

Ardmore Park Quarry

Annual Review

1 January 2021 - 31 December 2021



Site information

Site Name	Ardmore Park Quarry
Address	5152 Oallen Ford Road, Bungonia NSW, 2580
Project Approval	PA 07_0155
Environmental Licence	EPL 13213

Company information

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Document information

Author (Company)	Date	Changes	Reviewer (Company)	Date	ID
James Hammond Rhys Thompson (4Pillars Environmental Consulting)	31 March 2022	N/A	Stephen Wall (Multiquip Aggregates)	31 March 2022	V1
James Hammond Rhys Thompson (4Pillars Environmental Consulting)	28 June 2022	Re DPE comments 3/6/22: Inclusion of maps, personnel, forecasting, non-compliance details, other minor changes.	Stephen Wall (Multiquip Aggregates)	28 June 2022	V2

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I. Title block

Name of operation	Ardmore Park Quarry Project	
Address	5152 Oallen Ford Road, Bungonia, 2580, NSW	
Operator	CEAL Ltd, trading as Multiquip Quarries	
Project approval	PA 07_0155	
Environment licence	13213	
Annual review start date	1 January 2021	
Annual review end date	31 December 2021	

I Stephen Wall certify that this audit report is a true and accurate record of the compliance status of ARDMORE PARK QUARRY for the period 1 January 2021 - 31 December 2021 and that I am authorised to make this statement on behalf of MULTIOUIP OUARRIES.

Note: 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.

The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statementmaximum 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).

Hann Signature of authorised reporting officer(s) Name of authorised Mr James Hammond Mr Rhys Thompson reporting officer(s) **Title of authorised reporting** Authorised Environmental Representatives, signing on behalf of Mr Wall officer(s) 28th June 2022 (V2) Date (doc ID)

II. Statement of compliance

Were all conditions of compliance adhered to during the reporting year?

Approval: PA 07_0155 NO

Non-compliances identified during 2021 reporting year.

Approval	Condition	Subject	Status	Reference
PA 07_0155	Schedule 2, Condition 2(c)	Operational areas		Section 10
PA 07_0155	Schedule 3, Condition 24(a)	Aboriginal Heritage		Section 10
PA 07_0155	Schedule 5, Condition 5(a)	Management Plans		Section 10

Table 1: Non-compliance risk level key.

Risk level	Colour	Description
High		Potential for significant environmental consequences regardless of likelihood.
Medium		Potential for serious environmental consequences but unlikely OR potential for moderate environmental consequences with moderate likelihood.
Low		Potential for moderate environmental consequences but is unlikely to occur OR potential for low environmental consequences but is likely.
Administrative		No potential for environmental harm

1. Introduction

1.1 Project description

Ardmore Park Quarry (**the Quarry**) is a sand and hard rock quarry owned and operated by CEAL Ltd, trading as Multiquip Quarries (**Multiquip**). The project is located 4 km south of Bungonia village and 25 km south east of Goulburn in the Southern Tablelands region of New South Wales. The Quarry falls within the Goulburn-Mulwaree Council (**GMC**) local government area. The regional and local context of the Quarry are presented in Figure 1 and Figure 2, respectively.

The Quarry operates under Project Approval 07_0155 (the **Approval** or **Project Approval**) and is designated as a State Significant Development (**SSD**), per the (now repealed) *State Environmental Planning Policy (Major Projects) 2005*, by the Department of Planning, Industry and Environment (**DPIE**), now the Department of Planning and Environment (**DPE**). The Project Approval was issued by the Minister for Planning in September 2009, with quarrying activities commencing in 2017. The 3rd Modification to the Project Approval was granted in October 2020, but the increase in scale approved under Modification 3 is yet to be implemented, pending the development and approval of required management plans and road upgrades.

The Quarry is approved under Modification 3 for an annual extraction rate of 580,000 tonnes per annum (t/pa); however, as above, the Quarry is currently limited to the previous scale of 400,000 t/pa. The permitted hours of quarrying operations are between 7 am to 6 pm between Monday to Friday, and 7 am to 1 pm on Saturday. Loading and dispatch of quarried materials are permitted between 5 am to 6 pm Monday to Friday, and 6 am to 1 pm on Saturdays. Neither quarrying nor product loading and dispatch is permitted under the Approval on Sunday or public holidays.



Figure 1: Regional context surrounding the operation.



C1	C1 National Parks and Nature Reserves	RU2	RU2 Rural Landscape
C3	C3 Environmental Management	RU5	RU5 Village
RU1	RU1 Primary Production		

1.2 AR overview

Under Condition 5 of Schedule 5 of the Project Approval, Multiquip must submit an Annual Review (**AR**) to DPE at the end of March of each calendar year. The document describes quarrying and other project related activities conducted in the last 12 months (the **reporting period**). Additionally, key management priorities for the next reporting period are outlined. The reporting period adopted for the purposes of the AR is consistent with the Project Approval and Modification 3, being *the last 12 months* or *the previous calendar* year, respectively. As such, the reporting period for the 2021 AR is 1 January 2021 – 31 December 2021.

The AR functions as the primary mechanism for review of environmental performance for regulators, management, and stakeholders. It details any non-compliances within the reporting period.

This document is submitted on an annual basis to DPE and is published on Multiquip's website once approved [LINK].

1.3 Key personnel

Key personnel responsible for environmental management at the Quarry are presented in Table 2, below.

Table 2: Site contacts.

Name	Role	Email
Stephen Wall	Quarry Manager	stephen.w@multiquip.com.au
Alexander Cox	Environmental Officer (internal)	alexander.c@multiquip.com.au
James Hammond	Environmental Officer (external)	james@4pillars.com.au

2. Approvals

2.1 Existing approvals

The Quarry operates under an SSD project approval. In October 2020, the Minister for Planning issued a determination under Section 75J of the *Environmental Planning and Assessment Act 1979 to* approve Modification 3 to PA 07_0155 (**Mod 3**) to increase the extraction area of the quarry, and to modify the permitted operating hours for product transportation and dispatch. As noted above, Modification 3 is yet to be implemented and the Quarry is operating within the relevant constraints of Modification 2.

Further to this, the Quarry operates under Environment Protection Licence (**EPL**) 13213, which permits extractive activities and the processing of extractive materials. Several Water Access Licences (**WAL**) are held by the Quarry permitting the utilisation of water from the Goulburn Fractured Rock groundwater aquifer and other near-surface aquifers, and Bungonia Creek.

Wicket Soil Extraction was approved by GMC in 2001 and modified in 2015 (MOD/0109/1415). The approval permits the extraction of small quantities of clay rich

basalt soils used in the construction of surfaces utilised for sport activities and cricket wickets. A summary of currently active approvals is provided below in Table 3.

Approval	Consent authority	Issued	Reference
Project approval	NSW Department of Planning, Industry and Environment	2009	PA 07_0155 (Modification 3)
Environment Protection Licence	NSW Environment Protection Authority	2009	13213
Water access licence	Water NSW		30111
	Water NSW		41848
	Water NSW		25390
Wicket Soil Extraction	Goulburn Mulwaree Council	2015	MOD/0109/1415

Table 3: Summary of Approvals and Licences.

2.2. Modifications and amendments

Project Approval PA 07_0155 has been modified on three occasions since the commencement of the Ardmore Park Quarry project to date.

- Modification 1 (2010): Realignment of the entranceway to the quarry to the intersection of Oallen Ford Road and Lumley Road.
- Modification 2 (2013): Approval for local sales of a limited number of quarried products along specified local routes, in addition to the approval principal haul route of Oallen Ford Road and Jerrara Road to the interchange at South Marulan.
- Modification 3 (2020): Approval for expansion of the extraction area by 3.5 hectares, and to increase the annual production rate from 400,000 to 580,000 t/pa. Extension of the operating hours in the morning period.

Environment Protection Licence 13213 (**the EPL**) was most recently varied on 11 March 2019 which was discussed in the 2019-20 Annual Environmental Management Review (AEMR). The EPL was not varied in 2021.

3. Operations summary

3.1 Quarrying

The extraction of sand and basalt occurred throughout the reporting period. A total of 365,869 t of this material was dispatched from the quarry for sale, following quarrying, washing, and processing, as appropriate. The main products dispatched from the Quarry to customers were sand and sand related products (approx. 80%). Sand from the quarry is primarily purchased by consumers to produce ready-mix concrete for developments in the greater Sydney and Goulburn regions. A lesser proportion of rock, aggregate and road base from processed basalt was sold to customers throughout the year (approx. 20%) for landscaping, erosion control and roadmaking, with rock sales shown to be increasing upon the previous reporting period. A summary of production is presented in Table 4.

Sand and basalt resources were derived from two active mining pits in 2021, located in the south-eastern and eastern portions of the quarry, respectively. Removal of overburden in the approved part of the quarry continued in the reporting period. The removal of overburden was to provide access to the sand extraction pit. As the project progresses, it is expected that the extent of the three active quarrying areas will join.

Extraction was unable to take place in a third pit ("The Old Pit") in the south-west of the Quarry due to an accumulation of water within this pit hampering safe operations. In line with Schedule 3 Condition 12 of the Project Approval, an EPL variation to permit discharges from the site is being developed and is expected to be submitted to the NSW EPA in early 2022.

Material	Approved limit (source)	Previous reporting period (actual)	This reporting period (actual)	Next reporting period (forecast)
Waste Rock / Overburden	N/A	N/A	N/A	N/A
ROM Coal / Ore	N/A	N/A	N/A	N/A
Coarse reject	N/A	~34,785 t	~36,587 t	~40,000 t
Fine reject (Tailings)	N/A	~34,785 t	~36,587 t	~40,000 t
Saleable product	580,000 t (Mod 3)	347,849 t	365,869 t	400,000 t

Table 4: Production summary (table taken from the October 2015 Annual Review Guideline).

3.2 Compliance and returns

The Annual Return for EPL 13213 was lodged with the NSW EPA on 18 October 2021, covering the 2020-21 licence year of 21 August 2020 – 20 August 2021. Two non-compliances were raised for deposited dust in the Annual Return, however the exceedances observed were attributed to severe bushfire events for the January period, and agricultural activities within the local vicinity during April.

Elevated dust levels were also observed in the monitoring results for the October, November and December 2021 monitoring periods, and notified to DPIE, however were considered to have not been generated by the project, based on a combination of the prevailing wind conditions and the high proportion of combustible organic matter present. No other non-compliances with the EPL were identified for the reporting period.

Non-compliance with three conditional requirements within PA 07_0155 (Mod 3) were notified to DPIE and are discussed in further detail in Section 10 of this AR.

3.3 Roadworks

Concerns were raised by Goulburn Mulwaree Council (Council) regarding the condition of the haul route. Council and Multiquip had discussions and negotiations about details and financial liability for repairs, with Council commissioning a road safety survey and Multiquip commissioning a geotechnical investigation of the haul route, completed in late 2021. Reports for these investigations were submitted to Council. Haul route work has been divided into drainage work and heavy patching work, with drainage works commenced in December 2021. These works included excavation of table drains or installation of subsoil drainage and were completed in early March 2022.

Further roadworks including heavy patching works are expected to be ongoing throughout 2022.

4. Activities proposed in the previous AEMR

Activities that were expected to occur in 2021 as listed in the 2019-20 AEMR are as follows, along with their status.

Proposed activity	Status
Completion and lodgement of	Three EMPs (Aboriginal Heritage Management
Management Plans (FMPs)	Monitoring Program) submitted to DPIE in
	November 2021 revised AHMP submitted on 22
	December 2021. Awaiting comment. Other plans
	under preparation.
Implementation of Management	
Plans for Mod 3 following	
approval from the Department.	Awaiting approval.
Completion of the updated Visual	
Impact Assessment (VIA) and	
lodgement with Secretary of	
DPIE.	VIA completed in March 2021.
Continuation of mining activities	
at the site. Indicatively expected	
to be 400,000 T/pa to be	Quarrying activities continued, with 365,869 t of
dispatched, with a split of 85%	material exported from the site. Higher proportion
sand and 15% basalt rock related	of basalt rock sales than anticipated, with a split of
products.	approx. 80% sand to 20% rock.
Moving towards 580,000 T/pa	Awaiting approval of all documents before this
following the completion of post-	increased extraction is undertaken.

Table 5: Activities proposed in previous AEMR and current status.

approval requirements to the satisfaction of the Department.	
DPIE resolution of the dispute regarding Phil's Spring.	No resolution from DPIE has been forthcoming. Landowner who initiated the dispute has sold and moved. No further action expected from DPE, however NRAR commenced an investigation. Awaiting response from NRAR regarding this matter.
Completion of northern bund wall structure.	Awaiting feedback from DPE regarding proposed works as per 24 December 2021 letter to DPIE.
Installation of additional Mod 3 monitoring bore which will be placed between the northern boundary of the extraction area and the boundary with Inverary Park.	Not yet undertaken. Awaiting finalisation of Natural Resources Access Regulator (NRAR) investigation.
Audit.	expected to be completed within the next two months.
Bund walls will progressively be extended south to visually screen the eastern portion of the quarry.	Awaiting feedback from DPE regarding proposed works as per 24 December 2021 letter to DPIE.
Establishment of vegetation will be commencing upon completion of construction of earthen bunding to the east and north-west.	Not yet commenced, awaiting completion of bunding.

5. Environmental performance

5.1 Monitoring points



Figure 3: Monitoring locations.

5.2 Meteorological data

The average monthly temperatures recorded by the on-site weather station (location shown in Figure 3) ranged between 6.85°C to 18.7°C throughout the reporting period. The temperature range observed is heavily influenced by the Quarry's elevation within the Southern Tablelands Region. Average temperature is presented in Figure 4, along with the same data for the Goulburn weather station of the NSW Government's New South Wales Air Quality Monitoring Network, which is comparable.



Figure 4: Average monthly temperature.

Data collected during 2021 indicated an elevated level of rainfall in comparison to 2020, with approximately 1013 mm of rain recorded compared to 867.6 mm observed in the previous year (Figure 5).

Figure 5: Total monthly rainfall recorded at on-site weather station, comparison of 2020 and 2021.

Rainfall data collected by the on-site weather station was consistent with records from the Goulburn weather station of the NSW Government's New South Wales Air Quality Monitoring Network (Figure 6).

Figure 6: Total monthly rainfall in 2021, comparison of on-site weather station and Goulburn weather station.

5.3 Air quality

Air quality emissions from the Project are managed through the following actions:

- Regular application of water to haul roads using a water cart to increase soil moisture and prevent the generation of dust;
- Application of water to hard-rock processing plant feed hopper and crushers;
- Locating the crushing plant within the hard rock processing area of the quarry, a significant distance from neighbouring properties; and
- Avoiding stripping soils during windy periods.

To ensure that air quality emissions are sufficiently controlled, monitoring for deposited dust and particulate matter are undertaken.

Deposited Dust

The Quarry undertakes monthly deposited dust monitoring as per the requirements of EPL 13213. The air quality monitoring network established around the Quarry includes four deposited dust gauges located at the quarry site, and at nearby receivers, to determine whether quarry activities generate dust in excess of the permitted air quality limits. The deposited dust gauges are situated in locations clear of obstructions which may interfere with the collection of fugitive dust emissions at the established monitoring points. As per Figure 3, monitoring locations "Lochmoor Lodge" and "Olsiers" are present to the west of the extraction area. The "Front Entrance" dust gauge captures emissions at the entrance to the site, and the "Inverary Park" location monitors dust emissions to the adjacent neighbouring premises from the north eastern side of the active extraction area.

Samples collected are analysed at a NATA-accredited laboratory, with the insoluble solids fraction of the total sample used to assess compliance with the air quality criteria specified in Condition 7 of Schedule 3 of the Approval (4 g/m²/month total, 2 g/m²/month incremental). Results for 2021 are presented in Figure 7.

Figure 7: 2021 Deposited dust (insoluble solids) results. Limit of 4 g/m²/month for total impact of particulate matter emissions generated by the project is presented as a blue line.

As shown in the graph, there were a total of 10 instances where the primary results for insoluble solids were greater than the total limit, across six months (January, March, April, October, November, and December).

To inform an assessment of the obtained results, a review of meteorological data and the composition of the matter as analysed by the lab was undertaken, along with aerial imagery of surrounding properties, and site activities. The outcome for each of the results is summarised in Table 6. While the limit in the Project Approval is for insoluble solids, these are not necessarily directly correlated with quarrying activities, as this result includes both combustible matter and ash. Combustible matter includes organic material (e.g. pollen, grass), while the ash fraction accounts for the non-combustible mineral content (i.e. soil dust) which could be caused by soil disturbance during quarrying activities.

Month	Cause	Exceedance generated by Project?
January	Attributed to severe bushfire events in the region between September 2020 and January 2021.	No
March	Not assessed, however expected to be similar to April i.e. likely caused by westerly exposed soils. Low proportion of combustible matter in the sample.	No
April	Prevailing westerly wind. Exposed soils on a neighbouring property to the west of the site, directly in line with monitoring location. High proportion of combustible matter in the sample.	No
October	Wind direction from the quarry not experienced at the dust gauge location. Extremely high proportion of combustible matter in the sample, ash fraction below limit.	No
November	High proportion of combustible matter in the sample, ash fraction below limit. Wind experienced from both the quarry area and opposite direction, meaning material collected at dust gauge could have come from off-site.	No
December	High proportion of combustible matter in the sample, ash fraction below limit.	No

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A letter informing the NSW EPA of the elevated result in April was sent on 23 August 2021, with three letters informing DPIE of the elevated results in October, November, and December sent on 24 November 2021, 20 December 2021, and 25 January 2022, respectively. These letters described the assessment and determination detailed above.

Overall, data for all other months, and the long-term average deposited matter results (Table 7) indicate that the project has a high degree of compliance with the performance criteria, especially when excluding the results from January which are considered outliers.

Monitoring location	Insoluble solids (g/m2/month)				
	2021 Average	2021 Average excl. Jan			
Front Entrance	4.17	2.55			
Inverary Park	8.00	3.91			
Lochmoor Lodge	2.83	0.73			
Olsiers	4.78	0.66			
Limit (4 g/m2/month)					

Table 7: Average deposited dust (insoluble solids) results for 2021.

Particulate matter

Air quality criteria for particulate matter emissions generated by the project are specified in Condition 7 of Schedule 3 of the Project Approval, with limits prescribed for Particulate matter < 10 μ m (PM₁₀) and Particulate matter < 2.5 μ m (PM_{2.5}). These limits are 25 μ g/m³ over an annual averaging period and 50 μ g/m³ over a 24 hour averaging period for PM₁₀, and 8 μ g/m³ (annual) and 25 μ g/m³ (24 hour) for PM_{2.5}.

Particulate matter emissions are measured by two Sensirion SPS30 Particulate Matter Sensors installed with Atmos 22 and Atmos 41 weather stations, which have been established at two locations within the Quarry Site - PM (E) and PM (W), respectively - as shown on Figure 3. These sensors are real-time optical particle counters (OPCs), which obtain measurements based on the incoming particles scattering the incoming light, the extent of which is then detected by a photodiode and converted into real-time particle count and mass concentration values. This allows the sensors to record the levels of various particulate matter fractions simultaneously, including PM1.0 (0.3 to 1.0 µm), PM2.5 (0.3 to 2.5 µm), PM4.0 (0.3 to 4.0 µm), and PM10 (0.3 to 10.0 µm), rather than requiring manual collection and analysis of filters for individual fractions. The weather stations where the particulate matter sensors are installed record a variety of parameters including temperature, wind and gust speed, rainfall, humidity, and wind direction. All of the data is automatically and continuously uploaded to an online portal, from which it can be observed or downloaded. The particulate matter data gathered can then be compared to the obtained weather data, to determine if and how the weather conditions influence the particulate matter readings obtained.

The raw data from each unit is downloaded and analysed monthly, to allow comparisons with the prescribed criteria.

The data for 2021 as a 24 hour average is presented in Figure 8 and Figure 9 for PM_{10} and $PM_{2.5}$, respectively, with the Project Approval limits included on the graphs. As shown, while particulate matter levels recorded by both units increased in April 2021, they were otherwise relatively stable, and remained below their respective limits at all times throughout the year.

Figure 8: 2021 PM₁₀ data for both units, 24-hour averaging, with Project Approval limit.

Figure 9: 2021 PM_{2.5} data for both units, 24-hour averaging, with Project Approval limit.

All of the data collected was assessed to determine the particulate levels on an annual averaging basis, for comparison with the prescribed limits, as shown in Table 8. The levels recorded at both monitoring locations were compliant with the limits.

Table 8: 2021 PM_{2.5} and PM₁₀ data for both units, annual averaging, with Project Approval limits.

Monitor	Pollutant			
wontor	PM2.5	PM10		
РМ10-Е	1.7	1.9		
PM10-W	2.5	3.0		
Limit (Annual average)	8	25		
Compliant?	Yes	Yes		

5.4 Noise

Site noise is managed through the use of appropriately maintained equipment, commitment to permitted operating hours, and the construction and maintenance of bund walls around activities. Machinery is located in areas where potential transmission of noise to off-site receivers is limited. Community complaints regarding noise are investigated and acted upon, with a lack of these suggesting an appropriate level of noise generation. Compliance with noise criteria is confirmed through regular noise monitoring assessments performed by an external consultant.

Pulse White Noise Acoustics Pty Ltd were engaged to conduct attended noise monitoring in February and August 2021. Due to COVID-19 related delays and other issues, monitoring scheduled for November was postponed until February 2022. The reports prepared for these assessments are uploaded to the Multiquip website upon completion. Noise measurements are obtained from neighbouring properties, or accessible public land close to the receivers, as appropriate. The summary of noise results obtained is presented in Table 9. The project was considered compliant with noise criteria during all monitoring periods. Noise monitoring will continue throughout 2022.

Date	Location (EPL #)	Average Estimated Quarry L(A)eq 15 min	Compliance
	Inverary Park (3)	20	Yes
12/02/2021	Lochmoor (6)	33	Yes
	Reevesdale (1)	23	Yes
	Damar Lodge (5)	33	Yes
	Inverary Park (3)	33	Yes
E/00/2021	Lochmoor (6)	27	Yes
5/06/2021	Bungonia bypass road	19	Yes
	Jerrara Road	44	Yes

Table 9: Summary of noise results, 2021.

5.5 Water

5.5.1 Groundwater level

Measurement of standing water level is carried out on a monthly basis at 11 monitoring bores on and around the site as per the requirements of EPL 13213. Monitoring data collected indicates that groundwater levels in all bores are generally stable and constant over time.

A summary of standing water level for all bores measured throughout the reporting period has been presented below in Table 10, with monthly measurements presented in Figure 10.

During the October 2021 round of monthly monitoring, it was identified that the upper section of bore BHS6 (EPL Point 14) had been damaged during road making activities, due to proximity of the bore to an active haul road. The monthly standing water level measurement could be recorded as usual, but the quarterly grab sample scheduled for October was unable to be collected. There were a number of attempts undertaken to repair the monitoring site, however these were hindered by delays due to COVID-19 related restrictions and heavy rains, and due to the damage sustained by the bore, were ultimately unsuccessful. Standing water level at BHS6 was unable to be measured following the measurement taken in October. An EPL variation to remove the monitoring requirements associated with this bore from the EPL is being prepared to be submitted to the NSW EPA.

Name (EPL #)	Min. of SWL (m)	Max. of SWL (m)	Average of SWL (m)
BH6 (14)	13.55	14.22	13.82
BHAP1 (5)	8.9	9.98	9.47
BHAP10 (8)	28.12	28.37	28.23
BHAP5 (6)	23.1	23.89	23.55
BHAP6 (7)	63.25	65.2	63.99
BHS1 (18)	9.61	9.9	9.80
BHS2 (19)	4.89	7.57	5.34
BHS3 (20)	3.59	4.33	4.11
BHS4 (21)	4.84	5.49	5.22
BHS5 (22)	6.73	7.6	7.11
BHS6 (23)	14.13	14.86	14.56

Table 10: Summary of bore standing water levels.

Figure 10: Monthly bore standing water level measurements during 2021.

Average standing water level at BHAP6 (the production bore) increased throughout 2021 increased in comparison to the previous reporting period (2019-20). Although remaining in use, the consumption of water from BHAP6 was decreased during this period, as shown in Section 6. There is a trend of increasing groundwater level in this aquifer, with monthly measurements presented in Figure 11. The reduced measurement in December 2021 has been attributed to the impacts of the water pump drawing down on the column of water within the bore, as it was in use moments prior to the measurement being taken.

Figure 11: Standing water level BHAP6 (Production Bore).

5.5.2 Water monitoring

Water monitoring across the project site is undertaken in accordance with the Water Management Plan and requirements of the EPL, with samples collected quarterly from seven of the 11 bores, and annually from the remaining four bores. Samples are collected from the three springs quarterly or during periods of flow, as appropriate. This monitoring regime will continue in 2022. In 2021, only three quarterly samples were obtained, in February, June, and October. This was due to a number of issues, including the Greater Sydney COVID-19 lockdown. Supplementary samples for some analytes were obtained in November and December. As such, we believe sufficient samples were obtained to provide a thorough understanding of groundwater quality throughout the year.

As detailed in Section 5.5.1, damage to bore BHS6 meant that a sample could not be collected during the November 2021 quarterly round of sampling.

The below tables present a summary of the average groundwater monitoring results across 2021 calculated from the three regular quarterly sampling events. They have been summarised into general water properties (Table 11), anions and cations (Table 12) and hydrocarbons (Table 13). The results are generally comparable with previous observations, and hydrocarbons continue to be absent or at levels below detection/reporting. Sampling results for the below analytes do not indicate any evidence of impact upon groundwater quality as a result of quarrying activities.

During the October round of monitoring, elevated levels of metals were observed in a number of samples. As a consequence, monthly monitoring for metals was undertaken, for a total of two additional months in 2021. Fluctuations in levels were observed, but no obvious trend or correlation to external factors. Analysis of the data is ongoing and further monthly monitoring will be continued if considered worthwhile.

Table 11: Genera	l properties,	average	across	2021.
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Name	Sulfate mg/L	EC µS/cm	рН	TDS
BHAP1	6.0	790.0	6.5	543.3
BHAP5	10.3	390.0	8.6	220.0
BHAP6	9.7	833.3	7.4	463.3
BHAP10	4.3	540.0	6.8	383.3
BH6	112.7	893.3	7.4	526.7
Phil's Spring	12.7	1233.3	7.4	726.7
Southern Spring	4.8	655.0	8.2	375.0
Western Spring	5.3	1400.0	7.7	793.3
BHS1	3.3	193.3	6.0	166.7
BHS2	5.7	373.3	6.7	223.3
BHS3	3.0	820.0	6.6	516.7
BHS4	5.0	780.0	7.3	433.3
BHS5	4.7	856.7	7.2	590.0
BHS6	4.5	670.0	7.6	370.0

Table 12: Anions and cations, average across 2021.

Name	Ca mg/L	Cl mg/L	K mg/L	Na mg/L	Mg mg/L
BHAP1	18.7	216.7	1.2	96.7	12.2
BHAP5	7.7	29.3	2.0	15.0	33.3
BHAP6	71.7	68.0	1.9	58.3	28.7
BHAP10	5.4	93.7	2.8	85.0	8.2
BH6	52.7	106.7	1.0	47.7	52.7
Phil's Spring	48.0	163.3	1.1	73.0	81.7
Southern Spring	30.3	64.3	1.0	37.0	43.0
Western Spring	38.7	266.7	1.2	146.7	64.3
BHS1	5.8	37.5	1.9	15.7	6.7
BHS2	17.3	54.7	2.4	28.7	15.0
BHS3	19.3	200.0	1.6	75.3	29.3
BHS4	47.0	40.7	1.5	31.0	57.7
BHS5	46.7	72.3	1.1	45.0	56.3
BHS6	35.0	30.5	1.1	42.5	40.0

Name	TRH µg/L	xylene µg/L	Toluene µg/L	Benzene µg/L	Ethyl benzene µg/L
BHAP1	BDL	BDL	BDL	BDL	BDL
BHAP5	BDL	BDL	BDL	BDL	BDL
BHAP6	BDL	BDL	BDL	BDL	BDL
BHAP10	BDL	BDL	BDL	BDL	BDL
BH6	BDL	BDL	BDL	BDL	BDL
Phil's Spring	BDL	BDL	BDL	BDL	BDL
Southern Spring	BDL	BDL	BDL	BDL	BDL
Western Spring	BDL	BDL	BDL	BDL	BDL
BHS1	BDL	BDL	BDL	BDL	BDL
BHS2	BDL	BDL	BDL	BDL	BDL
BHS3	BDL	BDL	BDL	BDL	BDL
BHS4	BDL	BDL	BDL	BDL	BDL
BHS5	BDL	BDL	BDL	BDL	BDL
BHS6	BDL	BDL	BDL	BDL	BDL

Table 13: Hydrocarbons, average across 2021.

5.5.3 Springs

The Western Spring and Southern Spring were visually assessed for flow throughout the reporting period, with a manual estimation measurement method implemented at the Southern Spring towards the end of 2021. This method will continue to be implemented monthly, to allow comparison between readings, and observation of trends.

The Southern Spring has been observed to continually flow at historic rates, with no significant changes observed in quantity. Riparian vegetation was visually assessed, and no changes were observed.

The Western Spring remained dry for the majority of inspections, with the amount of water in the adjacent pond fluctuating slightly with rainfall. Samples were collected from this pond at the Western Spring during the year.

Phil's Spring is fitted with an electronic V-Notch weir monitoring device to continuously monitor flow rates. The average mean discharge (L/day) as calculated for each month is presented in Figure 12. Flow rate across the monitoring period was relatively steady, and comparable with previous reporting periods. The monitoring device experienced a technological issue between 4 June 2021 and 18 August 2021 and was unable to record data during this period. As such, June and August discharges were calculated on a reduced data set, and July was unable to be determined.

Figure 12: Mean discharge (L/day) observed at the Phils Spring monitoring location. Monitoring device was inactive between 4 June 2021 and 18 August 2021.

5.6 Heritage

The Aboriginal Heritage Management Plan (**AHMP**) was updated and submitted to DPIE on 11 November 2021, with a revised document submitted on 22 December 2021 following feedback from DPIE. As of the preparation of this AR, the AHMP has not been approved, however we expect this to occur shortly.

No artefacts or items of cultural value were recovered throughout 2021, and no areas identified in the AHMP as containing heritage items were disturbed.

5.7 Invasive species

A weed spraying program was implemented in January 2021 to manage the spread of noxious weeds at the Ardmore Park Quarry site. Existing weed species subject to the spraying program include tussock (*Nassella trichotoma*), blackberry (*Rubus fruticosus*) and St John's Wort (*Hypericum perforatum*).

No other programs were implemented to manage invasive fauna during the reporting year. Historically the Quarry has been affected by foxes, deer, pigs, and rabbits.

6. Water management

Three active Water Access Licences (**WAL**s) are currently held by the Ardmore Park Quarry. Two licences (30111 and 41848) are directed to the Goulburn Fractured Rock Aquifer, subject to the Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources, with the third WAL permitting water use from Bungonia Creek (25390).The works approval for WAL 41848 was obtained in February 2021.

WAL 30111 - "BHAP6" or "The Production Bore"

BHAP6 is a deep bore located at the centre of the Quarry property. Water from BHAP6 is generally used for dust suppression, amenities, truck washing, on-site concrete production, and rock washing.

WAL 41848 - "The Bubbler"

Water is obtained at a sled mounted pump located in the quarry void, drawing from surface and intercepted groundwater water collected in the pit. Water from this point is currently utilised for sand washing and dust suppression, however works are underway to increase the use of the water as an alternative to BHAP6 i.e. for dust suppression and rock washing.

WAL 25390

No water has been used under this WAL in 2021.

Water use for 2021 is summarised below in Table 14. Water usage at the quarry remained generally consistent throughout the year, and reduced from previous years, well within the permitted entitlements.

Table 14: Water entitlements and usage, 2021. Annual values are approximate as meter readings were not taken on the first and last day of the reporting period. * One unit under the water sharing plan is equivalent to an entitlement of one ML.

	BHAP6 (WAL 30111)			Bubbler (WAL 41848)			
	First reading	Final reading	Total (m³)	First reading	Final reading	Total (*10 m³)	
Date	24/11/2020	4/01/2022		26/04/2021	4/01/2022		
Reading (m3)	119522	128055	8533	8095	10247	2152	
	Approx. total usage 2021 (ML)		8.53	Approx. total usage 2021 (ML)		21.52	
	Entitlement units* (ML)		110	Entitlement units (ML)		100	
	Approx. entitlement used 2021 (%)		7.8	Approx. entitlement used 2021 (%)		21.5	

Meter readings since February 2018 are presented in Figure 13, which clearly shows the trend of reduced water take in recent years.

Figure 13: Meter readings (m³) for WAL 30111. The relevant period for this report is highlighted in grey.

7. Rehabilitation

No rehabilitation work was undertaken on previously disturbed land during the reporting year. The placement of clay waste products derived from sand washing activities commenced within the main pit area (the "Old Pit") in the south-west of the Approved Extraction Area. This will be continued and is expected to reduce the quarry void over the life of the operation. However, due to the large amount of water collected within this pit, the potential for backfilling is limited. An EPL variation seeking to permit the discharge of water from this pit is to be shortly submitted to the EPA, to increase the dry area of the void and allow further backfilling to be undertaken.

Backfilling of the "White Pit" in the south-east of the Approved Extraction Area with overburden has been undertaken during 2021 and is ongoing, alongside extractive activities.

Further rehabilitation work has been proposed, with a revised Landscape Management Plan in development, and expected to be published in 2022. However this is pending DPE's response to the notification of non-compliances sent on 24 December 2021 and the actions proposed within. Details are provided in Section 10.

8. Community

8.1 Community meetings

Three Community Consultative Committee (**CCC**) meetings were held by Multiquip in 2021 (March, August, November), as a forum for the provision of environmental monitoring data and to facilitate discussions relating to environmental performance. The minutes of these meetings are made available via the company website. Key concerns brought up by residents and members of the CCC during 2021 related to groundwater resources, noise, dust suppression, and roads, as well as the condition of the Parsonage on the Bungonia Bypass Road. Where possible, Multiquip acts on the concerns raised, or otherwise provides comments and clarification.

8.2 Complaints

Six complaints were received by Multiquip during 2021, with two of these complaints related to traffic, and four related to noise. Where appropriate, complaints are followed-up, and corrective actions taken when required. The number of complaints is steadily

decreasing, with 11 received during 2020 and 16 received during 2019. The complaints were received from one principal source within the local community, to the west of the quarry.

Complaints are recorded in an electronic register, with details of the complainant, date, time, method of delivery, the Multiquip contact who received the complaint, the subject of the complaint, information on corrective actions and additional comments noted. A summarised complaints report – i.e. with identifying information of the complainants removed – is updated as required and published to Multiquip's website.

We understand that regulators (including the NSW EPA) may on occasion receive direct correspondence or complaints from community members regarding the quarry. Multiquip remains in liaison with regulators regarding these issues, and open to rectifying any concerns raised. In 2021, no community complaints were formally passed on to Multiquip from regulators.

Notwithstanding complaints received, all available environmental monitoring data demonstrates a high level of compliance with the project's performance criteria for noise.

Multiquip continues to operate a phone complaints line, however most complaints are made directly through site management personnel, due to their familiarity with complainants.

Date	Contact	Method	Topic	Description	Response
8/02/2021	AC	SMS	Noise	Alleged 64 dB noise levels at residence.	None undertaken.
11/09/2021	SW	Phone	Traffic	Complainant alleged that an A-double Truck was driving unsafely on Jerrara Rd - crossing centre line.	Toolbox talk relating to traffic safety was conducted on 18 September 21. Reinforced that extra care should be taken around road hazards and that compliance with road rules is of high importance.
24/09/2021	SW	SMS/Phone	Traffic	Complainant alleged that an MQ driver was speeding to catch up with him, and too close behind him, and crossing centre lines on blind corners.	No information found (dashcam, driver's recollection) to substantiate claim, however as it could not be ruled out, driver involved was retrained in traffic code of conduct and local speed limits.

Table 15: Complaints received during 2021.

27/09/2021	SW	SMS	Noise	Alleged 53 dB noise levels at residence.	None undertaken. Follow-up from complainants advised that noise levels reduced.
2/11/2021	SW	SMS	Noise	Alleged 40-45 dB noise levels (presumably at residence).	None undertaken.
3/11/2021	SW	SMS	Noise	Alleged noise levels over the top of TV.	None undertaken. However complainant's follow-up/final text implies the noise levels became sufficient.

9. Independent Environmental Audit

The previous Independent Environmental Audit (IEA) was published by Groundwork Plus in January 2019, and covered the period of November 2015 to November 2018. Site inspections for that IEA were undertaken in November 2018.

Schedule 5 Condition 6 of the Project Approval requires that an IEA is conducted every 3 years. As such, an IEA is currently underway, with Ramboll as the auditors. The site inspection(s) is expected to occur towards the end of March or early April 2021, with the final report to be provided to DPE within 6 weeks of completion.

10. Incidents and non-compliances

There were no environmental incidents at the quarry during the 2021 reporting year.

Elevated primary dust levels above the limit values prescribed in the Project Approval were observed on a number of occasions, however assessment of these results concluded that the levels could not be attributed to quarrying activities, and as such, the limits were not considered to have been exceeded. Details are provided in Section 5.3.

During 2021, it was identified that three non-compliances with the Project Approval had occurred, specifically Schedule 5 Condition 5A, Schedule 2 Condition 2(c) and Schedule 3 Condition 24(a). The conditions (and the associated non-compliances) relate to the footprint of activities, revision of management plans, and Aboriginal heritage. A letter titled *Notification of non-compliances with the Project Approval PA 07_0155(MOD 3) at the Ardmore Park Quarry* detailing the non-compliances and proposed actions was prepared by R.W. Corkery & Co. Pty Limited (RWC) and submitted to DPE on 24 December 2021. Multiquip is awaiting a final formal response from the DPE regarding this issue. A summary of the non-compliance is provided below for each Condition, with details and some text taken from the RWC December 2021 Notification.

In order to ensure that PA 07_0155 accurately relates to all activities and the practical operation of the Quarry, Multiquip proposes to lodge a Modification Application to PA

07_0155 accompanied by a Modification Report relating to the activities undertaken within the areas beyond the approved areas of disturbance and reflecting the proposed management and timeframes of actions. The modification application and accompanying Modification Report is expected to be submitted to DPE in 2022.

10.1 Schedule 2 Condition 2(c)

Overview

Schedule 2 Condition 2(c) requires that: 2. The project may only be carried out: (c) generally in accordance with the EA and the Project Layout in Appendix 1. A comparison between an April 2021 aerial photograph and the August 2017 aerial photograph used in the 2017 Environmental Assessment (and reproduced in Appendix 1 of PA 07_0155 (Mod 3)) identified a number of areas within the Quarry Site where disturbance had occurred beyond the approved Quarry Site layout. The activities carried out within these areas include the stockpiling of materials (overburden, topsoil, oversize, and saleable), management of silt and oversize materials, vehicle parking, and road use. It is noted that no activities were undertaken outside of the approved Project Area, and no disturbance caused.

Causes and consequences

The approved Quarry Site layout is a rudimentary plan that excludes a number of operational areas typically found in quarries, prepared when development consent was originally sought for the Quarry, at which time a number of variables were not fully understood. These variables include the thickness of overburden (thicker than originally defined); variability of grain size throughout the sand deposit; actual ratios of product sand, oversize, and silt; incorrectly characterised layers within the deposit; potential visibility issues; water accumulation within quarrying areas, with no current possibility for discharge of this water; and higher proportion of silts than anticipated. This has led to a greater quantity of overburden extracted than anticipated, requiring stockpiling prior to incorporation in the final landform. This material was stored outside of the approved extraction area to reduce the need for rehandling of this material upon further extraction. The presence of water within previously quarried areas means that management of silts cannot currently be undertaken in these locations, and must be undertaken in other areas, with the high proportion of silt increasing the scale of these activities. The presence of water has also impacted and delayed progressive rehabilitation of the extraction areas.

Environmental impacts

Key environmental impacts arising from the unauthorised disturbance have been limited by the adoption of the following mitigation measures:

- Directing of sediment-laden runoff to on-site dams or active extraction areas, so that it cannot escape the site;
- Relocation of some stockpiles to completely obscure visibility from receivers;
- Shaping and revegetation of some areas.

Following the above, the residual impacts are as follows:

• One stockpile is visible from Inverary Road to the northeast;

- Potential exists for another stockpile to be visible from outside the Quarry Site to the south;
- Not all topsoil was stripped within the footprint of these areas, leading to a reduced quantity available for rehabilitation.

Proposed actions

Whilst Multiquip recognises its operations within the Quarry Site have resulted in a greater area of disturbance than originally approved, the environmental impacts of the activities do not appear to have been detrimental and in the case of the visibility issues, will contribute to ameliorating the concerns of neighbours to the north and east of the Quarry Site.

A number of management activities for activity areas beyond the approved area of disturbance have been proposed to DPE, which generally involve the short-medium term retention of some areas and stockpiles prior to use for rehabilitation, the relocation of materials into the extraction areas, the removal of saleable product and rehabilitation of storage footprints, and the incorporation of some currently stockpiled material into the visual barriers design to limit visibility of the operations.

10.2 Schedule 3 Condition 24(a)

Overview

Schedule 3 Condition 24(a) requires that: 24. The Proponent must prepare and implement an Aboriginal Heritage Management Plan for the project to the satisfaction of the Planning Secretary. This plan must: (a) be prepared in consultation with the BCD and Registered Aboriginal Parties, and be submitted to the Planning Secretary for approval prior to the commencement of extraction approved under Modification 3. It has been established that further extraction has been undertaken within the additional 3.5ha area approved under PA 07_0155 (Mod 3) prior to the approval of the Aboriginal Heritage Management Plan.

Causes and consequences

Following a program of test pitting within the extended basalt extraction area, some overburden was extracted and placed within the footprint of the approved eastern visual bund wall at a time when it was practical to excavate and place this material.

Multiquip had intended to continue extraction of basalt suitable for processing from the area beyond the additional 3.5ha (within the originally approved basalt extraction area). However, the ongoing wet weather prevented Multiquip from removing the overburden from the planned extraction area to expose suitable basalt. In order to maintain production, Multiquip relocated its basalt extraction operation to the area that had been stripped of overburden within the additional 3.5ha area.

Environmental impacts

No environmental impacts arose from the early commencement of this activity. Importantly, there are no defined aboriginal sites within the 3.5ha additional extraction area or the footprint of the eastern visual bund wall.

Proposed actions

The Aboriginal Heritage Management Plan was submitted to DPE and Heritage NSW for comment and revised accordingly, with a final version submitted on 22 December 2021, awaiting approval. No further actions are proposed in relation to this matter.

10.3 Schedule 5 Condition 5A

Overview

Schedule 5 Condition 5A requires that: 5A. Within 3 months of: (b) the submission of an Annual Review under condition 5 above; (c) the submission of an audit report under condition 7 below; or (d) any modification to this approval, the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Planning Secretary. When reviewing the current management plans, strategies and programs, it was established that the documents had not been reviewed and revised (if required) in accordance with Clauses (b), (c) and (d) of Schedule 5 Condition 5A.

Causes and consequences

Although initially approved in 2009, the Ardmore Park Quarry did not commence continuous extraction and processing operations until late 2017. Since that time, Multiquip has focused on operating the quarry under a range of circumstances. It was the Company's intention that the management plans, strategies and programs would be updated following the receipt of PA 07_0155 (Mod 3) which was originally presented in an Environmental Assessment dated 2017, and approved in July 2020. Review and revision (where necessary) of the management plans etc. has commenced, but not all have been finalised.

Environmental impacts

Multiquip has maintained its approved environmental monitoring programs since 2017 which have recorded general compliance with the environmental noise, air quality and water quality criteria.

Proposed actions

Multiquip has engaged R.W. Corkery & Co. Pty Limited to review the strategies, plans, and programs required by the Planning Approval, and determine whether any revisions are required. The Noise Monitoring Program, Air Quality Monitoring Program and Aboriginal Heritage Management Plan have been reviewed and updated and submitted to the Department for review and approval. Documents which are currently under review and awaiting final revision are the Environmental Management Strategy, Water Management Plan, Landscape Management Plan, Environmental Management Program, and Waste Management Plan. Final versions of these documents are proposed to be submitted with the modification application. External review of all documents commenced in mid 2021.

11. Activities in the next reporting period

The following activities are proposed in 2022.

- Completion and lodgement of Modification 3 Environmental Management Plans (EMPs).
 - o Environmental Management Strategy
 - o Water Management Plan
 - o Landscape Management Plan
 - o Environmental Management Program
 - o Waste Management Plan
- Implementation of Management Plans for Mod 3 following approval from the Department.
- Continuation of mining activities at the site. Indicatively expected to be 400,000 T/pa to be increased to 580,000 T/pa when appropriate documentation etc. is approved.
- Further rehabilitation and landscaping of visual bunds, pending approval from DPE.
- Completion of Independent Environmental Audit, including site inspection, with final report to be provided to DPE within 6 weeks of completion.
- Monitoring
 - o SWL of bores monthly
 - o Deposited dust monthly
 - Water sampling quarterly and annually
 - Particulate matter continuously (assessed monthly)
 - Noise quarterly
- Submission of modification to Project Approval (Modification 4) to ensure activities align with Approval (as per Section 10).
- Attendance at three Community Consultative Committee (CCC) meetings, including conducting a tour of the Project site.
- Submission of EPL variation to remove identified bores from EPL.
- Submission of EPL variation to permit controlled water discharges from the site.

12. References

The Department of Planning and Environment. (2015). Annual Review Guideline. Sydney: NSW Government.