionally rare species were recorded in the vegetation management plan. During the assessment for this report the following information was gathered in relation to presence and condition of these significant plant species:

Common Name	Botanical Name	Condition
Threatened species		
White Wax Flower	*Cynanchum elegans*	Not observed
Illawarra Zieria	*Zieria granulata*	Not observed
Illawarra Socketwood	*Daphnandra johnsonii*	Large population with many suckering stems identified within plot 8.2. Population healthy and expanding
Scrub Ironwood	*Gossia acmenoides*	Not observed
Regionally Rare Species		
Native Holly	*Alchornea ilicifolia*	Common and abundant, regenerating
Actephila	*Actephila lindleyi*	Not observed
Scrub Wilga	*Geijera salicifolia*	Common and abundant, regenerating
Olivers Sassafras	*Cinnamomum oliveri*	Single plant observed within plot 8.2
Myrtle Ebony	*Diospyros pentamera*	Single plant observed within plot 8.1

Weed Control

Weeds have proliferated within the fenced revegetation areas (Zones 1,2,3) since the last report but the majority of these weeds are annual weeds and grasses. Weed control has been carried out within these areas but the focus has been to control annual weeds and grasses around the base of establishing trees to reduce competition. This method will see a reduction in overall weed control requirements once the trees have become established and there is reduced light availability for annual weeds to colonise.

Woody weeds such as Lantana and Wild Tobacco were observed within some zones of the rehabilitation areas and Moth Vine is evident due to its high seed production and wind dispersed method. Treatment of woody weeds within this site should follow the Bradley method of working from areas of intact canopy and minimal weed encroachment toward the areas where weed frequency is higher.

The most severe weed impact within this site is the Madiera Vine that appears to originate within zone 6 and is present along the riparian corridor within zones 6,7 and 8. Madiera Vine is a very challenging weed to treat once established and the populations within this site will take considerable time and effort to control.

Condition of Fencing

All fencing observed appears to be in good condition.

Absence of Spoil or Rubbish

There is little rubbish present on site with small amounts of wind blown rubbish observed.

Animal or Human Interference

Grazing was observed within the fenced areas however this is most likely the result of Wallabies and Eastern Grey Kangaroo that have the ability to jump or find ways under these fences. There was no evidence that goats have entered the fenced compounds.

Riparian Zone

Water from the quarry has been emptying intermittently into the creek to the south for several years. This is quite variable, depending upon local rainfall and the need to de-water the quarry. In recent years, rainfall has been considerably lower than 'normal' so the need to pump water to the creek has been diminished. Inspection of the creek below the outlet pipe found no obvious negative impact from the quarry water (KMA 2018)

Previous Works

The following works have been carried out at this site between July 2019 and July 2020:

	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	TOTAL
Planting Hours	23								46		55		124 hours
Weed Control Hours	5							70	3		8		86 hours
Number of Plants Installed	240								200		150		590 plants
Other (fencing maintenance, watering, guards, inspections, etc)			16				5	4					25 hours
Feral animal control	2	8	6	4	6	4	4	4	4				42 hours

Planting Records

The following plants and numbers were installed this year:

Botanical Name	Number
Acacia implexa	20
Acacia maidenii	20
Acmena smithii	146
Alectryon subcinereus	5
Alphitonia excelsa	1
Backhousia myrtifolia	2
Baloghia inophylla	13
Brachychiton acerifolius	13
Cinnamomum oliveri	1
Cryptocarya glaucescens	1
Deeringia amaranthoides	1
Diploglottis australis	13
Elaeocarpus kirtonii	1
Emmenosperma alphitiniodes	7
Eucalyptus tereticornis	100
Ficus coronata	1
Ficus macrophylla	4
Ficus rubiginosa	41
Ficus spp.	5
Ficus superba	3
Glochidion ferdinandii	7
Gmelina leichardtii	13
Gossia acmeniodes	1
Homalanthus stillingiifolius	1
Litsea reticulata	5
Melaleuca styphelioides	20
Melia azedarach	11
Myrsine variabilis	10
Parachidendron pruinosum	11
Pisonia umbellifera	4
Pittosporum revolutum	1
Podocarpus elatus	8
Sambucus australasica	1
Sarcomelicope simplicifolia	1
Senna acclinis	2
Stenocarpus salignus	8
Streblus brunonianus	2
Synoum glandulosum	12
Syzigium australe	23
Toona ciliata	1
Trema tomentosa var.aspera	17
Wilkiea huegeliana	4
Various assorted rainforest trees	50
TOTAL	611

Recommendations

The following recommendations are made following the 2020 inspections:

- Treatment of Lantana working from areas of good bush toward the more weed infested areas within all but the planted zones
- Treatment of Madiera Vine to control further spread of this highly invasive weed
- Continued fencing maintenance to exclude goats and allow further establishment of the planted areas
- Continued revegetation maintenance around plantings to assist canopy establishment to eventually exclude annual weeds and grasses
- Planting within the recently fenced Zone 5 compound with a range of grassy woodland and rainforest canopy species
- Replacement plantings within previously planted areas to replace failed stock

Priority Weeds

The following invasive weed species were identified on this site and treatment methods for their removal. These weeds have been listed in their order for priority for removal as legislated and based on their invasive potential:

Botanical Name / Common Name	**Control Methods**
Madiera Vine (*Anredera cordifolia*)	Scrape and paint large stems to kill tubers, hand remove tubers already in the soil
African Olive (*Olea europaea* subsp *cuspidata*)	Cut and paint and mulch small plants, frill larger trees
Cape Ivy (*Delairea odorata*)	Hand remove all stems and root points and raft materials in an elevated position until dry then mulch material on site
Moth Vine (*Araujia sericifera*)	Cut and paint and mulch materials on site after removal of viable and bagging fruit
Narrowleaf Firethorn (*Pyracantha angustifolia*)	Cut and paint and mulch small plants, frill larger trees
Wild Tobacco (*Solanum mauritianum*	Cut and paint and mulch materials on site after removal of viable seed
Lantana (*Lantana camara*)	Cut and paint and mulch materials on site

Monitoring Requirements

Extract from Section 5 of the Vegetation Management Plan (2018).

"5.1.3 Annual Survey

The June (or thereabouts) inspection by the ecologist each year will include a quantitative survey of the Vegetation Management Areas, which will be included in the Annual Review. The survey is designed to assess the health of the Remnant Vegetation and the performance of the management strategies outlined in the VMP. Surveys will be undertaken in each of the monitoring plots to be established in the remnant vegetation as described in Section 2.1.3, as well as a monitoring plot to be established in the Restoration Zone and one monitoring plot to be established in each of the Planting Zones shown in Figure 5 (once plantings have commenced in the respective zone). The corners of each 20m x 20m monitoring plot will be marked with survey pegs, and the location of the centre of each plot logged using a GPS.

For each plot, the following will be recorded and reported in the annual report:

- Number of plantings surviving for each species (Revegetation Areas only);
- Number of plantings not surviving (Revegetation Areas only);
- Number of stems of each native species;
- Number of stems of each weed species;
- Percentage cover of weed species;
- Percentage foliage cover;
- Percentage ground cover;
- Abundance of threatened plant species or other plant species of conservation significance;
- Presence of threatened fauna species (including presence outside of marked plot;
- Pseudo-density of feral animals as determined by abundance and distribution of traces (scats, prints etc.); and
- Health of vegetation community (related to potential water stress).

A survey of the known populations of threatened species in the Vegetation Management Areas will be undertaken as part of the annual survey. The aim of this inspection will be to confirm the known threatened species on site have not been adversely affected by quarrying operations. An assessment will be made as to the health of the population, as well as confirming existing controls to prevent quarry incursion on the threatened species are effective."

Monitoring Field Sheets

Good Bush Monitoring Survey sheet		Site: Cleary Bros Albion Park Quarry	
Date: 2/07/2020		Plot No: 1	
Recorder: Marcus and Sam		Plot Size: 20 x 20m	
GPS Northing	6170349	GPS Easting	0300052
GPS Accuracy	+ - 6m	GPS Elevation	89m
Vegetation Community: Western revegetation area			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name Native Sp.	**Abundance**	**% Cover**	**Botanical Name Weed Sp.**	**Abundance**	**% Cover**
Ehretia accuminata	U	<5%	*Cenchrus clandestinum*	C	60%
Acacia maidenii	U	<5%	*Chloris virgata*	C	40%
Geranium homeanum	U	<5%	*Melinis repens*	C	<5%
Geitonoplesium cymosum	U	<5%	*Paspalum dilatatum*	C	<5%
Juncus usitattus	U	<5%	*Tagetes minuta*	C	15%
Dichondra repens	U	<5%	*Bidens pilosa*	C	20%
Oplismenis aemulus	U	<5%	*Gomphcarpus fruticosis*	O	<5%
Acacia implexa	U	10%	*Sida rhombifolia*	O	<5%
Streblus brunonianus	I	<5%	*Verbena bonariensis*	O	<5%
Synoum glandulosum	I	<5%	*Modiola caroliniana*	U	<5%
			Cirsium vulgare	U	<5%
			Cenchrus setaceus	U	<5%
			Vicia sp.	U	<5%
			Brassica sp.	U	10%
			Aster subulatus	U	<5%
			Chloris gayana	U	10%
			Sonchus olearaceous	U	<5%
			Anagallis arvensis	U	<5%
			Conyza sumatrensis	U	<5%
			Cyperus eragrostis	U	<5%
			Medicago sp.	U	<5%
			Araujia sericifera	U	<5%
			Cynodon dactylon	C	15%

Vegetation Condition:	Disturbed weedy revegetation area
Fauna Evidence:	Kangaroo, Wallaby, Fox scats
Significant Species:	*n/a*

Plot 1 NE corner photo

Good Bush Monitoring Survey sheet		Site: Cleary Bros Albion Park Quarry	
Date: 2/07/2020		Plot No: 2	
Recorder: Marcus and Sam		Plot Size: 20 x 20m	
GPS Northing	6170368	GPS Easting	0300213
GPS Accuracy	+ - 3m	GPS Elevation	84m
Vegetation Community: central revegetation area			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name Native Sp.	**Abundance**	**% Cover**	**Botanical Name Weed Sp.**	**Abundance**	**% Cover**
Toona ciliata	U	<5%	*Setaria sp.*	C	15%
Acacia maidenii	U	<5%	*Chloris virgata*	C	40%
Geranium homeanum	U	<5%	*Melinis repens*	C	15%
Melaleuca styphelioides	U	<5%	*Paspalum dilatatum*	C	<5%
Juncus usitattus	U	<5%	*Tagetes minuta*	C	15%
Dichondra repens	U	<5%	*Bidens pilosa*	C	10%
Oplismenis aemulus	U	<5%	*Gomphcarpus fruticosis*	O	<5%
			Sida rhombifolia	O	<5%
			Verbena bonariensis	O	<5%
			Modiola caroliniana	U	<5%
			Cirsium vulgare	U	<5%
			Cenchrus setaceus	U	10%
			Vicia sp.	U	<5%
			Brassica sp.	U	10%
			Aster subulatus	U	<5%
			Chloris gayana	U	10%
			Sonchus olearaceous	U	<5%
			Anagallis arvensis	U	<5%
			Conyza sumatrensis	U	<5%
			Cyperus eragrostis	U	<5%
			Medicago sp.	U	<5%
			Araujia sericifera	U	<5%

Vegetation Condition:	Disturbed weedy revegetation area
Fauna Evidence:	Kangaroo, Wallaby, Fox scats
Significant Species:	*n/a*

Plot 2 NE corner photo

Establishing plantings adjacent to Plot 2

Good Bush Monitoring Survey sheet		Site: Cleary Bros Albion Park Quarry	
Date: 2/07/2020		Plot No: 3	
Recorder: Marcus and Sam		Plot Size: 20 x 20m	
GPS Northing	6170368	GPS Easting	0300263
GPS Accuracy	+ - 3m	GPS Elevation	84m
Vegetation Community: Eastern edge of revegetation area			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name Native Sp.	**Abundance**	**% Cover**	**Botanical Name Weed Sp.**	**Abundance**	**% Cover**
Toona ciliata	U	<5%	*Setaria sp.*		15%
Acacia maidenii	U	<5%	*Chloris virgata*		40%
Geranium homeanum	U	<5%	*Melinis repens*		15%
Melaleuca styphelioides	U	<5%	*Paspalum dilatatum*		<5%
			Tagetes minuta		15%
			Bidens pilosa		10%
			Gomphcarpus fruticosis		<5%
			Sida rhombifolia		<5%
			Verbena bonariensis		<5%
			Modiola caroliniana		<5%
			Cirsium vulgare		<5%
			Cenchrus setaceus		10%
			Vicia sp.		<5%
			Brassica sp.		10%
			Aster subulatus		<5%
			Chloris gayana		10%
			Sonchus olearaceous		<5%
			Anagallis arvensis		<5%
			Conyza sumatrensis		<5%

Vegetation Condition:	Disturbed weedy revegetation area
Fauna Evidence:	Kangaroo, Wallaby, Fox scats
Significant Species:	*n/a*

Plot 3 NE corner photo

Good Bush Monitoring Survey sheet		Site: Cleary Bros Albion Park Quarry	
Date: 2/07/2020		Plot No: 6.1	
Recorder: Marcus and Sam		Plot Size: 20 x 20m	
GPS Northing	6170316	GPS Easting	0300127
GPS Accuracy	+ - 5m	GPS Elevation	83m
Vegetation Community: Illawarra Dry Subtropical Rainforest			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name Native Sp.	**Abundance**	**% Cover**	**Botanical Name Weed Sp.**	**Abundance**	**% Cover**
Ficus macrophylla	I	45%	*Araujia sericifera*	O	<5%
Acacia maidenii	O	20%	*Delairea odorata*	O	<5%
Diospyros australis	O	10%	*Sida rhombifolia*	U	<5%
Pandorea pandorana	C	10%	*Lantana camara*	O	10%
Streblus brunonianus	C	10%	*Chloris gayana*	I	<5%
Elaeodendron australe	O	<5%			
Pittosporum multiflorum	C	<5%			
Alectryon subcinireus	C	<5%			
Notelea venosa	C	<5%			
Croton verauxii	O	<5%			
Melicytus dentatus	O	<5%			
Alphitonia excelsa	I	10%			
Alchornea ilicifolia	O	<5%			
Geijera salicifolia	I	10%			
Clerodendrum tomentosa	O	<5%			
Eustrephus latifolius	C	<5%			
Nyssanthes erecta	C	<5%			
Maclura cochinchinensis	C	<5%			
Oplismenis imbecillis	C	<5%			
Pseuderanthemum variabile	C	<5%			
Stellaria flaccida	O	<5%			
Getonoplesium cymosum	CO	<5%			
Cayratia clematidea	C	<5%			
Parsonsia straminea	O	<5%			
Asplenium flabellifolium	O	<5%			
Celastrus australis	U	<5%			
Breynia oblongifolia	U	<5%			

Vegetation Condition:	Remnant Dry Rainforest with heavily disturbed edges
Fauna Evidence:	Minor rutting. Walaby and Roo tracks
Significant Species:	n/a

Plot 6.1 NE corner photo

Good Bush Monitoring Survey sheet		Site: Cleary Bros Albion Park Quarry	
Date: 2/07/2020		Plot No: 6.2	
Recorder: Marcus and Sam		Plot Size: 20 x 20m	
GPS Northing	6170318	GPS Easting	0300095
GPS Accuracy	+ - 4m	GPS Elevation	83m
Vegetation Community: Illawarra Dry Subtropical Rainforest			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name Native Sp.	**Abundance**	**% Cover**	**Botanical Name Weed Sp.**	**Abundance**	**% Cover**
Eucalyptus quadrangulata	I	30%	*Araujia sericifera*	U	<5%
Celastrus australis	C	<5%	*Delairea odorata*	C	<5%
Notelea venosa	C	<5%	*Bidens pilosa*	U	<5%
Streblus brunonianus	C	10%	*Sida rhombifolia*	U	<5%
Alchornea ilicifolia	C	<5%	*Lantana camara*	C	40%
Nyssanthes erecta	C	<5%	*Chloris gayana*	U	<5%
Analiema biflorum	U	<5%	*Physalis peruviana*	I	<5%
Alphitonia excelsa	O	<5%	*Phytolacca octandra*	I	<5%
Elaeodendron australe	C	<5%			
Croton verauxii	O	<5%			
Geitonoplesium cymosum	C	<5%			
Clerodendrum tomentosa	C	<5%			
Trophis scandens	O	<5%			
Pittosporum undulatum	O	<5%			
Pandorea pandorana	O	10%			
Asplenium flabellifolium	O	<5%			
Acacia maidenii	U	<5%			
Eustrephus latifolius	C	<5%			
Dichondra repens	C	<5%			
Pseuderanthemum variabile	C	<5%			
Commelina cyanea	C	<5%			
Glycine sp.	C	<5%			
Maclura cochinchinensis	I	<5%			
Melicope micrococca	I	<5%			

Vegetation Condition:	Disturbed Dry Rainforest
Fauna Evidence:	Wombat, Wallaby, Eastern Grey Kangaroo Scats. Minor rutting
Significant Species:	n/a

Plot 6.2 NE corner photo

Alchornea ilicifolia within Plot 6.

Good Bush Monitoring Survey sheet		Site: Cleary Bros Albion Park Quarry	
Date: 2/07/2020		Plot No: 8.1	
Recorder: Marcus and Sam		Plot Size: 20 x 20m	
GPS Northing	6170280	GPS Easting	0300422
GPS Accuracy	+ - 7m	GPS Elevation	74m
Vegetation Community: Illawarra Subtropical Rainforest			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name Native Sp.	**Abundance**	**% Cover**	**Botanical Name Weed Sp.**	**Abundance**	**% Cover**
Acacia maidenii	U	<5%	*Olea eurpaea*	C	40%
Guoia semiglauca	U	<5%	*Lantana camara*	C	25%
Alphitonia excelsa	O	10%	*Bidens Pilosa*	C	30%
Notelea venosa	U	10%	*Sida rhombifolia*	C	10%
Hibiscus heterophyllus	C	10%	*Tagetes minuta*	O	30%
Pittosporum undulatum	C	15%	*Delairea odorata*	O	<5%
Clerodendrum tomentosa	I	<5%	*Solanum americanum*	O	<5%
Disopyros pentemera	I	<5%	*Chloris gayana*	O	<5%
Streblus brunonianus	C	<5%	*Solanum pseudocapsicum*	O	<5%
Pandorea pandorana	C	25%			
Adiantum formosum	C	30%			
Oplismenis aemulus	C	15%			
Pellea falcata	C	<5%			
Geitonoplesium cymosum	C	<5%			
Abutilon oxycarpum	C	15%			
Dichondra repens	C	<5%			
Poa labilardieri	O	<5%			
Breynia oblongofolia	O	<5%			
Glycine sp.	U	<5%			
Geijera salicifolia	U	10%			
Maclura cochinchinensis	O	<5%			
Pseuderanthemum variabile	O	<5%			
Melicope micrococca	I	<5%			
Parsonsia straminea	I	<5%			
Plectanthus parvifolius	O	<5%			
Eustrephus latifolius	O	<5%			
Claoxylon australe	I	<5%			

Vegetation Condition:	Regrowth Subtropical Rainforest with a disturbed understorey
Fauna Evidence:	Animal tracks
Significant Species:	*Disopyros pentemera* regionally rare rainforest species

Plot 8.1 NE corner photo

Good Bush Monitoring Survey sheet		Site: Cleary Bros Albion Park Quarry	
Date: 2/07/2020		Plot No: 8.2	
Recorder: Marcus and Sam		Plot Size: 20 x 20m	
GPS Northing	6170284	GPS Easting	0300379
GPS Accuracy	+ - 7m	GPS Elevation	60m
Vegetation Community: Illawarra Subtropical Rainforest			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name Native Sp.	**Abundance**	**% Cover**	**Botanical Name Weed Sp.**	**Abundance**	**% Cover**
Daphnandra johnsonii	U	10%	*Anredera cordifolia*	C	15%
Dendrocnide excelsa	C	25%			
Ehretia accuminata	I	10%			
Baloghia inophylla	C	7%			
Pittosporum undulatum	C	7%			
Alectryon subcinireus	C	<5%			
Elaodendron australe	C	<5%			
Diploglottis australis	I	<5%			
Parachidendron pruinosum	O	10%			
Brachychiton acerifolius	I	<5%			
Notelaea venosa	C	10%			
Streblus brunonianus	C	10%			
Marsdenia flavescens	C	<5%	Natives Continued		
Alphitonia excelsa	C	<5%	*Palmeria scandens*	I	<5%
Guoia semiglauca	O	<5%	*Marsdenia rostrata*	O	<5%
Gymnostachys anceps	U	<5%	*Eustrephus latifolius*	U	<5%
Adiantum aethiopicum	C	10%	*Cinnamomum oliveri*	I	<5%
Arthropteris tenella	U	<5%	*Claoxylon australe*	U	<5%
Doodia aspera	U	<5%	*Wilkiea huegeliana*	U	<5%
Parsonsia straminea	U	<5%			
Croton verauxii	I	<5%			
Pseuderanthemum variabile	U	<5%			
Pandorea pandorana	U	<5%			
Microsorum scandens	U	<5%			
Trophis scandens	O	<5%			
Livistona australis	I	<5%			
Melictyus dentataus	I	<5%			

Vegetation Condition:	Remnant Subtropical Rainforest with intact canopy
Fauna Evidence:	Animal tracks
Significant Species:	*Cinnamomum oliveri* regionally rare rainforest species *Daphnandra johnsonii* Illawarra endemic threatened species

Plot 8.2 NE corner Photo

Plot 8.2 Madiera Vine frequency

Good Bush Monitoring Survey sheet		Site: Cleary Bros Albion Park Quarry	
Date: 2/07/2020		Plot No: 8.3	
Recorder: Marcus and Sam		Plot Size: 20 x 20m	
GPS Northing	6170385	GPS Easting	0300387
GPS Accuracy	+ - 6m	GPS Elevation	84m
Vegetation Community: Disturbed grassy woodland remnant			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name Native Sp.	**Abundance**	**% Cover**	**Botanical Name Weed Sp.**	**Abundance**	**% Cover**
Eucalyptus tereticornis	C	40%	*Lantana camara*	C	70%
Acacia maidenii	U	10%	*Tagetes minuta*	C	10%
Pittosporum undulatum	U	<5%	*Bidens Pilosa*	C	10%
Maclura cochinchinensis	U	<5%	*Verbena bonariensis*	O	<5%
Dichondra repens	U	<5%	*Sida rhombifolia*	C	10%
Glycine sp.	U	<5%	*Pyracantha angustifolia*	I	<5%
Pandorea pandorana	O	<5%	*Chloris gayana*	O	10%
Breynia oblongifolia	O	<5%	*Paspalum dilatatum*	O	<5%
Geitonoplesium cymosum	O	<5%	*Olea europaea*	O	<5%
Notelea venosa	U	<5%	*Araujia sericifera*	U	<5%
Carex longebrachiata	C	<5%			

Vegetation Condition:	Disturbed grassy woodland with intact canopy. Heavily weed infested understorey
Fauna Evidence:	
Significant Species:	*n/a*

Plot 8.3 NE corner photo

Good Bush Monitoring Survey sheet		Site: Cleary Bros Albion Park Quarry	
Date: 2/07/2020		Plot No: 9	
Recorder: Marcus and Sam		Plot Size: 20 x 20m	
GPS Northing	6170272	GPS Easting	0300442
GPS Accuracy	+ - 5m	GPS Elevation	100m
Vegetation Community: Disturbed open grassland between rainforest remnants			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name Native Sp.	**Abundance**	**% Cover**	**Botanical Name Weed Sp.**	**Abundance**	**% Cover**
Acacia maidenii	O	15%	*Lantana camara*	C	30%
Pittosporum undulatum	U	10%	*Chloris gayana*	C	50%
Guoia semiglauca	O	<5%	*Bidens Pilosa*	C	20%
Pandorea pandorana	O	<5%	*Sida rhombifolia*	C	<5%
Maclura cochinchinensis	O	<5%	*Delairea odorata*	C	<5%
Dichondra repens	I	<5%	*Verbena bonariensis*	I	<5%
Carex longebrachiata	C	<5%	*Senecio madagascarensis*	I	<5%
Breynia oblongifolia	I	<5%	*Araujia sericifera*	U	<5%
Hibiscus heterophyllus	I	<5%	*Olea europaea*	U	<5%
			Vicia sp.	I	<5%
			Conyza sumatrensis	I	<5%
			Plantago lanceolata	I	<5%

Vegetation Condition:	Disturbed open grassland. Heavily weed infested
Fauna Evidence:	Animal tracks
Significant Species:	*n/a*

Plot 9 NE corner photo

Good Bush Monitoring Survey sheet		Site: Cleary Bros Albion Park Quarry	
Date: 2/07/2020		Plot No: 10.1	
Recorder: Marcus and Sam		Plot Size: 20 x 20m	
GPS Northing	6170437	GPS Easting	0300428
GPS Accuracy	+ - 8m	GPS Elevation	97m
Vegetation Community: Illawarra Dry Subtropical Rainforest			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name Native Sp.	**Abundance**	**% Cover**	**Botanical Name Weed Sp.**	**Abundance**	**% Cover**
Acacia maidenii	I	<5%	*Araujia sericifera*	U	<5%
Guioa semiglauca	C	20%	*Bidens pilosa*	C	15%
Maclura cochinchinensis	C	25%	*Lantana camara*	C	20%
Hibiscus heterophyllus	C	<5%	*Delairea odorata*	C	15%
Pittosporum undulatum	C	10%	*Passiflora subpeltata*	I	<5%
Elaeodendron australe	C	10%	*Solanum pseudocapsicum*	U	<5%
Streblus brunonianus	C	<5%	*Sida rhombifolia*	O	<5%
Pandorea pandorana	C		*Chloris gayana*	C	<5%
Diploglottis australis	I	<5%	*Olea europaea*	C	<5%
Pellea falcata	O	<5%	*Senecio madagascarensis*	U	<5%
Asplenium flabellifolium	O	<5%	*Tagetes minuta*	U	<5%
Aphaneopetalum resinosum	C	10%	*Pyracantha angustifolia*	U	<5%
Cissus antarctica	O	10%	*Sonchus olearaceus*	I	<5%
Notelea venosa	U	10%	*Phytolacca octandra*	I	<5%
Clerodendrum tomentosa	O	<5%	*Solanum americanum*	U	<5%
Eustrephus latifolius	C	<5%	*Conyza sumatrensis*	U	<5%
Oplismenis aemulus	O	<5%			
Plectranthus parvifolius	O	<5%			
Trophis scandens	O	<5%			
Cayratia clematidea	U	<5%			
Solanum opacum	I	<5%			
Alchornea illicifolia	I	<5%			
Nyssanthes erecta	U	<5%			
Einadia hastata	U	<5%			
Microlaena stipoides	I	<5%			
Geranium homeanum	U	<5%			
Adiantum aethiopicum	U	<5%			

Vegetation Condition:	Regrowth Dry Rainforest
Fauna Evidence:	Wombat, Wallaby scats. Rutting on Alectryon subcinireus
Significant Species:	n/a

Plot 10.1 NE corner photo

Good Bush Monitoring Survey sheet		Site: Cleary Bros Albion Park Quarry	
Date: 2/07/2020		Plot No: 10.2	
Recorder: Marcus and Sam		Plot Size: 20 x 20m	
GPS Northing	6170385	GPS Easting	0300432
GPS Accuracy	+ - 11m	GPS Elevation	100m
Vegetation Community: Illawarra Dry Subtropical Rainforest			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name Native Sp.	**Abundance**	**% Cover**	**Botanical Name Weed Sp.**	**Abundance**	**% Cover**
Clerodendrum tomentosa	O	<5%	*Araujia sericifera*	C	<5%
Gymnostachys anceps	I	<5%	*Bidens pilosa*	U	<5%
Elaeodendron australe	O	15%	*Lantana camara*	U	<5%
Streblus brunonianus	O	20%	*Delairea odorata*	U	<5%
Cayratia clematidea	O	10%	*Passiflora subpeltata*	I	<5%
Oplismenis imbecilis	O	<5%	*Solanum pseudocapsicum*	I	<5%
Trophis scandens	O	10%	*Sida rhombifolia*	I	<5%
Eustrephus latifolius	C	<5%			
Aphaneopetalum resinosum	C	15%			
Guoia semiglauca	C	10%			
Pittosporum revolutum	I	<5%			
Notelea venosa	C	20%			
Pandorea pandorana	C	10%			
Alphitonia excelsa	C	10%	Additional Natives		
Pellea falcata	U	<5%	*Diospyros australis*	I	<5%
Melicytus dentatus	I	<5%	*Hibiscus heterophyllus*	O	<5%
Parsonsia straminea	C	15%	*Baloghia inophylla*	I	<5%
Geitonoplesium cymosum	C	<5%	*Pseuderanthemum variabile*	C	<5%
Polyscias elegans	I	<5%	*Stephania japonica*	I	<5%
Alchornea ilicifolia	U	<5%	*Acacia maidenii*	U	<5%
Maclura cochinchinensis	C	10%	*Tylophora barbata*	U	<5%
Marsdenia rostrata	C	10%	*Abutilon oxycarpum*	I	<5%
Melicope micrococca	I	<5%			
Alectryon subcinireus	U	<5%			
Pittosporum undulatum	C	<5%			
Cryptocarya micronuera	I	<5%			

Vegetation Condition:	Regrowth Dry Rainforest
Fauna Evidence:	Wombat, Wallaby scats
Significant Species:	n/a

Plot 10.2 NE corner photo

References

Cleary Bros (Bombo) (2018). Vegetation Management Plan, Albion Park Hard Rock Quarry. The Company, Port Kembla.

Kevin Mills & Associates (2007). Vegetation Management Plan, Albion Park Hard Rock Quarry, Cleary Bros (Bombo) Pty Limited. Cleary Bros (Bombo), Port Kembla, October.

Annexure E

Environmental Monitoring Results from the 2019-2020 Reporting Period

Groundwater Monitoring Results

	MW 1D				MW 1S			
	Sep-19	Dec-19	Mar-20	Jun-20	Sep-19	Dec-19	Mar-20	Jun-20
pH (pH units)	7.5	7.6	Water level low - unable to collect sample	7.2	6.8	6.9	6.9	6.9
Conductivity (µS/cm)	1760	1900		2500	1800	1800	2040	1960
TDS (mg/L)	1220	904		1740	1160	905	1320	1370
TSS (mg/L)	61	30		67	123	25	45	136
Temperature (°C)	20.8	23.8		18.3	24.1	24.9	20.6	18.6
Alkalinity (mg/L)	348	347		252	376	296	345	307
Sulphate (mg/L)	420	473		877	192	238	310	307
Chloride (mg/L)	151	165		138	332	361	402	348
Calcium (mg/L)	148	147		250	158	148	150	164
Sodium (mg/L)	282	299		321	138	135	158	152
Potassium (mg/L)	1	<1		1	3	2	3	2
Dissolved Arsenic (mg/L)	0.001	0.002		0.001	0.005	<0.001	<0.001	<0.001
Dissolved Cadmium (mg/L)	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Chromium (mg/L)	<0.001	<0.001		<0.001	<0.001	<0.001	0.001	<0.001
Dissolved Copper (mg/L)	<0.001	<0.001		0.002	<0.001	0.013	0.016	0.022
Dissolved Iron (mg/L)	<0.05	<0.05		<0.05	0.26	<0.05	<0.05	<0.05
Dissolved Lead (mg/L)	0.001	0.001		<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Mercury (mg/L)	<0.0001	0.001		<0.0001	<0.0001	<0.0001	NT	<0.0001
Dissolved Nickel (mg/L)	0.017	0.016		0.021	0.003	0.003	0.001	0.001
Dissolved Zinc (mg/L)	0.068	<0.005		0.048	0.048	0.07	0.065	0.05
Ammonia (mg/L)	0.66	1.7		0.19	0.54	0.04	0.04	<0.01
Nitrate (mg/L)	0.85	0.62		13.5	0.03	0.3	0.61	0.55
TKN (mg/L)	1.8	6.1		3.2	1.8	0.6	8.9	1.5
Total Phosphorus (mg/L)	0.2	0.77		0.1	0.23	0.04	1.9	0.41
TOC (mg/L)	6	4		2	19	11	26	9
Oil & Grease (mg/L)	<5	<5		<5	<5	<5	<5	<5
BOD (mg/L)	6	12		2	<2	2	2	<2
Depth (mbgl)	22.1	23.8		25.2	7.1	7.4	5.8	5.45
NT = Not Tested								

	MW 2D				MW 2S			
	Sep-19	Dec-19	Mar-20	Jun-20	Sep-19	Dec-19	Mar-20	Jun-20
pH (pH units)	7.5	7.6	7.6	7.5	6.8	Insufficient water for sample	7	7
Conductivity (µS/cm)	1820	1860	1770	1830	1240		1280	1390
TDS (mg/L)	1010	1080	1140	1090	856		855	1020
TSS (mg/L)	35	12	12	37	194		40	63
Temperature (°C)	22.8	24.8	21.3	17.5	22.8		20.7	17.7
Alkalinity (mg/L)	302	289	353	343	165		270	390
Sulphate (mg/L)	153	199	249	248	423		386	332
Chloride (mg/L)	381	389	326	314	63		63	69
Calcium (mg/L)	110	109	98	115	72		66	101
Sodium (mg/L)	209	213	180	201	145		134	148
Potassium (mg/L)	1	1	1	2	1		<1	<1
Dissolved Arsenic (mg/L)	0.002	0.004	NT	0.003	NT		NT	<0.001
Dissolved Cadmium (mg/L)	<0.0001	<0.0001	NT	<0.0001	NT		NT	<0.0001
Dissolved Chromium (mg/L)	<0.001	<0.001	NT	<0.001	NT		NT	<0.001
Dissolved Copper (mg/L)	0.002	<0.001	0.003	0.008	0.006		0.007	0.004
Dissolved Iron (mg/L)	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05
Dissolved Lead (mg/L)	<0.001	<0.001	NT	<0.001	NT		NT	<0.001
Dissolved Mercury (mg/L)	<0.0001	<0.0001	NT	<0.0001	NT		NT	<0.0001
Dissolved Nickel (mg/L)	0.004	0.002	0.002	0.003	0.002		0.003	0.001
Dissolved Zinc (mg/L)	0.062	0.078	0.057	0.063	0.094		0.05	0.02
Ammonia (mg/L)	<0.01	<0.01	<0.01	<0.01	0.01		<0.01	<0.01
Nitrate (mg/L)	0.03	0.01	0.04	0.21	3.47		2.04	1.55
TKN (mg/L)	0.1	<0.1	0.4	0.8	1.2		1.8	0.6
Total Phosphorus (mg/L)	0.07	0.03	0.05	0.06	0.26		0.8	0.15
TOC (mg/L)	4	<1	3	<1	7		4	2
Oil & Grease (mg/L)	<5	<5	<5	<5	<5		<5	<5
BOD (mg/L)	<2	2	4	5	<2		<2	<2
Depth (mbgl)	11.6	11.3	17.1	12.4	10.6		9.23	10.8
NT = Not Tested								

Watercourse Quality Monitoring Results

	Watercourse 1				Watercourse 2			
	Sep-19	Dec-19	Mar-20	Jun-20	Sep-19	Dec-19	Mar-20	Jun-20
EC (µS/cm)	dry	dry	485	993	dry	dry	1290	dry
pH (pH units)			6.9	6			7.8	
Temperature (°C)			21.6	14			21.2	
Turbidity (NTU)			31.5	51			0.5	
Oil and Grease (mg/L)			<5	6			<5	
TSS (mg/L)			12	26			<5	
TDS (mg/L)			315	522			693	
Sodium (mg/L)			54	71			131	
Potassium (mg/L)			2	8			1	
Calcium (mg/L)			16	78			86	
Sulphate (mg/L)			28	155			500	
Chloride (mg/L)			84	69			41	
Alkalinity (mg/L)			87	300			158	
Dissolved Copper (mg/L)			0.018	0.003			0.002	
Dissolved Iron (mg/L)			0.12	0.92			<0.05	

Watercourse Flow Monitoring Results

	Flow (L/sec)	
Month	**WC1**	**WC2**
Jul-19	no flow	no flow
Aug-19	no flow	no flow
Sep-19	no flow	no flow
Oct-19	no flow	no flow
Nov-19	no flow	no flow
Dec-19	no flow	no flow
Jan-20	no flow	no flow
Feb-20	no flow	59
Mar-20	no flow	no flow
Apr-20	no flow	no flow
May-20	no flow	no flow
Jun-20	no flow	no flow

Quarry Extension Discharge Monitoring

Date	pH (pH units)	Turbidity (NTU)
11/02/2020	7.75	13
12/02/2020	7.8	14
13/02/2020	7.7	28
14/02/2020	7.1	3.6
15/02/2020	8.3	3.1
17/02/2020	8.1	14
18/02/2020	8.2	1.2
19/02/2020	8.2	8.5
20/02/2020	8.2	9.1
21/02/2020	8.2	5.7
28/02/2020	8.2	3.8

Sewage Treatment Plan Effluent Monitoring

Date	Oil and Grease (mg/L)	TSS (mg/L)	BOD_5 (mg/L)
25/09/2019	7	29	12
18/12/2019	<5	22	17
24/03/2020	<5	30	<2
23/06/2020	<5	32	11

Stream West of Quarry Manager's Office Monitoring

Date	pH (pH units)	Oil and Grease (mg/L)	TSS (mg/L)
04/07/2019	8.1	<5	66
05/08/2019	8.5	<5	14
06/09/2019	8.3	<5	15
08/10/2019	8	<5	36
06/11/2019	8.1	<5	191
06/12/2019	8.4	8	45
07/01/2020	7.5	<5	54
05/02/2020	8.2	<5	53
04/03/2020	8	<5	86
03/04/2020	8.1	<5	27
05/05/2020	7.6	<5	23
03/06/2020	8.3	<5	16

Deposited Dust Monitoring

All in g/m^2/mth	APD1		APD2		APD3		APD4	
Month	Ash	TIS	Ash	TIS	Ash	TIS	Ash	TIS
Jul-19	6.7	7.2	0.7	0.9	0.3	0.6	1.2	2
Aug-19	*	*	0.6	0.7	0.2	0.2	0.4	0.6
Sep-19	4.1	4.8	0.7	1.2	0.8	0.9	1.2	1.5
Oct-19	14.6	16.2	1.8	2.3	2.3	4.2	1	3.9
Nov-19	17.6	19.9	6	7.2	1.4	1.8	0.9	1.3
Dec-19	7.2	8.9	2.8	3.4	1.1	1.6	0.8	0.9
Jan-20	7.2	8.3	4	5	1.6	2.2	3.9	5.7
Feb-20	23.3	26.8	6	7	4.3	5.1	5.4	6.7
Mar-20	8.3	10.1	1.2	1.3	0.8	0.9	2.5	3.2
Apr-20	7.3	9.8	1.8	2.3	0.6	1.1	2.8	3.8
May-20	6	8.4	2.9	3.2	0.3	0.3	1.3	2.1
Jun-20	8.3	9.8	#	#	0.5	0.5	2.7	3.4
* dust gauge removed by property owner - replaced for following month								
# funnel missing - sample not able to be collected								

HVAS PM_{10} Monitoring

Date	PM10 (µg/m^3)	Date	PM10 (µg/m^3)	Date	PM10 (µg/m^3)	Date	PM10 (µg/m^3)
01/07/2019	12.8	05/10/2019	9.1	03/01/2020	22.6	02/04/2020	16.0
07/07/2019	6.6	11/10/2019	3.0	09/01/2020	10.2	08/04/2020	6.7
13/07/2019	19.9	17/10/2019	61.8	15/01/2020	16.3	14/04/2020	27.8
19/07/2019	17.5	23/10/2019	18.3	21/01/2020	17.0	20/04/2020	32.6
25/07/2019	21.6	29/10/2019	43.0	27/01/2020	25.2	26/04/2020	21.0
31/07/2019	11.5	04/11/2019	8.8	02/02/2020	37.0	02/05/2020	45.0
06/08/2019	43.7	10/11/2019	6.6	08/02/2020	13.0	08/05/2020	29.4
12/08/2019	29.9	16/11/2019	13.3	14/02/2020	14.2	14/05/2020	5.3
18/08/2019	54.4	22/11/2019	48.4	20/02/2020	8.0	20/05/2020	30.2
24/08/2019	25.4	28/11/2019	52.1	26/02/2020	43.3	26/05/2020	5.1
30/08/2019	3.2	04/12/2019	50.1	03/03/2020	15.1	01/06/2020	46.6
05/09/2019	22.7	10/12/2019	82.2	09/03/2020	7.7	07/06/2020	6.3
11/09/2019	37.5	16/12/2019	25.1	15/03/2020	5.0	13/06/2020	6.4
17/09/2019	10.1	22/12/2019	30.6	21/03/2020	12.9	19/06/2020	*
23/09/2019	41.6	28/12/2019	41.5	27/03/2020	14.2	25/06/2020	18.0
29/09/2019	13.0	* Power outage at property - monitor did not record					

Annexure F

Annual Noise Survey – August 2019

Refer to Cleary Bros website for the report (www.clearybros.com.au/albion-park)

Annexure G

Environmental Protection Licence – Revised 2 June 2020

Environment Protection Licence

Licence - 299

Licence Details	
Number:	299
Anniversary Date:	30-September

Licensee
CLEARY BROS (BOMBO) PTY LTD
PO BOX 210
PORT KEMBLA NSW 2505

Premises
CLEARY BROS (BOMBO) PTY LTD
81 EAST WEST ROUTE
CROOM NSW 2527

Scheduled Activity
Crushing, grinding or separating
Extractive activities

Fee Based Activity	Scale
Crushing, grinding or separating	> 500000-2000000 T annual processing capacity
Extractive activities	> 500000-2000000 T annual capacity to extract or process

Region
Metropolitan - Illawarra
Level 3, NSW Govt Offices, 84 Crown Street WOLLONGONG NSW 2500
Phone: (02) 4224 4100
Fax: (02) 4224 4110
PO Box 513
WOLLONGONG EAST NSW 2520

Environment Protection Licence

Licence - 299

Environment Protection Licence

Licence - 299

Environment Protection Licence

Licence - 299

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 - 299

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:

CLEARY BROS (BOMBO) PTY LTD
PO BOX 210
PORT KEMBLA NSW 2505

subject to the conditions which follow.

Environment Protection Licence

Licence - 299

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	> 500000 - 2000000 T annual processing capacity
Extractive activities	Extractive activities	> 500000 - 2000000 T annual capacity to extract or process

A2 Premises or plant to which this licence applies

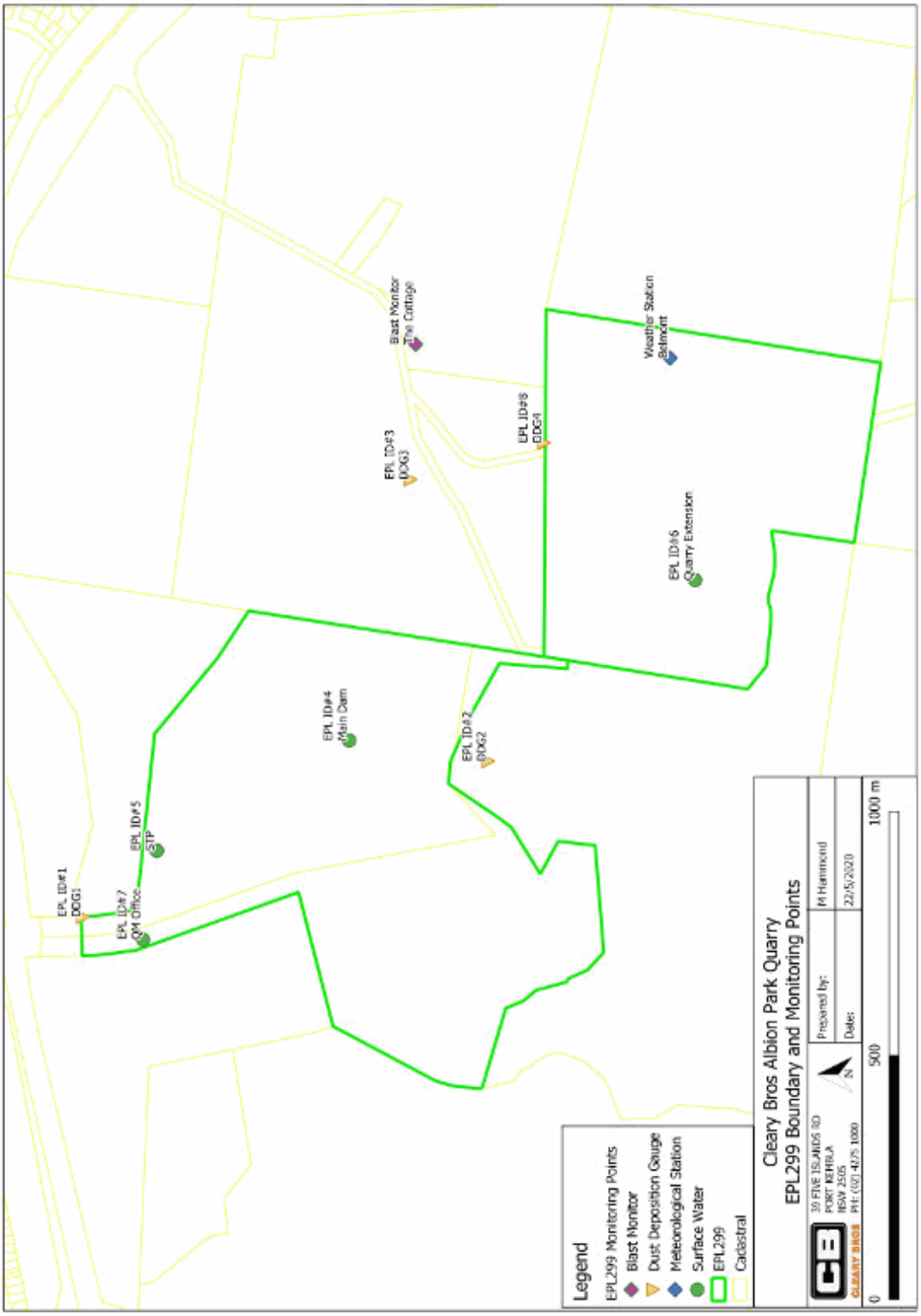
A2.1 The licence applies to the following premises:

Premises Details
CLEARY BROS (BOMBO) PTY LTD
81 EAST WEST ROUTE
CROOM
NSW 2527
LOT 1 DP 858245, LOT 420 DP 1252087, LOT 421 DP 1252087
TEMPORARY ACCESS TO A PORTION (11540 SQ. METRES) OF LOT 2 DP 858245 AS SHOWN ON QUARRY EMP FIG 2.1.

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

Environment Protection Licence

Licence - 299



A3 Other activities

A3.1 This licence applies to all other activities carried on at the premises, including:

Ancillary Activity
Concrete works

A4 Information supplied to the EPA

A4.1 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 points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

Air

EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Dust deposition monitoring		APD 1 - within 100m of the premises entrance gate, labelled as EPL ID#1 in the map titled 'EPL299 Site Map' (dated 22 May 2020) and received by the EPA on 22 May 2020.
2	Dust deposition monitoring		APD 2 - approximately 200 metres east of original quarry area, labelled as EPL ID#2 in the map titled 'EPL299 Site Map' (dated 22 May 2020) and received by the EPA on 22 May 2020.
3	Dust deposition monitoring		APD 3 - approximately 200m East of main holding and sedimentation dam, labelled EPL ID#3 in the map titled 'EPL299 Site Map' (dated 22 May 2020) and received by the EPA on 22 May 2020.
8	Dust deposition monitoring		APD 4 - approximately 150m North East of quarry extension, labelled as EPL ID#8 in the map titled 'EPL299 Site Map' (dated 22 May 2020) and received by the EPA on 22 May 2020.

P1.2 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.

P1.3 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
4	Effluent Quality Monitoring - Discharge to waters	Effluent Quality Monitoring - Discharge to waters	Outlet of main holding and sedimentation pond, labelled as EPL ID#4 in the map titled 'EPL299 Site Map' (dated 22 May 2020) and received by the EPA on 22 May 2020.
5	Effluent Quality Monitoring		Package Sewage Treatment Plant. See drawing No ESA PQ011 (Rev 1) titled "Water Pollution Control Plan" for Lic 299.
6	Effluent quality monitoring - Discharge to waters	Effluent quality monitoring - Discharge to waters	Any discharge from the quarry extension (Lot 1 DP858245), labelled as EPL ID#6 in the map titled 'EPL299 Site Map' (dated 22 May 2020) and received by the EPA on 22 May 2020.
7	Effluent Quality Monitoring		Water course west of the Quarry Managers Office at the point where the creek exits the premises, labelled as EPL ID#7 in the map titled 'EPL299 Site Map' (dated 22 May 2020) and received by the EPA on 22 May 2020.

3 Limit Conditions

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 Concentration limits

L2.1 For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the

concentration limits specified for that pollutant in the table.

L2.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

L2.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\s.

L2.4 Water and/or Land Concentration Limits

POINT 4

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
pH	pH				6.5 - 8.5
Total suspended solids	milligrams per litre				50

POINT 6

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
pH	pH				6.5 - 8.5
Turbidity	nephelometric turbidity units				32.2

L3 Blasting

L3.1 The airblast overpressure level from blasting operations in or on the premises must not exceed:

a) 115 dB (Lin Peak) for more than 5% of the total number of blasts during each reporting period; and
b) 120 dB (Lin Peak) at any time.

At any point that is located at least 3.5m from any residence or other sensitive receiver on privately-owned land .

L3.2 The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not exceed:

a) 5mm/s for more than 5% of the total number of blasts carried out on the premises during each reporting period; and
b) 10 mm/s at any time.

At any point that is located at least 3.5m from any residence or other sensitive receiver on privately-owned land .

L3.3 Blasting must be limited to one blast each day.

Where compelling safety reasons exist, the Authority may permit additional blasts to occur where prior written (or facsimile) notification of any additional blasts are made to the Authority.

L3.4 Blasting operations at the premises may only take place between 9:00am – 5:00pm Monday to Friday.

Where compelling safety reasons exist, the Authority may permit a blast to occur outside the abovementioned hours. Prior written (or facsimile) notification of any such blast must be made to the Authority.

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 The licensee must ensure all loaded vehicles leaving the premises are covered.

O3.3 The licensee must ensure all loaded vehicles leaving the premises are cleaned of materials that may fall on public roads before they are allowed to leave the premises.

O4 Effluent application to land

O4.1 The sewage treatment plant linked to the wastewater utilisation area must be maintained and operated to achieve the effluent quality limits listed in the table below at all times:

If any of these limits is exceeded the licensee must:
(a) Immediately service the plant, and
(b) Monitor effluent quality at weekly intervals until the effluent quality limits specified in this condition are achieved.

Pollutant	Units	Concentration Limit
Oil and grease	milligrams per litre	30
Total suspended solids	milligrams per litre	50
Biochemical Oxygen Demand	milligrams per litre	150

O4.2 The quantity of effluent/solids applied to the utilisation area must not exceed the capacity of the area to effectively utilise the effluent/solids.

For the purpose of this condition, 'effectively utilise' include the use of the effluent/solids for pasture or crop production, as well as the ability of the soil to absorb the nutrient, salt, hydraulic load and organic material.

O4.3 If weather or soil condition preclude irrigation, the holding tanks must not overflow and effluent must be tankered away and disposed of in a manner which does not pollute waters.

O4.4 A minimum of 2500 square metres must be retained for use as the wastewater utilisation area.

O5 Waste management

O5.1 All liquid and non liquid wastes resulting from activities and processes at the site must be assessed, classified and managed in accordance the EPA's Waste Classification Guidelines (2014) or any other EPA document superceding this guideline.

O6 Other operating conditions

O6.1 FLOCCULANTS USED IN WATER TREATMENT

The licensee must not use a flocculant other than gypsum, without the written approval of the Authority.

5 Monitoring and Recording Conditions

Environment Protection Licence

Licence - 299

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 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

POINT 1

Pollutant	Units of measure	Frequency	Sampling Method
Ash	grams per square metre per month	Monthly	AS/NZS 3580.10.1:2016
Insoluble solids	grams per square metre per month	Monthly	AS/NZS 3580.10.1:2016

POINT 2

Pollutant	Units of measure	Frequency	Sampling Method
Ash	grams per square metre per month	Monthly	AS/NZS 3580.10.1:2016
Insoluble solids	grams per square metre per month	Monthly	AS/NZS 3580.10.1:2016

POINT 3

Pollutant	Units of measure	Frequency	Sampling Method

Ash	grams per square metre per month	Monthly	AS/NZS 3580.10.1:2016
Insoluble solids	grams per square metre per month	Monthly	AS/NZS 3580.10.1:2016

POINT 8

Pollutant	Units of measure	Frequency	Sampling Method
Ash	grams per square metre per month	Monthly	AS/NZS 3580.10.1:2016
Insoluble solids	grams per square metre per month	Monthly	AS/NZS 3580.10.1:2016

M2.3 Water and/ or Land Monitoring Requirements

POINT 4

Pollutant	Units of measure	Frequency	Sampling Method
pH	pH	Each overflow event	Grab sample
Total suspended solids	milligrams per litre	Each overflow event	Grab sample

POINT 5

Pollutant	Units of measure	Frequency	Sampling Method
Biochemical oxygen demand	milligrams per litre	Quarterly	Grab sample
Oil and Grease	milligrams per litre	Quarterly	Grab sample
Total suspended solids	milligrams per litre	Quarterly	Grab sample

POINT 6

Pollutant	Units of measure	Frequency	Sampling Method
pH	pH	Daily during any discharge	Grab sample
Turbidity	nephelometric turbidity units	Daily during any discharge	Grab sample

POINT 7

Pollutant	Units of measure	Frequency	Sampling Method
pH	pH	Daily during any discharge	Grab sample

Total suspended solids	milligrams per litre	Daily during any discharge	Grab sample

M3 Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:
a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or
b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or
c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

M3.2 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

M4 Weather monitoring

M4.1 At the Weather Station Monitoring Point, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns.

Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method
Rainfall	millimetres	Continuous	24 hour	AM-4
Temperature@2m	Kelvin	Continuous	1 hour	AM-4
Temperature@10m	Kelvin	Continuous	1 hour	AM-4
Wind direction@10m	Compass points	Continuous	1 hour	AM-2
Wind speed@10m	metres per second	Continuous	1 hour	AM-2
Sigma theta	degrees	Continuous	1 hour	AM-2
Total solar radiation@10m	Watts per square metre	Continuous	1 hour	AM-4

Siting	-	-	-	AM-1

Note: Sampling Method is in accordance with the NSW EPA, 2001, Approved Methods for the Sampling and Analysis of Air Pollutants in NSW.

M5 Recording of pollution complaints

M5.1 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.

M5.2 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.

M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M6 Telephone complaints line

M6.1 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.

M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M6.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

M7 Blasting

M7.1 Each production blast must be monitored and recorded at the permanent station established near the Dunster residence.

M7.2 To determine compliance with the blasting limits contained in this licence:

(a) Airblast overpressure and ground vibration levels must be measured for all production blasts carried out in or on the premises; and

(b) The written record must include:
(i) the time and date of each blast;
(ii) the station(s) at which the noise was measured;
(iii) the ground vibration for each blast;
(iv) the airblast overpressure for each blast;
(v) evidence that during the past 12 month period, a calibration check had been carried out on each blast monitor to ensure accuracy of the reported data; and
(vi) the waveform for the ground vibration and overpressure for each blast that exceeds a ground vibration of 5mm/sec (peak particle velocity) or an airblast overpressure of 115dB(L).

(c) Instrumentation used to measure the airblast overpressure and ground vibration levels must meet the requirements of Australian Standard 2187.2 of 1993 or as updated.

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 a copy of the form that must be completed and returned to the EPA.

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

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.

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.

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

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

R2 Notification of environmental harm

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.

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.

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 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.

Environment Protection Licence

Licence - 299

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 *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
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 *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
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

Environment Protection Licence

Licence - 299

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 Environmen t 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 mo nths. 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 *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.

Environment Protection Licence

Licence - 299

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: 18-November-1999

Environment Protection Licence

Licence - 299

End Notes

1	Licence varied by notice 1003792, issued on 17-Jul-2002, which came into effect on 11-Aug-2002.
2	Licence varied by notice 1038336, issued on 30-Jun-2004, which came into effect on 05-Jul-2004.
3	Licence varied by change to DEC Region allocation, issued on 16-Mar-2006, which came into effect on 16-Mar-2006.
4	Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
5	Licence varied by notice 1104858, issued on 01-Oct-2009, which came into effect on 01-Oct-2009.
6	Licence varied by notice 1112255, issued on 09-Apr-2010, which came into effect on 09-Apr-2010.
7	Licence varied by notice 1121866, issued on 15-Mar-2011, which came into effect on 15-Mar-2011.
8	Licence varied by notice 1502527 issued on 08-Dec-2011
9	Licence varied by notice 1529498 issued on 16-Apr-2015
10	Licence format updated on 18-Jul-2019
11	Licence varied by notice 1594956 issued on 02-Jun-2020