DARACON Group

ARDGLEN QUARRY

2022 Annual Environmental Management Report (AEMR)

PROJECT APPROVAL MP 06_0264 - MOD 2

TITLE BLOCK

Table 1: Ardglen Quarry – Title block

Name of operation	Ardglen Quarry
Name of operator	Buttai Gravel Pty Ltd (Daracon Quarries)
Development consent / project approval #	Project Approval MP 06_0624 MOD 2
Name of holder of development consent / project approval	Buttai Gravel Pty Ltd (Daracon Quarries)
Annual Review start date	1st January 2022
Annual Review end date	31st December 2022
I, Luke Robinson, certify that this audit report is a true and accurate record of the compliance status of Ardglen Quarry for the period 1st January 2022 to 31st December 2022 and that I am authorised to make this statement on behalf of Buttai Gravel 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	Luke Robinson
Title of authorised reporting officer	Systems Manager – Construction Materials
Signature of authorised reporting officer	
Date	24th March 2023

STATEMENT OF COMPLIANCE

Table 2: Ardglen Quarry – Statement of compliance

Were all of the conditions of the relevant approval complied with?	No

SUMMARY OF 2022 INDEPENDENT ENVIRONMENTAL AUDIT (IEA) NON-COMPLIANCES

Table 3: Ardglen Quarry – Summary of IEA non-compliances

Condition #	Condition / description	Compliance status – refer legend below	Comment	Where addressed in AEMR
CONSENT - MP 06_0264				
Schedule 2, Condition 2	Some non-conformances against the conditions of the MP 06_0264 and the Statement of Commitments from MP 06_0264 were noted during the audit period. These non-conformances are summarised below in this table.		Detailed responses are provided within the various sections listed below	
Schedule 2, Condition 16	AQ is implementing site rehabilitation under a draft Landscape Management Plan which has been under review with regulatory agencies since 2018 (further context is provided in Appendix B of Attachment 1 of the IEA).		Following the completion of the 2018 IEA, Daracon reviewed, revised and uploaded the Landscape Management Plan (LMP) to the Major Projects Portal. Feedback was received from DPE during late 2019 and into 2020 and the document was revised and resubmitted as a result, however Daracon received no response or comments on the revised LMP from DPE until MOD 2 was approved in March 2021. DPE then requested Daracon rescind the LMP submission on the Major Projects Portal, which was completed. Following this, the LMP underwent multiple reviews, revisions and resubmissions culminating in the most recent resubmission to DPE in December 2022. The LMP is still under review by DPE at the time of this report.	Section 2.12

Schedule 3, Condition 12	An approach to landholders regarding expressions of interest in receiving blast notifications required under S3, C12(a) has not been made.		As noted in the IEA report, Daracon have not undertaken any blasting on the site for more than 10 years. Daracon also does not plan to undertake blasting on the site until further quarry development work occurs within the extension area. Daracon enquired with all local residents to ask if they wish to be included in a blast notification process using the February 2023 Newsletter.	Section 4.2
Schedule 3, Condition 14	The 24/12/21 submission date of the Blast Management Plan was outside of the period for review of management plans following the determination of MOD2 (i.e., 28/07/21 as noted in DPE letter to AQ dated 06/10/21).		Daracon correspondence to DPE dated 11th June 2021 nominated specific dates for the submission of the various Management Plans. DPE formally acknowledged this in their response dated 6th October 2021. The Blast Management Plan was approved by DPE on the 23rd March 2022 so this matter is now resolved.	Section 4.2
Schedule 3, Condition 17	Non-compliances with the requirement to demonstrate compliance with air quality criteria in accordance with the AQMP occurred in October 2018, October 2019 and October 2020, with High Volume Air Samplers not operating for their full run times.		As noted in the IEA report, Daracon have notified DPE of all air quality non-compliances to date and will continue to do so if and when they arise in the future.	Section 4.3
Schedule 3, Condition 20, 23D	A Groundwater Monitoring Program and/or a Dewatering Management Plan is not included in the approved 2010 Site Water Management Plan.		Following the approval of MOD 2, the revised Site Water Management Plan (SWMP) now includes a Groundwater Monitoring Program and Dewatering Management protocols.	Section 4.1
Schedule 3, Condition 22	Activities that could cause soil erosion and generate sediment are not specified in the approved 2010 Erosion and Sediment Control Plan.		Following the approval of MOD 2, the revised Site Water Management Plan (SWMP) now includes activities that could cause erosion and generate sediment including details of proposed mitigation measures.	Section 4.1

Schedule 3, Condition 23	Detailed baseline data for Doughboy Hollow Creek water quality, Doughboy Hollow Creek flow modelling, description of the surface water management systems on site, a trigger action response plan to respond to exceedances of performance measures / criteria, and a Dewatering Management Plan are not included in the approved 2010 Site Water Management Plan.		Following the approval of MOD 2, the Site Water Management Plan (SWMP) has been reviewed, revised and submitted to DPE for approval culminating in the most recent resubmission to DPE in December 2022. The SWMP is still under review by DPE at the time of this report.	Section 4.1
Schedule 3, Condition 27, 29, 30, 30A	The approved Landscape Management Plan is dated 2010, prior to the MOD2 approval.		Following the approval of MOD 2, the Landscape Management Plan (LMP) was reviewed, revised and submitted to DPE for approval. The LMP is still under review as noted above, whilst Daracon awaits a further response from the DPE.	Section 2.12
Schedule 3, Condition 27	NSW DPE found that AQ were not performing vegetation plantings and not excluding stock from the Biodiversity Offset Areas in accordance with AQ approvals in 2020.		Daracon responded to the DPE notice received in late 2020 and received formal acknowledgement from DPE in February 2021.	Section 2.12
Schedule 3, Condition 28	The Doughboy Hollow Creek Rehabilitation Strategy has not been approved or rehabilitation implemented in that area at the time of audit.		The Doughboy Hollow Rehabilitation Strategy forms part of the Landscape Management Plan (LMP). Daracon applied to DPE for a 'staged submission' of the LMP to allow time to formalise the Doughboy Hollow Rehabilitation Strategy and this was approved by DPE. The LMP is still under review as noted above, whilst Daracon awaits a further response from the designated DPE representative.	Section 2.12

Schedule 3, Condition 40	Evidence not available at the time of audit regarding liaison with LPSC over 20km/hour speed limit for heavy vehicles on High Street bridge.		The Traffic and Transport Management Plan (TTMP) was reviewed, revised and resubmitted to DPE for approval on the 2nd August 2022. The revised TTMP includes details regarding the 20 kph speed limit for heavy vehicles over High St bridge. Due to the fact the 20 kph speed limit will only apply to heavy vehicles associated with the quarry and it is a 'self imposed' requirement specifically included in the 'Transport Code of Conduct' document, there will not be any signage installed. Following the approval of the TTMP by DPE, Daracon has liaised further with Liverpool Plains Shire Council regarding this matter.	Section 2.11
Schedule 3, Condition 43	A procedure for the notification of residents regarding night-time train loading is not included in the Traffic and Transport Management Plan.		The Traffic and Transport Management Plan (TTMP) was reviewed, revised and submitted to DPE for approval on the 2nd August 2022 and now includes a procedure to notify residents of train loading outside of the normal hours detailed in the Consent (permitted twice per annum).	Section 2.11
Schedule 3, Condition 43	The 25/10/21 submission date of the Traffic and Transport Management Plan was outside of the period for review of management plans following the determination of MOD2 (i.e., 28/07/21 as noted in DPE letter to AQ dated 06/10/21).		Daracon correspondence to DPE dated 11th June 2021 nominated specific dates for the submission of the various Management Plans. This correspondence also included details of the TTMP submission. DPE formally acknowledged this in their response dated 6th October 2021. Further correspondence was provided to DPE on the 25th October 2021 regarding a significant property boundary issue along the public road reserve discovered as part of the LPSC consultation. Following the resolution of the boundary issue with LPSC, the TTMP was subsequently approved by DPE in August 2022.	Section 2.11
Schedule 3, Condition 48	No reference to the EPA Waste Classification Guidelines was identified in approved AQ management documents.		The Integrated Facility Management Plan (IFMP) now includes a reference to the EPA Waste Classification Guidelines.	Section 2.5

Schedule 5, Condition 8 (b)	A version of the 2020 Landscape Management Plan (draft) was available on the AQ website.		Due to the protracted nature of the DPE review of the LMP, Daracon included a copy of the 'draft' LMP on the website. Following the completion of the 2022 IEA, Daracon removed all unapproved management plans from the website and added the approved versions.	Section 2.12
STATEMENT OF COMMITTMENTS				
SoC 1	Some non-conformances against the conditions of the MP 06_0264 and the Statement of Commitments from MP 06_0264 were noted during the audit period. These non-conformances are summarised below in this table, with further detail provided in Appendix B of Attachment 1 of the IEA.		Detailed responses are provided within the various sections listed below	
SoC 12	The application of wet suppression or chemical coating to static stockpiles was not being undertaken at the time of audit.		The site has been mostly in 'care and maintenance' for many years with no significant air quality issues identified as a result of the quarry operation. Additionally, the site has a robust air quality monitoring network installed and the quarry is regularly inspected. Daracon propose to review and revise the AQMP to remove the mandatory nature of the "application of wet suppression or chemical coating to static stockpiles". This will occur before entering the 'Extension Area'	Section 4.3
SoC 14	The approved Landscape Management Plan is dated 2010, prior to the MOD2 approval.		Following the approval of MOD 2, the Landscape Management Plan (LMP) was reviewed, revised and submitted to DPE for approval. The LMP is still under review as noted above, whilst Daracon awaits a further response from DPE.	Section 2.12

SUMMARY OF 2022 INDEPENDENT ENVIRONMENTAL AUDIT (IEA) RECOMMENDATIONS

Table 4: Ardglen Quarry – Summary of IEA recommendations

Condition #	Condition / description	Compliance status – refer legend below	Comment	Where addressed in AEMR
CONSENT - MP 06_0264				
Schedule 2, Condition 13	It is recommended that AQ investigate options for the reuse of the truck remaining at the site laydown area prior to the recommencement of quarrying operations.		Daracon will investigate options to re-use the truck remaining on site prior to the recommencement of quarrying operations. Otherwise, the truck will be removed from site prior to the recommencement of quarrying operations.	Section 2.7
Schedule 2, Condition 15	It is recommended that AQ put a procedure or other system in place to ensure the regular review of strategies, plans and programs for the site, in accordance with the requirements of S2, C15 of MP 06_0264.		During the period of the IEA, Daracon implemented a procedure to ensure the regular review of strategies, plans and programs for the site.	Section 1.2
Schedule 2, Condition 16	It is recommended that AQ operate in accordance with the approved Landscape Management Plan (unless otherwise directed by DPE).		As described above, due to the protracted nature of DPE's review of the Landscape Management Plan (LMP) in combination with the 'Show Cause notice' received from DPE in late 2020, there are aspects of the current approved (2010) LMP that are not considered to be relevant and Daracon has therefore implemented a number of the strategies detailed in the revised LMP's (2020 onwards) in order to maintain compliance with the current Consent.	Section 2.12
Schedule 3, Condition 2	It is recommended that copies of the landholder noise / impact agreements are provided to EPA and DPE, as required under this condition.		Daracon have provided copies of all landholder's noise agreements to the EPA and DPE.	Section 4.2.1
Schedule 3, Condition 3	It is recommended that the approved construction hours for the site are noted in Section 5.1 of the AQ IFMP (EMS).		During the course of the IEA, Section 5.1 of the Integrated Facility Management Plan (IFMP) was updated to include the construction hours listed in the consent and was resubmitted to DPE for approval. The IFMP has recently been reviewed by DPE and is currently awaiting the	Section 4.2

			resolution of the remaining sub-plans before it can be resubmitted for approval by DPE.	
Schedule 3, Condition 5	It is recommended that AQ report on any noise investigations and the implementation of additional mitigation measures committed to under MOD2 in future AEMRs.		Daracon will report on any investigations and implementation of the noise mitigation measures included in the EA associated with MOD 2 in future AEMR's as they occur.	Section 4.2
Schedule 3, Condition 12	It is recommended that AQ provide the relevant notifications and set up a Blasting Hotline to the approval of DPE prior to the recommencement of operations on site.		Daracon have enquired with all local residents to see if they wish to be included in a blast notification process using the February 2023 Newsletter. The newsletter will also include the 'hotline' contact number.	Section 4.2
Schedule 3, Condition 16	It is recommended that AQ implement a permanent wheel wash station at the location approved in the MOD2 EA before recommencement of operations.		Daracon will install a wheel wash prior to recommencing the export of material from site as detailed in the TTMP.	Section 6.10
Schedule 3, Condition 20 - 23	It is recommended that AQ continue to liaise with DPE and DPE Water to gain approval of the updated Site Water Management Plan, to address MOD2 compliance requirements and commitments.		The SWMP was reviewed, revised and resubmitted again to DPE in December 2022. The SWMP is still under review by DPE at the time of this report.	Section 4.1
Schedule 3, Condition 21	It is recommended that a requirement for annual update of the site water balance following the recommencement of operations is included in the current revision of the Site Water Management Plan (underway at the time of audit).		The SWMP currently under review by DPE makes allowance for a review of the site water balance. Therefore, if deemed necessary due to a change in process or new information, the water balance will then be reviewed and updated.	Section 4.1
Schedule 3, Condition 22	It is recommended that activities with the potential to create soil erosion are included in the current revisions of the Site Water Management Plan underway at the time of audit.		The SWMP currently under review by DPE includes activities that have the potential to create soil erosion.	Section 4.1

Schedule 3, Condition 25	It is recommended that AQ review the inconsistency in the need establish EEC grass species in Lot 39 between the draft LMP (based on BCT advice) and SoC6 of the MOD2 EA (see Table C) and seek confirmation from DPE that this would not be required.		The specific details surrounding any perceived inconsistencies between the BCT advice and the SoC's will be resolved once DPE approves the current LMP.	Section 2.12
Schedule 3, Condition 27 - 30	It is recommended that the LMP is updated to reflect the changes to the development consent in the March 2021 determination of MOD2.		The LMP was recently reviewed, revised and resubmitted to DPE. It is currently under review by DPE.	Section 2.12
Schedule 3, Condition 27	It is recommended that AQ continue to implement the progressive rehabilitation on site to meet the related commitments from the MOD2 EA, pending approval of the revised LMP.		Daracon is committed to undertaking site rehabilitation in accordance with the revised LMP, currently under review by DPE.	Section 2.12
Schedule 3, Condition 27	It is recommended that AQ continue to consult with relevant regulatory agencies, to identify a process for rehabilitation of Doughboy Hollow Creek.		DPE approved a 'staged submission' of the LMP to accommodate the Doughboy Hollow Rehabilitation Strategy and we're currently preparing the draft Doughboy Hollow Rehabilitation Strategy with assistance from Umwelt. Once a final draft of the Doughboy Hollow Rehabilitation Strategy is available, consultation with the relevant regulatory authorities will then occur via the Major Projects Portal.	Section 2.12
Schedule 3, Condition 33, 38	It is recommended that the AQ product transportation register is reviewed prior to the recommencement of operations to ensure that required truck movement details under MOD2 are recorded and reported in future AQ AEMRs.		Daracon has reviewed the product transportation register prior to exporting of material from site to ensure the records are compliant with the revised consent and Daracon will then report this information in subsequent AEMR's.	Section 2.11

Schedule 3, Condition 43	It is recommended that the induction for truck drivers included in the truck driver's Code of Conduct appended to the Traffic and Transport Management Plan is revised for consistency with MOD2 commitments and approval requirements.		The Traffic and Transport Management Plan (TTMP) was reviewed, revised and resubmitted and approved by DPE in August 2022.	Section 2.11
Schedule 3, Condition 43	Consider updating the Traffic and Transport Management Plan to reflect the truck speed commitments made in AQ approvals and AEMRs during the reporting period.		The Traffic and Transport Management Plan (TTMP) was reviewed, revised and resubmitted and approved by DPE in August 2022.	Section 2.11
Schedule 3, Condition 43	Include a procedure in the Traffic and Transport Management Plan to notify residents if train loading activities are to recommence.		The Traffic and Transport Management Plan (TTMP) was reviewed, revised (including a procedure to notify residents when train loading outside of the normal hours detailed in the Consent will occur) and approved by DPE in August 2022.	Section 2.11
Schedule 3, Condition 44	It is recommended that AQ implement offsite visual and lighting mitigation measures prior to the recommencement operations, and update site Management Plans accordingly, to the satisfaction of DPE.		There is currently no external lighting associated with the operation of Ardglen Quarry, however if this was to change in the future, then Daracon would ensure compliance with Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting to the satisfaction of the Director-General.	Section 2.7
Schedule 3, Condition 46, Schedule 5, Condition 4	It is recommended that future AQ Annual Reviews: • Describe investigation into GHG reduction initiatives; and • Include a summary of monitoring results for greenhouse gas.		The AEMR has been updated to include section 4.5 which will report greenhouse gas emissions. Section 2.6 includes the relevant reduction initiatives.	Section 4.5 and Section 2.6

Schedule 3, Condition 47	Consider including procedures for waste minimisation, management, handling, storage and disposal be included in the IFMP (EMS).		The IFMP now includes reference to waste minimisation procedures.	Section 2.5
Schedule 3, Condition 48	It is recommended that procedures for waste assessment, classification and management referring to EPA guidelines is included in the IFMP (EMS), or other suitable plan.		The IFMP now includes a reference to the EPA Waste Classification Guidelines.	Section 2.5
Schedule 5, Condition 1	It is recommended that a revised EMS is prepared to the satisfaction of DPE to address the contemporary approvals requirements of the MOD2 approval and EA.		Daracon developed the Integrated Facility Management Plan (IFMP) to address the requirements of the consent associated with an EMS. The IFMP has recently been reviewed by DPE and is currently awaiting the resolution of the remaining sub-plans before it can be resubmitted for approval by DPE.	Section 1.2
Schedule 5, Condition 8	It is recommended that the approved LMP is provided on the website while the current revision is under review by regulatory agencies.		Daracon have removed all unapproved management plans from the website and will only upload revised documents once approved by DPE.	Section 1.2
ENVIRONMENTAL PROTECTION LICENSE - 1115				
L4.2	It is recommended that AQ provide EPA with a copy of both noise agreements to formalise landholder arrangements in accordance with EPL 1115 conditions.		Daracon have provided copies of all landholder's noise agreements to the EPA.	Section 4.2.1

STATEMENT OF COMMITTMENTS				
SoC 9	It is recommended that noise controls described under SoC9 are installed prior to the recommencement of extraction and processing activities on site (where these are entirely consistent with the noise mitigation commitments described in the MOD2 EA).		Daracon are committed to the installation of the prescribed noise mitigation controls detailed in the MOD 2 EA before the recommencement of extraction and processing occurs on site. For clarity, the controls listed in SoC 9 have mostly been superseded by the NIA associated with Mod 2 (excluding rail loading).	Section 4.2
SoC 12	AQ review the potential inconsistencies in speed limits adopted for the project and reflect in the approved Traffic and Transport Management Plan.		The Traffic and Transport Management Plan (TTMP) was reviewed, revised and subsequently approved by DPE in August 2022.	Section 2.11
SoC 12	Consider including flexibility in the AQMP for not using wet suppression or chemical coating on all static stockpiles, where this will not result in significant reductions in air quality emissions.		Daracon will review the AQMP and consider updating it to introduce flexibility into the requirement to use wet suppression or chemical coating on all static stockpiles where this will not result in significant reductions in air quality emissions.	Section 4.3

COMPLIANCE STATUS LEGEND

Risk level	Colour code	Description
High	Non-compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-compliant	Non-compliance with: • potential for serious environmental consequences, but is unlikely to occur; or • potential for moderate environmental consequences, but is likely to occur
Low	Non-compliant	Non-compliance with: • potential for moderate environmental consequences, but is unlikely to occur; or • potential for low environmental consequences, but is likely to occur
Administrative non-compliance	Non-compliant	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

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1. INTRODUCTION

1.1 Scope

This report has been prepared by Daracon Quarries, in accordance with Schedule 5 Condition 4 of the Project Approval MP 06_0264 to record the activities and environmental monitoring undertaken within and surrounding Ardglen Quarry during the period 1st January 2022 to 31st December 2022 (the reporting period).

Figure 1 and Figure 2 below, show the location and details of the quarry site.

Figure 1: Quarry Location

On 2nd December 2008 Daracon was granted approval (Project Approval MP 06_0264) under part 3A of the Environmental Planning & Assessment Act 1979 to extend the existing quarry operations in a westerly direction into Lot 218 (DP 751028). In December 2010, Modification 1 (Mod 1) for Project Approval MP 06_0264 was implemented whilst in March 2021 Modification 2 (Mod 2) was approved.

Daracon ceased quarrying operations at Ardglen Quarry in February 2012 and the site was placed into “care and maintenance” at that time.

In August 2018, Ardglen quarry was taken out of "care and maintenance" due to the need for material at the Scone Bypass Project (SBP). This was communicated to the community and relevant regulatory authorities as part of the recommencement process. The export of material from Ardglen quarry to the SBP was completed in early 2020.

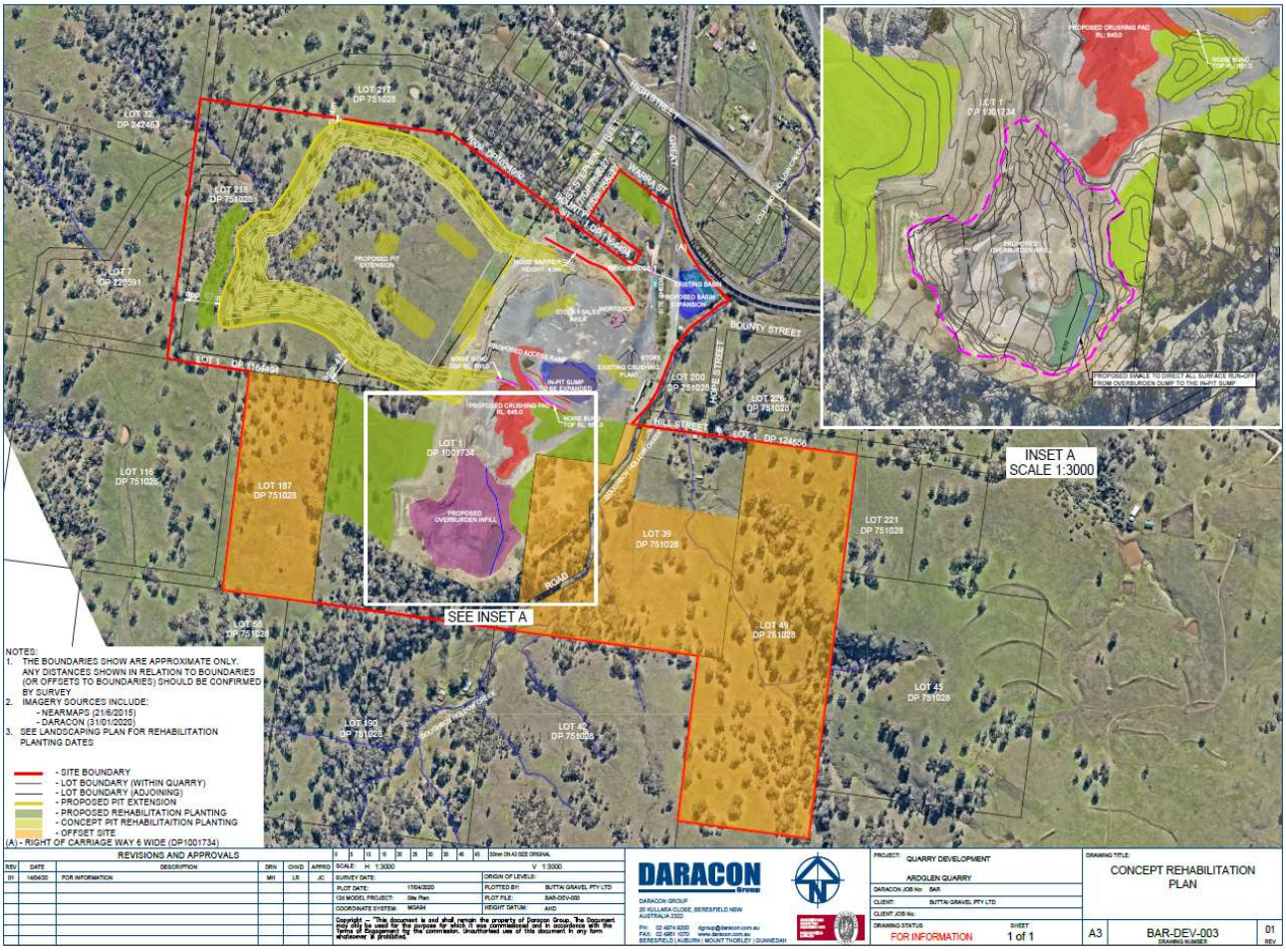


Figure 2: Quarry boundary, disturbance area and offset areas (taken from Appendix 2 of Mod 2)

This document provides an overview of activities and environmental monitoring that occurred within the reporting period and also activities and environmental monitoring planned for 2023. This Annual Environmental Management Report (AEMR) contains the following:

- A description of activities that were carried out in 2022;
- A review of the environmental monitoring results that were carried out in 2022;
- Results of the Independent Environmental Audit that was carried out in 2022;
- A description of measures that will be implemented throughout 2023 to maintain and/or improve the environmental performance of the Quarry;

1.2 Standards and Performance Measures

The owner and operator of Ardglen Quarry, Daracon Quarries (Trading as Buttai Gravel Pty Ltd) is required to operate the approved activities within the Quarry site in accordance with MP 06_0624 MOD 2 and licences listed in **Table 5.**

Table 5 – Ardglen Quarry - Consents and Licences

Approval/Licence	Issue Date	Expiry Date
Project Approval MP 06_0624 MOD 2	March 2021	31 August 2038
Environment Protection Licence (EPL) No.1115	N/A	1 January (anniversary date)

Relevant conditions with Project Approval MP 06_0624 which nominate specific environmental criteria are as follows:

- *Schedule 3 Condition 1:* Hours of Operation
- *Schedule 3 Condition 2:* Noise
- *Schedule 3 Condition 7:* Blasting and Vibration
- *Schedule 3 Condition 15:* Air Quality

- *Schedule 3 Condition 18:* Meteorological Monitoring
- *Schedule 3 Conditions 18A – 18F, plus others:* Surface and Ground Water
- *Schedule 3 Conditions 24 - 32:* Rehabilitation and Landscape Management
-

In addition to the specific environmental criteria, the following conditions within MP 06_0624 specifically request further information be included in each AEMR:

- *Schedule 3 Conditions 33 - 43: Product Transport*
- *Schedule 3 Conditions 44: Visual Impact*
- *Schedule 3 Conditions 45: Aboriginal and Cultural Heritage*
- *Schedule 3 Condition 46: Greenhouse Gas*
- *Schedule 3 Condition 47:* Waste Minimisation

Daracon have reviewed and revised the Environmental Management Strategy (EMS) in accordance with Schedule 5, Condition 1 the approved consent. The revised EMS has been developed by using the Daracon Integrated Facility Management Plan (IFMP). Daracon have also implemented a strategy to ensure the various management plans are reviewed, revised and updated (if necessary) in accordance with the Approval. At the time of this report, the DPE approval of the IFMP was awaiting the completion of the outstanding sub-plans (LMP and SWMP) before it could be resubmitted for approval.

Additionally, Daracon commits to compliance with all Management Plans approved by the Department of Planning and Environment (DPE) and the display of all approved Management Plans on the Daracon website.

1.3 Site Management and Responsibilities

The overall management of Ardglen Quarry is the responsibility of Daracon's Quarries Manager, Mr Paul Walker. While the Quarry was in "care and maintenance", environmental monitoring is arranged by Mr Luke Robinson (Systems Manager). Site supervision was also assisted by Daniel Smith (Supervisor). Other companies involved with quarry related documentation and monitoring data include:

- RCA Aust. Pty Ltd Laboratories;
- Rubicon Enviro Pty Ltd;
- Umwelt Australia Pty Ltd;

1.4 Document Preparation

The following information and data for this report has been drawn from documents commissioned or held by Daracon.

- Environmental Management Strategy Ardglen Quarry Extension - Major Project 06/0264, September 2010, Orogen Pty Ltd;
- Ardglen Quarry Environmental Monitoring records;
- Other relevant management plans, reports and studies associated with the site;

This document has been prepared by Mr Luke Robinson of Daracon Quarries.

In response to enquiries received from DPE during the reporting period, **Table 6** below includes the details of specific requests for additional information as well as the relevant action taken.

Table 6: DPE requests for additional information

DPE requests	Action taken
DPE requests associated with the completion of the Independent Environmental Audit (IEA) that occurred during 2022	During the course of 2022, Daracon interacted with DPE on multiple occasions during the completion of the IEA. The end result of the interactions and various associated DPE requests for additional information was DPE's acceptance of the IEA Report in December 2022.

Management Plans	During the course of 2022, Daracon interacted with DPE on multiple occasions regarding the review and approval of various management plans for the site. At the time of this report, Daracon are still awaiting further advice from DPE regarding the Landscape Management Plan (LMP) and Site Water Management Plan (SWMP). Once the LMP and SWMP are approved by DPE, they will then be incorporated into the Integrated Facility Management Plan (IFMP) which will then be resubmitted to DPE for approval as the site Environmental Management System (EMS).
Ardglen Community Consultative Committee (CCC) enquiries through the DPE appointed facilitator (Mike Silver)	Although Daracon is not specifically aware of the details associated with various CCC interactions between DPE and Mike Silver, it's our understanding that there may have been a number of matters discussed, which are either resolved or progressing towards completion.

In response to enquiries received from DPE, **Table 7** below includes the details of specific actions resulting from previous AEMR's.

Table 7: Specific Actions from previous AEMR's

Actions from previous AEMR's	Requested by	Action taken	Where discussed in AEMR
Long term security of the Biodiversity Offset areas	Daracon	As previously advised, Daracon is progressing with the Conservation Agreement (CA) including ongoing consultation with the Biodiversity Conservation Trust (BCT). At the time of the AEMR submission, we've received a revised DRAFT of the CA from BCT and continue to liaise with them to finalise and ratify once agreed. A copy of the most recent advice received from BCT is included in Appendix 6 of this document (within Appendix D of the Umwelt Rehabilitation report).	Section 2.12
The Site Water Management Plan requires review and update	Daracon	Following various protracted interactions with DPE, the SWMP was revised and resubmitted via the DPE Portal in December 2022.	Section 2.8

The Landscape Management Plan (LMP) requires review and update	Daracon	Following various protracted interactions with DPE, the LMP was revised and resubmitted via the DPE Portal in December 2022.	Section 2.12
The Integrated Facility Management Plan (IFMP) to satisfy the site Environmental Management System (EMS).	Daracon	Once the LMP and SWMP are approved by DPE, they will then be incorporated into the Integrated Facility Management Plan (IFMP) which will then be resubmitted to DPE for approval.	Section 1.2
Following the approval of Mod 2, a variation to the EPL will be required	Daracon	Following the approval of Mod 2 by DPE, Daracon applied to the EPA for a variation to the EPL and this was approved by the EPA in March 2022	Section 2.8
Previous IEA actions prior to 2022	Daracon	The 2022 IEA takes account of the previous IEA actions now included in Table 3 and Table 4 above	Section 5,3, Table 3 and Table 4 of this document

2. OPERATIONS DURING THE REPORTING PERIOD

2.1 Introduction

Prior to August 2018, Ardglen quarry had been in 'care and maintenance' for many years. Ardglen quarry was taken out of 'care and maintenance' during the latter part of 2018 due to the need for material at the Scone Bypass Project (SBP). The export of material to the SBP continued intermittently during 2018 and 2019 whilst the project was completed and opened in early 2020. Since early 2020 the site has effectively been back in 'care and maintenance' apart from the progression of environmental monitoring in accordance with Mod 2, further refinement of the geological study/mining plan for the site and planning for the various actions associated with reopening the site sometime in 2023.

Table 8 lists the activities that occurred at Ardglen Quarry throughout 2022.

Table 8: Operations during the Reporting Period

January	No quarry operations and no export of material from the quarry occurred. Weekly Site Inspections, environmental monitoring and maintenance of rehabilitation areas.
February	No quarry operations and no export of material from the quarry occurred. Weekly Site Inspections, environmental monitoring and maintenance of rehabilitation areas.
March	No quarry operations and no export of material from the quarry occurred. Weekly Site Inspections, environmental monitoring and maintenance of rehabilitation areas. Daracon Quarterly environmental inspection occurred.
April	No quarry operations and no export of material from the quarry occurred. Weekly Site Inspections, environmental monitoring and maintenance of rehabilitation areas.
May	No quarry operations and no export of material from the quarry occurred. Weekly Site Inspections, environmental monitoring and maintenance of rehabilitation areas. CCC meeting occurred. The Independent Environmental Audit (IEA) commenced.
June	No quarry operations and no export of material from the quarry occurred. Weekly Site Inspections, environmental monitoring and maintenance of rehabilitation areas.
July	No quarry operations and no export of material from the quarry occurred. Weekly Site Inspections, environmental monitoring and maintenance of rehabilitation areas. Rubicon annual environmental inspection occurred.
August	No quarry operations and no export of material from the quarry occurred. Weekly Site Inspections, environmental monitoring and maintenance of rehabilitation areas. The Independent Environmental Audit (IEA) was completed and submitted to DPE for review.
September	No quarry operations and no export of material from the quarry occurred. Weekly Site Inspections, environmental monitoring and maintenance of rehabilitation areas. Daracon Quarterly environmental inspection occurred.
October	No quarry operations and no export of material from the quarry occurred. Weekly Site Inspections, environmental monitoring and maintenance of rehabilitation areas.
November	No quarry operations and no export of material from the quarry occurred. Weekly Site Inspections, environmental monitoring and maintenance of rehabilitation areas. CCC meeting occurred. The Independent Environmental Audit (IEA) was revised and resubmitted to DPE.
December	No quarry operations and no export of material from the quarry occurred. Weekly Site Inspections, environmental monitoring and maintenance of rehabilitation areas. Daracon Quarterly environmental inspection occurred. Independent Environmental Audit (IEA) was accepted by DPE

2.2 Extraction And Clearing Operations

No clearing, blasting, quarrying or extraction operations took place during the reporting period.

At the time of this report, we're unsure if the status of blasting, quarrying and extraction operations will change during 2023, but we'll ensure DPE and the CCC are informed if blasting, extraction and crushing (quarrying) operations are likely to recommence on site.

2.3 Production and Processing Operations

No processing or production operations took place during 2022 as shown in **Table 9**.

Table 9: Ardglen Quarry Production (tonnes)

Materials	Approved limits	Previous reporting period	This reporting period	Next reporting period (forecast)
Saleable product	The maximum amount allowed to be extracted and processed is 500,000T per year	0	0	Unknown
Other materials		0	0	Unknown
Total	**0**	**0**	**0**	**Unknown**
Source: Ardglen tracking records				

2.4 Overburden and Silt Management

Nil overburden was removed during 2022.
Nil silt removal occurred during 2022.

2.5 Waste Management

No production took place during 2022 which also meant there was no production waste generated as follows:

- General Demolition Waste – Nil;
- Recyclable Concrete – Nil;
- Paper & Cardboard – Nil;
- Scrap Steel – Nil;
- Recyclables – Nil;
- Waste Oil – Nil;
- Waste Oil Filters – Nil;
- Empty Drums – Nil;
- Grease – Nil;
- Oily Water – Nil;
- Batteries – Nil;
- Asbestos Containing Material – Nil;

Additionally, following the 2022 IEA, we've now included a reference to the EPA Waste Classification Guidelines and waste minimisation procedures within the IFMP.

2.6 Emissions

Daracon is committed to ongoing greenhouse gas emission reduction strategies as part of the operation of Ardglen Quarry. The mitigation measures currently employed on site to ensure particulate matter emissions are minimised include:

- Sealing the haul road to the wheel wash / weighbridge;
- Limiting the speed limit on unpaved surfaces to 15 km/hr;
- High level watering of unpaved road surfaces (greater than 2L/m^2/hr);
- Covering all loads leaving the site;
- Wet suppression of static stockpiles as required;

Additionally, the proposed mitigation measures to ensure particulate matter emissions are minimised include:

- Revegetation of exposed surfaces where available;
- Regular inspection and fault reporting for mobile plant and equipment;
- Prompt rectification of reported faults associated with mobile plant and equipment;
- As part of the forward planning for site, considering the use of renewable energy sources including solar, wind and battery storage for example;
- Analysing the regular NGERS / NPI reports for trends and potential avenues for emission reductions;

- Re-install a wheel wash at the end of the unpaved section of the haul road before export by road haulage can recommence from the site;
- Minimise energy consumption on site by:
  - Shutting down plant and equipment when not used;
  - Regular servicing of plant and equipment;
  - Walking in preference to vehicular use where possible;

2.7 Site Infrastructure and Services

During the reporting period, the following infrastructure/services tasks occurred:

- Following the approval of Mod 2 and the installation of four groundwater monitoring wells in 2021, the groundwater monitoring programme has progressed with an additional plan to install telemetry into the four wells in early 2023 (Figure 4 shows the locations of the groundwater monitoring wells);
- Following the decommissioning of the electrical substation, there is currently no external lighting associated with the operation of Ardglen Quarry, however if this was to change in the future, then Daracon would ensure compliance with Australian Standard AS4282 (INT) 1995;
- Daracon will investigate options to re-use the truck remaining on site prior to the recommencement of quarrying operations. Otherwise, the truck will be removed from site prior to the recommencement of quarrying operations.
- The installation of a new security alarm in late 2022, following a number of trespass incidents;

2.8 Water Management

Figure 3 displays the current surface water management system in place at Ardglen Quarry. During the reporting period there was some minor maintenance to the various drainage and sedimentation control structures on site.

The Site Water Management Plan (SWMP), including the following, has recently been reviewed and uploaded to the DPE Major Projects Portal. Subject to approval of the SWMP by DPE, this will be enacted prior to commencing work in the Extension Area. The SWMP includes:

- An assessment of basin volumes is included as part of the revised SWMP;
- An assessment of the reliability of the water supply to the operation is included as part of the SWMP;
- Operational and maintenance activities that could cause soil erosion and sediment generation are identified and described in the SWMP;
- Procedures to manage unforeseen water quality impacts;
- Water treatment processes to enable discharge as required (in accordance with the revised EPL);
- The proposed strategy to monitor and subsequently manage any groundwater interactions on site;

Figure 3: Surface Water Management

Figure 4 below shows the indicative locations of the groundwater monitoring wells installed in 2021. Ongoing monitoring of the various groundwater parameters is ongoing for the foreseeable future.

In accordance with Mod 2, once we've obtained sufficient data relating to the various groundwater parameters, we will analyse the data collected and further develop the Groundwater study. This may require us to update the SWMP to include any subsequent management actions required to adequately address the findings of the groundwater study.

Figure 4: Ground Water Monitoring Network

Additionally, Table 10 below summarises the various Water Access Licences (WAL's) and the quantity of water obtained during the previous water year (1 July to 30 June). It should be noted that the 'Works Approval' associated with the WAL's nominated in Table 10 was amended in November 2021 to make work authorised under the water supply work approval **inactive** in accordance with s.95 of the Water Management Act 2000. This will remain inactive until further notice.

Table 10: Summary of Water Access Licences and water take

Water Licence #	Water sharing plan, source and mngt zone	Entitlement (units)	Passive take / inflows	Active pumping	Total
6242	Namoi and Peel unregulated rivers water sources 2012	1.00	Nil	Nil	**Nil**
6243	Namoi and Peel unregulated rivers water sources 2012	4.00	Nil	Nil	**Nil**

2.9 Bushfire Management

Minimal bushfire prevention activities occurred during this reporting period apart from selective weed spraying on site.

2.10 Hazardous Materials Management

Hazardous materials within the Quarry site are appropriately managed with incidental quantities of fuels and oils located in an appropriately bunded area. During this reporting period there was no bulk diesel fuel stored onsite. Incidental quantities of aerosols and weed poison are also stored within the appropriately bunded area.

2.11 Product Transportation

The transportation of products, both imported and exported is identified in Schedule 3 Condition 33. Condition 33 states the following including Daracon responses in red - *The Proponent shall:*

(a) keep records of the:

- *amount of quarry materials imported onto the site each year* – Refer to commentary below;
- *amount of product transported from the site each year* – Refer to Table12;
- *number of truck movements generated by the project, on a weekly basis* - Refer to table 11;
- *number of train movements generated by the project, on a weekly basis* - Refer to commentary below;
- *date and time of each train movement generated by the project* - Refer to commentary below;

(b) provide annual production data to the DPI using the standard form for that purpose – Completed via separate submission to the Resource Regulator (formerly the DPI); *and*

(c) include these records in the AEMR – Included here.

During the reporting period there was no material imported to site or material exported by rail transport. Details of truck movements generated by the project during the reporting period are shown in **Table 11**.

Table 11: Truck movements generated by the project

Dates	Maximum loaded truck movements per day during period	Average loaded truck movements for the period
For the entire duration of 2022 calendar year	0	0
For entire reporting period	**0**	**0**
Source: Ardglen tracking records		

Table 12 displays the monthly/annual sales of various products exported from Ardglen Quarry during 2022.

Table 12: Truck movements generated by the project

Month - 2022	Aggregates	Road Pavements	Other	Total
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
August	0	0	0	0
September	0	0	0	0
October	0	0	0	0
November	0	0	0	0
December	0	0	0	0
Total	**0**	**0**	**0**	**0**
Source: Ardglen tracking records				

Additionally, a status update for the Road Safety Audit (RSA) originally completed during 2018 is included in Appendix 8. Work on the proposed agreed remedial actions continued during the reporting period and are mostly complete apart from those detailed and explained in the attachment shown in Appendix 8.

Finally, as part of the approved Mod 2, we need to resolve all aspects of the 2018 RSA (amongst other things) before we can increase the laden vehicle movements from site. In order to resolve the remaining items from the 2018 RSA and address various updated Conditions of the Mod 2 Approval pertaining to road transport, we continue to liaise with Liverpool Plains Shire Council (LPSC) and are well progressed with the access road widening and construction work (as approved by LPSC) and plan to complete the New England Highway asphalt overaly scope imminently. This will be completed before we increase laden truck movements in accordance with the Approval.

Additionally, we continue to liaise with LPSC regarding a proposed 20 kph speed limit for heavy vehicles over High St bridge as noted in the Approval.

Following the approval of Mod 2, the Traffic and Transport Management Plan (TTMP), was reviewed, revised and approved by DPE in August 2022.

2.12 Rehabilitation

Significant rehabilitation work occurred during previous reporting periods as detailed in the revised Landscape Management Plan (LMP) and the Umwelt Ardglen Annual Biodiversity Monitoring report included as Appendix 6.

With respect to the specific aspects of the actual rehabilitation and landscape activities that occurred during the reporting period, we provide the following status updates:

- The Offset Strategy (S3_C25) – As previously advised, Daracon is progressing with the Conservation Agreement (CA) including ongoing consultation with the Biodiversity Conservation Trust (BCT). At the time of the AEMR submission, we've received a revised DRAFT of the CA from BCT and continue to liaise with them to finalise and ratify once agreed. A copy of the most recent advice received from BCT is included in Appendix 6 of this document (within Appendix D of the Umwelt Rehabilitation report).
- The Landscape Management Plan (S3_C27) – Following the approval of Mod 2, the Landscape Management Plan (LMP) was updated and resubmitted to the DPE in late 2021. Following this submission to DPE, it took many months to receive any further feedback which, once received and addressed by Daracon / Umwelt, the revised LMP was resubmitted to the DPE again in December 2022. At the time of this report, no further response has been received from DPE regarding the revised LMP;
- The Doughboy Hollow Creek Rehabilitation Strategy (S3_C28) – As previously advised, the 2021 Umwelt Ardglen Annual Biodiversity Monitoring report included an inspection of Doughboy Hollow creek to progress this matter. Additionally, a hydrological analysis of the Doughboy Hollow Creek was completed which, along with the Ecological assessment, formed the basis of the Doughboy Hollow Creek rehabilitation strategy. The first draft of the Doughboy Hollow Creek rehabilitation strategy has been completed and is being prepared for further consultation and approval prior to entering the extension area. Due to the fact that this particular strategy "shall commence prior to the start of quarry operations into the approved extension area", the submission and approval of this strategy remains incomplete at this stage, however this matter has progressed substantially during the reporting period;
- The Rehabilitation and Biodiversity Offset Management Plan (S3_C29) – The Rehabilitation and Biodiversity Offset Management Plan forms an integral component of the revised LMP which was reviewed and resubmitted to the DPE again in December 2022. As previously advised, substantial rehabilitation and offset planting has occurred on site over the last 4 years, and we continue to monitor and manage this as described in the Umwelt Ardglen Annual Biodiversity Monitoring report included as Appendix 6. Figure 5 shows the areas where rehabilitation and offset planting has occurred;

Also refer to Table 3 and Table 4 for a summary of the non-compliances arising from the Independent Environmental Audit undertaken during 2022.

Please also refer to Figure 5 and Section 4.4.4 for further details regarding the rehabilitation progress and suggested actions.

Figure 5: Rehabilitation planting areas

Photo 1: Rehabilitation planting in Offset A

2.13 Closure

The revised LMP currently under review by the DPE includes information regarding the proposed closure arrangements.

3. COMMUNITY RELATIONS

3.1 Surrounding Communities

Figure 6 displays the land ownership and residence surrounding the quarry. During the reporting period, it is understood that there were no changes to the land ownership within the area. Informal discussions have occurred with a number of residents in the area during the reporting period.

Figure 6: Land Ownership and Residents

Table 13: Land Owners and Residents

Land Owners and Residents	
Mingay Property	Ms P Purtell & Mr S Harnes
The State of New South Wales	Mr W E & Mrs E A Avery
County Property Group	Ms Penny Dalton
Land and Property Management Authority	Ms A Bojba-Lis
Mr and Mrs R McGhie	Ms C M Thompson
Mr D J Bates	Ms E Russell
Mr D J Burraston	Ms M Taylor
Mr G B Smith & Ms N E Ryder	Mr G N & Mrs M A Lewins

3.2 Community Consultative Committee Meetings

During the latter part of 2021, the previous Community Consultative Committee (CCC) facilitator Shay Riley Lewis advised the CCC members (including DPE) that she was resigning from her role as the independent CCC facilitator. Following Shay's resignation, Daracon engaged the services of Michael Silver to undertake the CCC facilitator role and was subsequently approved by DPE for such. Please refer to **Section 3.4** for further information regarding community involvement and the various CCC matters.

3.3 Environmental Complaints

Daracon received no pollution or environmental complaints during the reporting period. Due to the fact there were no complaints received during this reporting period, the main difference between the complaints received during 2022 and previous reporting periods shows the same level of

complaint as 2021 (nil) and less than previous years. This is most likely due to the fact that there was no material export occurring 2022 whereas the reporting periods prior to 2021 did have some export of material occurring. Additionally, the CCC and its membership also appears to have been resolved with no further complaints received regarding this matter.

3.4 Community Involvement

Firstly, it's worth noting that due to the reduced presence of COVID-19 and subsequent reduction in the restrictions imposed by the government, all Community Consultative Committee (CCC) meetings that occurred during 2022 were completed face-to-face.

The Ardglen Quarry CCC held two meetings during 2022 with the first during May 2022 and the second during November 2022. The meeting minutes associated with both meetings are attached in Appendix 3.

Furthermore, Daracon circulated a community newsletter in early 2022 to the local Ardglen and surrounding community via letterbox drop so as to provide additional information for the local residents regarding the CCC and planned activities associated with the operation of Ardglen Quarry. A copy of the 2022 newsletter is included in Appendix 9.

4. ENVIRONMENTAL MONITORING

4.1 Water Quality

4.1.1 Introduction

Ardglen Quarry operates under an approved Site Water Management Plan (SWMP) as described in Section 2.8 above. One of the purposes of this plan is to ensure that Ardglen Quarry does not pollute any water.

Ardglen Quarry has two sediment basins onsite, the in-pit sump which is approximately 30ML and a tertiary sediment basin which is approximately 3ML. Currently, the majority of the water from the disturbed areas are directed towards the in-pit sump and when this becomes full, water is then directed to the smaller (3ML) tertiary sediment basin for storage and re-use.

The alterations proposed as part of Mod 2 will allow us to make a number of critical improvements to the water management processes on site and to permit the appropriate discharge of water.

A variation to the EPL was sought and approved by the EPA during 2022. Additionally, after many months of waiting for the DPE to respond to the revised SWMP, the SWMP was eventually revised and submitted to DPE in December 2022 following further DPE input as described in Table 6.

4.1.2 Conclusion

During the reporting period, nil water was discharged over the tertiary basin spillway.

4.2 Noise and Blasting

4.2.1 Introduction

Ardglen Quarry operates under an approved Noise Monitoring Plan and Blast Monitoring Plan. These plans outline the measures which will mitigate the environmental effects of noise and blasting of the quarry activities on our neighbours and includes noise/blast monitoring programs to assess and report the levels of impact in compliance with Schedule 3 of the Project Approval. The noise and blast plans also provide a mechanism whereby any noise or blast complaints can be dealt with quickly and effectively.

The Approval also permits agreements with various landholders to be negotiated if noise exceedances are likely. Daracon currently have 'in principle' noise agreements with Bill Avery and Christine Thompson and copies of these have been provided to the EPA and DPE.

The Blast Monitoring Plan requires monitoring to take place at specified locations as shown in **Figure 7.** Daracon have also recently approached all local landholders regarding their interest in receiving blast notifications. Once the relevant landholders that wish to receive a blast notification is known, they'll receive the relevant notifications prior to blasting as required by the Approval.

The Noise Monitoring Plan calls for monthly attended noise monitoring to be completed when the quarry is operating, and this will take place at specified noise monitoring locations as shown in **Figure 8** once the quarry recommences operations.

The site also operates strictly in accordance with the 'hours of operation' shown in Table 1 of Schedule 3 of the Approval.

Daracon have committed to reporting on any investigations and the implementation of the noise mitigation measures included in the EA associated with MOD 2. During the reporting period for this report, we note the following:

- There has been no further progress with the implementation of the noise mitigation measures included in the EA associated with MOD, but we do expect to commence this shortly;
- An investigation into the location of the proposed mobile crushing operation and utilising the existing topography to further mitigate noise impact is continuing for the site following the completion of a 'resource optimisation study' during 2022. The investigation is ongoing at the time of this report.

Figure 7: Blast Monitoring Locations

Figure 8: Noise Monitoring Locations

4.2.2 Noise Criteria

Table 14: Noise Criteria

NOISE IMPACT ASSESSMENT CRITERIA dB(A)				
Land	***Day LAeq (15 min)***	***Evening LAeq (15 min)***	***Night***	
			LAeq (15 min)	***LA1 (1 min)***
4	*44*	*35*	*35*	*45*
5 and 6	*45*	*35*	*35*	*45*
9	*37*	*35*	*35*	*45*
10	*38*	*35*	*35*	*45*
12 and 14	*36*	*35*	*35*	*45*
15	*43*	*35*	*35*	*45*
16	*40*	*35*	*35*	*45*
All other privately owned land	*35*	*35*	*35*	*45*

4.2.3 Noise Monitoring Results

Due to the fact that there were no 'quarrying operations' undertaken during the reporting period, no noise monitoring was undertaken during 2022.

4.2.4 Blasting Criteria

Table 15: Blasting Criteria

Airblast overpressure level (dB(Lin Peak))	***Allowable exceedance***
115	*5% of the total number of blasts over a period of 12 months*
120	*0%*

Peak Particle Velocity (mm/s)	*Allowable exceedance*
5	*5% of the total number of blasts over a period of 12 months*
10	*0%*

4.2.5 Blasting Monitoring Results

No blasts were carried out during the reporting period.

4.2.6 Analysis of Results

No noise monitoring was carried out during the reporting period.

No blasting occurred during the reporting period, so therefore no blast monitoring was completed.

4.2.7 Conclusion

The noise monitoring results were within the specified limits and when operations re-commence blast monitoring will then recommence.

Additionally, as part of the current MOD 2 actions in progress, we plan to make a number of critical improvements to the noise mitigation measures to enable the appropriate handling and processing of material on site.

4.3 Air Quality

4.3.1 Introduction

Ardglen Quarry operates under an approved Air Quality Management Plan. The objectives of this plan is to comply with all statutory requirements, minimise air quality impacts on surrounding residents and properties, maintain reasonable levels of amenity for surrounding residents, to keep the local community and regulators informed and to respond quickly and effectively to issues and complaints and to ensure that air quality is measured according to best practice and results are presented in a timely and transparent manner to stakeholders.

Following the completion of the IEA during the reporting period, Daracon are currently considering the specific need for ongoing wet suppression or chemical coating of static stockpiles due the extremely low risk currently experienced whilst the site is not operating and the excellent track record regarding ongoing air quality monitoring to date (obviously excluding regional poor air quality events).

4.3.2 Meteorological Station

Condition 18 of the Approval requires that a meteorological station to operate in the vicinity of the project site for the life of the project. Daracon has installed a meteorological station (Figure 9), ensuring that the meteorological station complies with the requirements in the “Approved Methods for Sampling of Air Pollutants in New South Wales Guideline”.
The meteorological station currently monitors the following parameters as per EPL 1115:

- Rainfall;
- Wind Speed and Direction;
- Temperature (at 2m and 10m above ground level);
- Sigma theta;
- Solar Radiation;

4.3.3 Air Quality Monitoring Locations and Frequency

The current air quality monitoring network consists of three deposited dust gauges (DDG), two HVAS units, one TSP unit (see **Figure 9**) and a PM2.5 unit as detailed in the revised AQMP approved by DPE.

The location of the air quality monitoring equipment (primarily to the North-East and East of the Quarry) was deduced from the location of the surrounding residences.

Figure 9: Air Quality Monitoring and Weather Station Locations

4.3.4 Air Quality Criteria

The air quality criteria for the quarry, as outlined with condition 15 (schedule 3) of the approval are provided in the below table.

Table 16: Air Quality Criteria

Parameter	Frequency	Locations	Limit/Guideline	Sampling Method
Deposited dust	Monthly.	DG-1 located at Receptor 2 (EPL point 2). DG-2 located at Receptor 5 (EPL point 3). DG-3 located at Receptor 6 (EPL point 4).	**Deposition Rate*** Maximum total deposited dust level: 4 g/m^2.month - as an annual average	AM-19 AS3580.10.1 – 2003
Total suspended particulate (TSP) matter	24 hours every 6 days for 12 months.	TSP-1 located at Receptor 2. Removed after 12 months.	**Concentration** 90 µg/m^3 - as an annual average	AM-15 AS3580.9.3 – 2003

Parameter	Frequency	Locations	Limit/Guideline	Sampling Method
Particulate matter < 10 µm (PM_{10})	24 hours every 6 days.	PM10-1 located at Receptor 2. PM10-2 located at Receptor 6.	**Concentration** 50 µg/m^3 - as a 24 hour average 25 µg/m^3 - as an annual average	AM-16 AS3580.9.6 - 2003
Particulate matter < 2.5 µm (PM2.5) – Monitoring to commence in 2022	24 hours every 6 days.	PM2.5 located at Receptor 6.	**Concentration** 25 µg/m^3 - as a 24 hour average 8 µg/m^3 - as an annual average	
Visible air pollution	Weekly. In response to any visible emissions complaint.	Weekly site inspection. At the location of any reported emission.	**Project Approval Schedule 3, Condition 16**	No required sampling methodology apart from described above. Actions required if visual impact is suspected or confirmed.
Meteorological station	Continuous.	On site near the weighbridge.	**Project Approval Schedule 3, Condition 18**	AM-1 to AM-4 USEPA (2000) EPA 454/R-99-005
Greenhouse gases (electricity and fuel consumption)	Upon purchase of electricity or fuel.	Entire site.	**Project Approval Schedule 3, Condition 46(a)** The proponent shall monitor the greenhouse gas emissions generated by the project.	No required sampling methodology. Records of purchase, consumption and storage used to determine emissions.

4.3.5 Air Quality Monitoring Results

The following information presents the results of the Dust Deposition Gauges (DDG), High Volume Air Sampler (HVAS) and Total Suspended Particulate (TSP) monitoring program.

4.3.5.1 Depositional Dust Gauges

Table 17: Depositional Dust Gauge Results

	Insoluble Solids (g/m^2.month)			Insoluble Solids Annual Average (g/m^2.month)		
	EPA2	EPA3	EPA4	EPA2	EPA3	EPA4
4/1/22 to 2/2/22	0.8	0.5	0.5	0.5	0.6	0.5
2/2/22 to 4/3/22	0.3	0.4	0.2	0.5	0.6	0.5
4/3/22 to 5/4/22	0.5	0.4	0.3	0.5	0.6	0.5
5/4/22 to 3/5/22	0.1	0.2	0.4	0.5	0.6	0.5
3/5/22 to 2/6/22	0.3	0.5	0.3	0.5	0.6	0.5
2/6/22 to 4/7/22	0.3	0.3	0.3	0.5	0.6	0.5
4/7/22 to 3/8/22	0.2	0.5	0.3	0.5	0.6	0.5
3/8/22 to 2/9/22	0.1	0.2	0.1	0.5	0.6	0.4
2/9/22 to 4/10/22	0.2	0.3	0.2	0.5	0.5	0.4
4/10/22 to 4/11/22	0.5	0.5	0.3	0.5	0.5	0.4
4/11/22 to 5/12/22	0.5	0.7	0.7	0.4	0.4	0.4
5/12/22 to 4/1/23	1.8	1.1	0.7	**0.5**	**0.5**	**0.4**

4.3.5.2 HVAS Unit 1 (PM10-1)

Table 18: PM10 Unit 1 Results

		Sample #	Run Date	PM10	Filter #	Date Off	Time Off	Tech	Hrs
Jan-22	PM_{10}-1	1229733012	4/01/2022	8	9964719	7/01/2022	8:26	Client	24.05
	PM_{10}-1	1229733015	10/01/2022	8	9964722	12/01/2022	10:10	Client	24
	PM_{10}-1	1229733018	16/01/2022	17	9964749	21/02/2022	8:26	Client	24.03
	PM_{10}-1	1229733021	22/01/2022	5	9964764	25/01/2022	9:38	Client	24.03
	PM_{10}-1	1229733024	28/01/2022	10	9964551	2/02/2022	12:15	Client	24.16
Feb-22	PM_{10}-1	2229733012	3/02/2022	7	9964554	4/03/2022	8:22	Client	24.03
	PM_{10}-1	2229733015	9/02/2022	6	9964557	11/03/2022	10:01	Client	24.03
	PM_{10}-1	2229733018	15/02/2022	9	9962503	18/03/2022	8:28	Client	24.03
	PM_{10}-1	2229733021	21/02/2022	5	9962506	24/03/2022	8:42	Client	24.03
	PM_{10}-1	2229733024	27/02/2022	7	9962509	4/03/2022	7:01	Client	24.03

Mar-22	PM_{10}-1	3229733012	5/03/2022	9	9962512	10/03/2022	10:30	Client	24.03
	PM_{10}-1	3229733015	11/03/2022	8	9962515	16/03/2022	10:56	Client	24.03
	PM_{10}-1	3229733018	17/03/2022	10	9962518	22/03/2022	10:30	Client	24.03
	PM_{10}-1	3229733021	23/03/2022	18	9962561	24/03/2022	9:37	Client	24.02
	PM_{10}-1	3229733024	29/03/2022	5	9962564	30/03/2022	12:16	Client	24.03
Apr-22	PM_{10}-1	4229733013	4/04/2022	5	9962567	5/04/2022	11:13	Client	24.15
	PM_{10}-1	4229733017	10/04/2022	4	9962570	14/04/2022	7:00	Client	24.04
	PM_{10}-1	4229733021	16/04/2022	3	9962573	20/04/2022	11:11	Client	24.03
	PM_{10}-1	4229733025	22/04/2022	3	9962576	27/04/2022	11:45	Client	24.03
	PM_{10}-1	4229733029	28/04/2022	5	A0079163	3/05/2022	11:37	Client	24.03
May-22	PM_{10}-1	5229733012	4/05/2022	4	A0079166	9/05/2022	7:35	Client	24.02
	PM_{10}-1	5229733015	10/05/2022	2	A0079169	13/05/2022	10:05	Client	24.02
	PM_{10}-1	5229733018	16/05/2022	6	A0079172	19/05/2022	9:45	Client	24.03
	PM_{10}-1	5229733021	22/05/2022	2	A0079101	25/05/2022	11:54	Client	24.03
	PM_{10}-1	5229733028	28/05/2022	2	A0079104	1/06/2022	11:51	Client	24.03
Jun-22	PM_{10}-1	6229733012	3/06/2022	1	A0079107	8/06/2022	11:32	Client	24.14
	PM_{10}-1	6229733015	9/06/2022	1	A0079110	10/06/2022	9:31	Client	24.03
	PM_{10}-1	6229733018	15/06/2022	2	A0079113	17/06/2022	10:04	Client	24.02
	PM_{10}-1	6229733021	21/06/2022	5	A0079847	23/06/2022	11:28	Client	24.03
	PM_{10}-1	6229733024	27/06/2022	3	A0079850	1/07/2022	10:20	Client	24.03
Jul-22	PM_{10}-1	7229733012	3/07/2022	6	A0079853	6/07/2022	9:45	Client	24.03
	PM_{10}-1	7229733015	9/07/2022	2	A0079856	13/07/2022	11:19	Client	24
	PM_{10}-1	7229733018	15/07/2022	3	A0079859	20/07/2022	11:23	Client	24.02
	PM_{10}-1	7229733021	21/07/2022	1	A0079897	26/07/2022	11:15	Client	24.02
	PM_{10}-1	7229733024	27/07/2022	3	A0078900	29/07/2022	9:34	Client	24.04
Aug-22	PM_{10}-1	8229733012	2/08/2022	2	A0078903	3/08/2022	11:13	Client	24.21
	PM_{10}-1	8229733015	8/08/2022	3	A0078906	12/08/2022	9:50	Client	24.06
	PM_{10}-1	8229733018	14/08/2022	1	A0078909	19/08/2022	9:25	Client	24.04
	PM_{10}-1	8229733021	20/08/2022	0	A0078912	24/08/2022	12:01	Client	24.03
	PM_{10}-1	8229733024	26/08/2022	1	A0078914	31/08/2022	11:40	Client	24.04
Sept-22	PM_{10}-1	9229733012	1/09/2022	5	A0078918	5/09/2022	12:28	Client	24
	PM_{10}-1	9229733015	7/09/2022	2	A0079193	12/09/2022	11:14	Client	24.03
	PM_{10}-1	9229733018	13/09/2022	2	A0079196	16/09/2022	8:52	Client	24.03
	PM_{10}-1	9229733021	19/09/2022	3	A0079802	23/09/2022	8:55	Client	24.03
	PM_{10}-1	9229733024	25/09/2022	3	A0079808	27/09/2022	10:52	Client	24.03

Oct-22	PM_{10}-1	10229733012	1/10/2022	6	A0079815	4/10/2022	9:42	Client	24.15
	PM_{10}-1	10229733015	7/10/2022	1	A0079840	11/10/2022	10:58	Client	24.03
	PM_{10}-1	10229733018	13/10/2022	2	A0078991	18/10/2022	7:55	Client	24.07
	PM_{10}-1	10229733021	19/10/2022	2	A0078995	24/10/2022	10:48	Client	24.02
	PM_{10}-1	10229733024	25/10/2022	7	A0078997	28/10/2022	8:40	Client	24.03
	PM_{10}-1	10229733027	31/10/2022	6	A0079000	1/11/2022	11:35	Client	24.03
Nov-22	PM_{10}-1	11229733012	6/11/2022	1	A0081203	11/11/2022	8:40	Client	24.03
	PM_{10}-1	11229733015	12/11/2022	11	A0081246	17/11/2022	11:04	Client	24.02
	PM_{10}-1	11229733018	18/11/2022	9	A0081248	23/11/2022	10:36	Client	24.28
	PM_{10}-1	11229733021	24/11/2022	3	A0081252	25/11/2022	8:46	Client	24.03
	PM_{10}-1	11229733024	30/11/2022	7	A0081255	2/12/2022	9:09	Client	24.03
Dec-22	PM_{10}-1	12229733012	6/12/2022	12	A0081291	9/12/2022	7:56	Client	24.24
	PM_{10}-1	12229733015	12/12/2022	9	A0081294	16/12/2022	8:01	Client	24
	PM_{10}-1	12229733018	18/12/2022	2	A0081297	20/12/2022	9:21	Client	24.02
	PM_{10}-1	12229733021	24/12/2022	5	A0081300	27/12/2022	9:57	Client	24.04
	PM_{10}-1	12229733024	30/12/2022	5	A0106003	4/01/2023	5:37	Client	24.06

4.3.5.3 HVAS Unit 2 (PM10-2)

Table 19: PM10 Unit 2 Results

		Sample #	Run Date	PM10	Filter #	Date Off	Time Off	Tech	Hrs
Jan-22	PM_{10}-2	1229733013	4/01/2022	4	9964720	7/01/2022	8:40	Client	24.04
	PM_{10}-2	1229733016	10/01/2022	8	9964723	12/01/2022	11:05	Client	24.04
	PM_{10}-2	1229733019	16/01/2022	14	9964760	21/02/2022	8:41	Client	24.04
	PM_{10}-2	1229733022	22/01/2022	6	9964765	25/01/2022	9:57	Client	24.04
	PM_{10}-2	1229733025	28/01/2022	10	9964552	2/02/2022	12:35	Client	24.15
Feb-22	PM_{10}-2	2229733013	3/02/2022	6	9964555	4/03/2022	8:34	Client	24.04
	PM_{10}-2	2229733016	9/02/2022	7	9964783	11/03/2022	10:26	Client	24.03
	PM_{10}-2	2229733019	15/02/2022	9	9962504	18/03/2022	8:52	Client	24.02
	PM_{10}-2	2229733022	21/02/2022	5	9962507	24/03/2022	9:03	Client	24.03
	PM_{10}-2	2229733025	27/02/2022	5	9962510	4/03/2022	7:19	Client	24.03
Mar-22	PM_{10}-2	3229733013	5/03/2022	8	9962513	10/03/2022	11:10	Client	24.03
	PM_{10}-2	3229733016	11/03/2022	8	9962516	16/03/2022	11:27	Client	24.04
	PM_{10}-2	3229733019	17/03/2022	10	9962519	22/03/2022	10:49	Client	24.03
	PM_{10}-2	3229733022	23/03/2022	25	9962562	24/03/2022	10:06	Client	24.04
	PM_{10}-2	3229733025	29/03/2022	4	9962565	30/03/2022	12:33	Client	24.05

Apr-22	PM_{10}-2	4229733014	4/04/2022	4	9962568	5/04/2022	11:28	Client	24.3
	PM_{10}-2	4229733018	10/04/2022	5	9962571	14/04/2022	7:18	Client	24.04
	PM_{10}-2	4229733022	16/04/2022	3	9962574	20/04/2022	11:24	Client	24.05
	PM_{10}-2	4229733026	22/04/2022	1	9962577	27/04/2022	12:26	Client	23.53
	PM_{10}-2	4229733030	28/04/2022	3	A0079164	3/05/2022	11:13	Client	24.03
May-22	PM_{10}-2	5229733013	4/05/2022	5	A00791667	9/05/2022	7:55	Client	23.52
	PM_{10}-2	5229733016	10/05/2022	4	A0079170	13/05/2022	10:23	Client	23.71
	PM_{10}-2	5229733019	16/05/2022	3	A0079173	19/05/2022	11:53	Client	23.74
	PM_{10}-2	5229733022	22/05/2022	1	A0079102	25/05/2022	12:06	Client	23.09
	PM_{10}-2	5229733029	28/05/2022	2	A0079105	1/06/2022	11:25	Client	23.91
Jun-22	PM_{10}-2	6229733013	3/06/2022	1	A0079108	8/06/2022	12:32	Client	24.01
	PM_{10}-2	6229733016	9/06/2022	1	A0079111	10/06/2022	9:30	Client	24
	PM_{10}-2	6229733019	15/06/2022	4	A0079114	17/06/2022	10:06	Client	24.02
	PM_{10}-2	6229733022	21/06/2022	8	A0079848	23/06/2022	11:33	Client	24.02
	PM_{10}-2	6229733025	27/06/2022	2	A0079851	1/07/2022	10:25	Client	24.03
Jul-22	PM_{10}-2	7229733013	3/07/2022	5	A0079854	6/07/2022	9:50	Client	24.03
	PM_{10}-2	7229733016	9/07/2022	2	A0079857	13/07/2022	11:17	Client	24
	PM_{10}-2	7229733019	15/07/2022	4	A0079860	20/07/2022	11:29	Client	24.03
	PM_{10}-2	7229733022	21/07/2022	1	A0079898	26/07/2022	11:35	Client	24.03
	PM_{10}-2	7229733025	27/07/2022	3	A0078901	29/07/2022	9:39	Client	24.02
Aug-22	PM_{10}-2	8229733013	2/08/2022	1	A0078904	3/08/2022	11:27	Client	24.18
	PM_{10}-2	8229733016	8/08/2022	3	A0078907	12/08/2022	10:03	Client	24.03
	PM_{10}-2	8229733019	14/08/2022	0	A0078910	19/08/2022	10:55	Client	24.03
	PM_{10}-2	8229733022	20/08/2022	0	A0078913	24/08/2022	12:10	Client	24.02
	PM_{10}-2	8229733025	26/08/2022	1	A0078916	31/08/2022	11:54	Client	24.03
Sep-22	PM_{10}-2	9229733013	1/09/2022	8	A0078919	5/09/2022	12:38	Client	24.02
	PM_{10}-2	9229733016	7/09/2022	4	A0079194	12/09/2022	11:20	Client	24.03
	PM_{10}-2	9229733019	13/09/2022	2	A0079197	16/09/2022	9:02	Client	24.02
	PM_{10}-2	9229733022	19/09/2022	4	A0079806	23/09/2022	8:59	Client	24.02
	PM_{10}-2	9229733025	25/09/2022	4	A0079813	27/09/2022	10:58	Client	24.02
Oct-22	PM_{10}-2	10229733013	1/10/2022	1	A0078920	4/10/2022	9:57	Client	24.19
	PM_{10}-2	10229733016	7/10/2022	1	A0079846	11/10/2022	11:04	Client	24.02
	PM_{10}-2	10229733019	13/10/2022	3	A0078992	18/10/2022	7:50	Client	24.02
	PM_{10}-2	10229733022	19/10/2022	2	A0078994	24/10/2022	10:44	Client	24.03
	PM_{10}-2	10229733025	25/10/2022	3	A0078998	28/10/2022	9:04	Client	24.02
	PM_{10}-2	10229733028	31/10/2022	6	A0081201	1/11/2022	11:40	Client	24.03

Nov-22	PM_{10}-2	11229733013	6/11/2022	1	A0081204	11/11/2022	8:45	Client	24.02
	PM_{10}-2	11229733016	12/11/2022	8	A0081247	17/11/2022	11:14	Client	24.02
	PM_{10}-2	11229733019	18/11/2022	9	A0081249	23/11/2022	10:54	Client	24.28
	PM_{10}-2	11229733022	24/11/2022	4	A0081253	25/11/2022	8:55	Client	24.02
	PM_{10}-2	11229733025	30/11/2022	7	A0081256	2/12/2022	9:12	Client	24.03
Dec-22	PM_{10}-2	12229733013	6/12/2022	12	A0081292	9/12/2022	10:49	Client	24
	PM_{10}-2	12229733016	12/12/2022	7	A0081295	16/12/2022	7:54	Client	24.01
	PM_{10}-2	12229733019	18/12/2022	3	A0081298	20/12/2022	9:32	Client	24.02
	PM_{10}-2	12229733022	24/12/2022	5	A0081301	27/12/2022	9:52	Client	24.01
	PM_{10}-2	12229733025	30/12/2022	5	A0106004	4/01/2023	5:44	Client	24.03

4.3.5.4 TSP Unit 1

Table 20: TSP Unit 1 Results

		Sample #	Run Date	TSP	Filter #	Date Off	Time Off	Tech	Hrs
Jan-22	TSP	1229733011	4/01/2022	15	9964718	7/01/2022	8:15	Client	24.03
	TSP	1229733014	10/01/2022	15	9964721	12/01/2022	11:05	Client	24.03
	TSP	1229733017	16/01/2022	27	9964724	21/02/2022	8:16	Client	24.03
	TSP	1229733020	22/01/2022	10	9964763	25/01/2022	10:34	Client	24.03
	TSP	1229733023	28/01/2022	15	9964550	2/02/2022	12:11	Client	24.14
Feb-22	TSP	2229733011	3/02/2022	13	9964553	4/03/2022	9:17	Client	24.04
	TSP	2229733014	9/02/2022	12	9964556	11/03/2022	10:57	Client	24.02
	TSP	2229733017	15/02/2022	14	9964784	18/03/2022	9:25	Client	24.02
	TSP	2229733020	21/02/2022	11	9962505	24/03/2022	9:38	Client	24.02
	TSP	2229733023	27/02/2022	9	9962508	4/03/2022	7:55	Client	24.02
Mar-22	TSP	3229733011	5/03/2022	17	9962511	10/03/2022	10:10	Client	24.04
	TSP	3229733014	11/03/2022	13	9962514	16/03/2022	11:51	Client	24.02
	TSP	3229733017	17/03/2022	16	9962517	22/03/2022	11:25	Client	24.02
	TSP	3229733020	23/03/2022	23	9962520	24/03/2022	10:31	Client	24.02
	TSP	3229733023	29/03/2022	8	9962563	30/03/2022	13:12	Client	24.02
Apr-22	TSP	4229733012	4/04/2022	7	9962566	5/04/2022	12:07	Client	24.22
	TSP	4229733016	10/04/2022	9	9962569	14/04/2022	6:47	Client	24.02
	TSP	4229733020	16/04/2022	3	9962572	20/04/2022	12:05	Client	24.06
	TSP	4229733024	22/04/2022	3	9962575	27/04/2022	12:41	Client	24.02
	TSP	4229733028	28/04/2022	8	9962578	3/05/2022	12:29	Client	24.02
May-22	TSP	5229733011	4/05/2022	7	A0079165	9/05/2022	8:25	Client	24.02
	TSP	5229733014	10/05/2022	5	A0079168	13/05/2022	11:00	Client	24.02
	TSP	5229733017	16/05/2022	9	A0079171	19/05/2022	10:37	Client	24.01
	TSP	5229733020	22/05/2022	3	A0079174	25/05/2022	12:47	Client	24.02
	TSP	5229733027	28/05/2022	5	A0079103	1/06/2022	12:44	Client	24.02
Jun-22	TSP	6229733011	3/06/2022	1	A0079106	8/06/2022	12:25	Client	24.24
	TSP	6229733014	9/06/2022	2	A0079109	10/06/2022	10:26	Client	24.02

	TSP	6229733017	15/06/2022	4	A0079112	17/06/2022	10:59	Client	24.02
	TSP	6229733020	21/06/2022	5	A0079115	23/06/2022	12:23	Client	24.01
	TSP	6229733023	27/06/2022	5	A0079849	1/07/2022	11:13	Client	24.02
Jul-22	TSP	7229733011	3/07/2022	8	A0079852	6/07/2022	10:40	Client	24.03
	TSP	7229733014	9/07/2022	2	A0079855	13/07/2022	12:14	Client	24
	TSP	7229733017	15/07/2022	4	A0079858	20/07/2022	12:17	Client	24.02
	TSP	7229733020	21/07/2022	2	A0079861	26/07/2022	12:09	Client	24.03
	TSP	7229733023	27/07/2022	4	A0078899	29/07/2022	10:30	Client	24.02
Aug-22	TSP	8229733011	2/08/2022	4	A0078902	3/08/2022	12:10	Client	24.16
	TSP	8229733014	8/08/2022	5	A0078905	12/08/2022	9:42	Client	24.02
	TSP	8229733017	14/08/2022	2	A0078908	19/08/2022	10:03	Client	24.01
	TSP	8229733020	20/08/2022	2	A0078911	24/08/2022	12:55	Client	24.03
	TSP	8229733023	26/08/2022	2	A0078914	31/08/2022	12:40	Client	24.03
Sep-22	TSP	9229733011	1/09/2022	10	A0078917	5/09/2022	13:25	Client	24.01
	TSP	9229733014	7/09/2022	5	A0079188	12/09/2022	12:10	Client	24.02
	TSP	9229733017	13/09/2022	3	A0079195	16/09/2022	9:54	Client	24.02
	TSP	9229733020	19/09/2022	9	A0079175	23/09/2022	9:48	Client	24.05
	TSP	9229733023	25/09/2022	10	A0079807	27/09/2022	11:47	Client	24.01
Oct-22	TSP	10229733011	1/10/2022	9	A0079814	4/10/2022	10:38	Client	24.29
	TSP	10229733014	7/10/2022	6	A0079825	11/10/2022	11:53	Client	24.02
	TSP	10229733017	13/10/2022	5	A0079118	18/10/2022	8:50	Client	24.01
	TSP	10229733020	19/10/2022	7	A0078993	24/10/2022	11:38	Client	24.02
	TSP	10229733023	25/10/2022	17	A0078996	28/10/2022	9:40	Client	24.02
	TSP	10229733026	31/10/2022	15	A0078999	1/11/2022	12:31	Client	24.01
Nov-22	TSP	11229733011	6/11/2022	7	A0081202	11/11/2022	9:34	Client	24.03
	TSP	11229733014	12/11/2022	12	A0081205	17/11/2022	11:57	Client	24.19
	TSP	11229733017	18/11/2022	22	A0081250	23/11/2022	11:43	Client	23.22
	TSP	11229733020	24/11/2022	11	A0081251	25/11/2022	9:42	Client	23.87
	TSP	11229733023	30/11/2022	13	A0081254	2/12/2022	10:09	Client	23.13
Dec-22	TSP	12229733011	6/12/2022	26	A0081257	9/12/2022	7:49	Client	24.05
	TSP	12229733014	12/12/2022	26	A0081293	16/12/2022	7:52	Client	24.05
	TSP	12229733017	18/12/2022	10	A0081296	20/12/2022	9:00	Client	24.02
	TSP	12229733020	24/12/2022	16	A0081299	27/12/2022	9:54	Client	24.03
	TSP	12229733023	30/12/2022	16	A0106002	4/01/2023	5:22	Client	24.09

4.3.5.5 PM2.5 unit

Table 21: PM2.5 Results

		Sample #	Run Date	PM2.5	Filter #	Date Off	Time Off	Tech	Hrs
Jan-22		N/A							

Feb-22		N/A							
Mar-22	PM2.5	3229733026	29/03/2022	2	24245	30/03/2022	7:55	Client	23.59
Apr-22	PM2.5	4229722011	4/04/2022	1	29023	5/04/2022	6:43	Client	23.59
	PM2.5	4229733015	10/04/2022	5	59545	14/04/2022	7:16	Client	23.59
	PM2.5	4229733019	16/04/2022	3	22183	20/04/2022	11:24	Client	23.59
	PM2.5	4229733023	22/04/2022	2	22294	27/04/2022	12:26	Client	23.59
	PM2.5	4229733027	28/04/2022	8	22169	3/05/2022	11:13	Client	23.59
May-22	PM2.5	5229733023	4/05/2022	7	24245	9/05/2022	7:55	Client	23.59
	PM2.5	5229733024	10/05/2022	6	59545	13/05/2022	10:23	Client	23.59
	PM2.5	5229733025	16/05/2022	5	29023	19/05/2022	11:53	Client	24.05
	PM2.5	5229733026	22/05/2022	2	ARD47052204	25/05/2022	12:06	Client	24.05
	PM2.5	5229733030	28/05/2022	1	ARD47052201	1/06/2022	11:25	Client	24.05
Jun-22	PM2.5	6229733026	3/06/2022	3	ARD47052203	8/06/2022	12:32	Client	24.05
	PM2.5	6229733027	9/06/2022	0	ARD47052202	10/06/2022	9:30	Client	24.05
	PM2.5	6229733028	15/06/2022	3	ARD47052205	17/06/2022	10:06	Client	24.05
	PM2.5	6229733029	21/06/2022	3	ARD47062201	23/06/2022	11:33	Client	24.05
	PM2.5	6229733030	27/06/2022	3	ARD47062202	1/07/2022	12:25	Client	24.05
Jul-22	PM2.5	7229733026	3/07/2022	4	ARD47062203	6/07/2022	10:25	Client	24.05
	PM2.5	7229733027	9/07/2022	3	ARD47072201	13/07/2022	11:17	Client	24.05
	PM2.5	7229733028	15/07/2022	2	ARD47072207	20/07/2022	11:29	Client	24.05
	PM2.5	7229733029	21/07/2022	1	ARD47072206	26/07/2022	11:35	Client	24.05
	PM2.5	7229733030	27/07/2022	3	ARD47072205	29/07/2022	9:39	Client	24.05
Aug-22	PM2.5	8229733026	2/08/2022	2	ARD47072205	3/08/2022	11:27	Client	24.05
	PM2.5	8229733027	8/08/2022	2	ARD47072203A	12/08/2022	9:42	Client	24.05
	PM2.5	8229733028	14/08/2022	1	ARD47072201	19/08/2022	10:55	Client	24.05
	PM2.5	8229733029	20/08/2022	1	ARD47072202	24/08/2022	12:10	Client	24.05
	PM2.5	8229733030	26/08/2022	1	ARD47072204	31/08/2022	11:54	Client	24.05
Sep-22	PM2.5	9229733026	1/09/2022	3	ARD47072203	5/09/2022	12:38	Client	24
	PM2.5	9229733027	7/09/2022	3	ARD47072213	12/09/2022	11:20	Client	24
	PM2.5	9229733028	13/09/2022	3	ARD47072204	16/09/2022	9:02	Client	24
	PM2.5	9229733029	19/09/2022	2	ARD47072207	23/09/2022	8:59	Client	24
	PM2.5	9229733030	25/09/2022	3	ARD47072208	27/09/2022	10:58	Client	24
Oct-22	PM2.5	10229733029	1/10/2022	3	ARD47072209	4/10/2022	9:57	Client	24.05
	PM2.5	10229733030	7/10/2022	4	ARD47072206	11/10/2022	11:04	Client	24.05
	PM2.5	10229733031	13/10/2022	3	ARD47072211	18/10/2022	7:50	Client	24.05
	PM2.5	10229733032	19/10/2022	3	ARD47072210	24/10/2022	10:48	Client	24.05
	PM2.5	10229733033	25/10/2022	1	ARD47072205	28/10/2022	9:04	Client	24.05
	PM2.5	10229733034	31/10/2022	4	ARD47072212	1/11/2022	11:40	Client	24.05
Nov-22	PM2.5	11229733026	6/11/2022	9	ARD47102204	11/11/2022	8:45	Client	24.05
	PM2.5	11229733027	12/11/2022	9	ARD47102209	17/11/2022	11:14	Client	24.05

	PM2.5	11229733028	18/11/2022	3	ARD47102208	23/11/2022	10:54	Client	24.05
	PM2.5	11229733029	24/11/2022	1	ARD4712203	25/11/2022	8:55	Client	24.05
	PM2.5	11229733030	30/11/2022	4	ARD47072210	2/12/2022	9:12	Client	24.05
Dec-22	PM2.5	12229733026	6/12/2022	1	ARD47102206	9/12/2022	10:49	Client	24.05
	PM2.5	12229733027	12/12/2022	8	ARD47102202	16/12/2022	9:32	Client	24.05
	PM2.5	12229733028	18/12/2022	2	ARD47122201	20/12/2022	9:52	Client	24.05
	PM2.5	12229733029	24/12/2022	8	ARD47102707	27/12/2022	5:44	Client	24.05
	PM2.5	12229733030	30/12/2022	8	ARD47102205	4/01/2023	9:12	Client	24.05

4.3.6 Analysis of Results

Please refer to sections 4.3.6.1 to 4.3.6.4 for a breakdown of the air quality monitoring data.

4.3.6.1 Depositional Dust Gauges

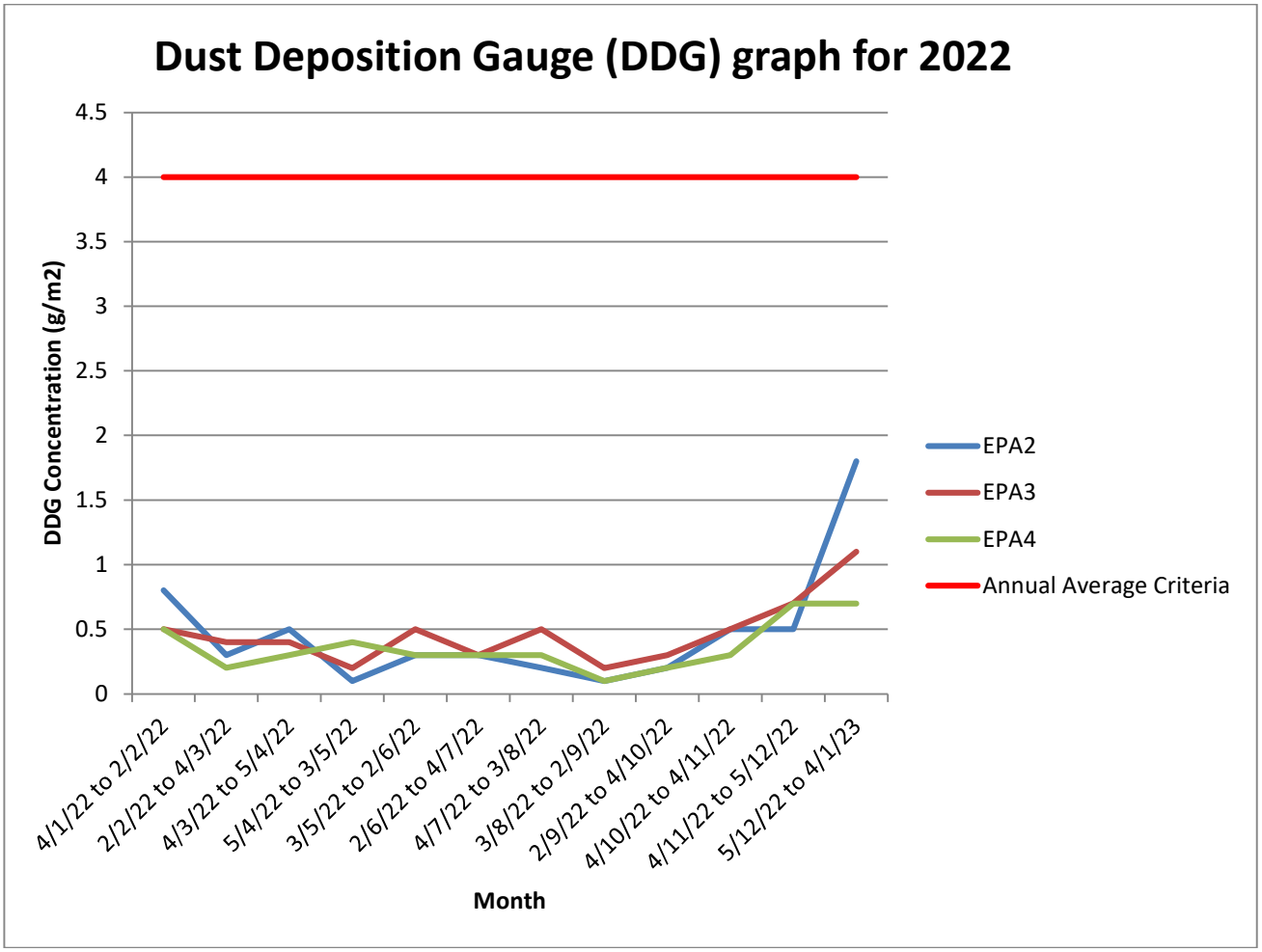


Figure 10: DDG results for the reporting period

4.3.6.2 HVAS PM-10 Unit 1 and 2

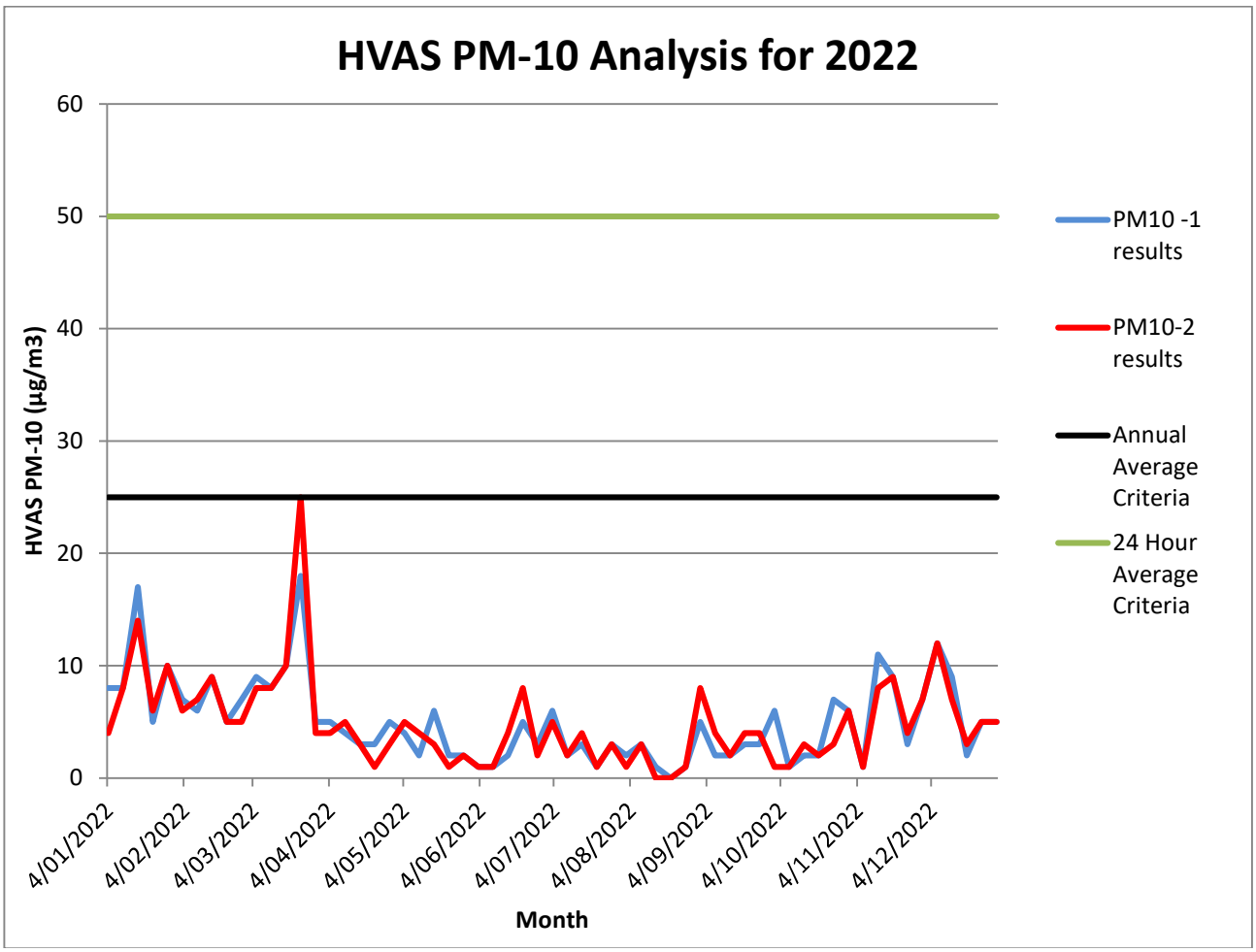


Figure 11: HVAS (PM-10) results for the reporting period

*The HVAS PM10 24-hour criterion of 25µg/m3 is based on the short term impact assessment criterion for particulate matter. The annual average is the long term impact assessment criteria for deposited dust as shown in Condition 15 of the Approval.

Table 22: PM10, TSP and PM2.5 annual average results for the reporting period

Unit	Annual Average results achieved	24 hour Criterion (Short Term)	Annual Average Criterion (Long Term)
PM10-1	**5.0**	50	25
PM10-2	**4.8**	50	25
TSP	**9.5**	N/A	90
PM2.5	**3.3**	25	8

4.3.6.3 TSP Unit 1

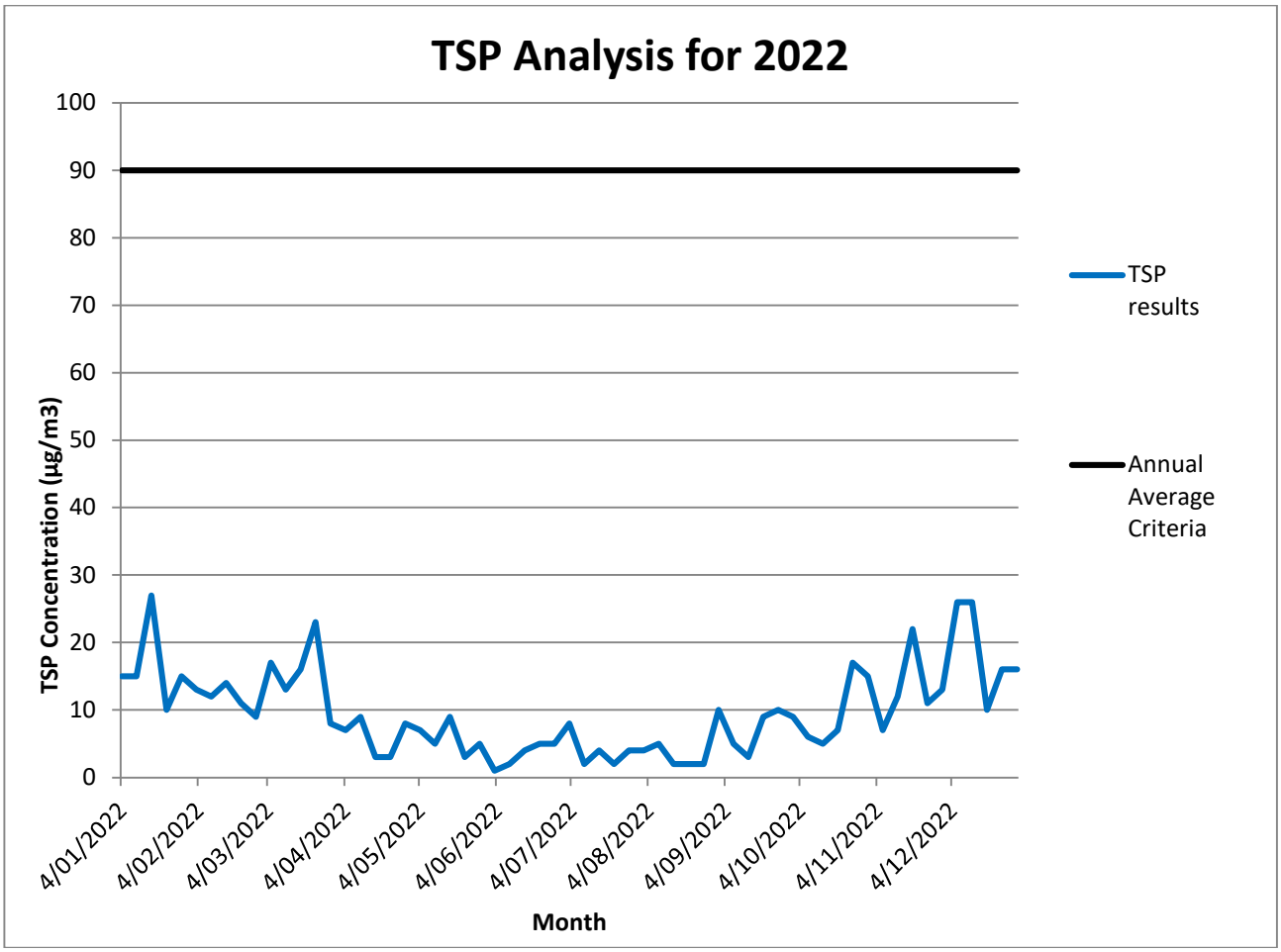


Figure 12: HVAS (TSP) results for the reporting period

4.3.6.4 PM2.5 Unit

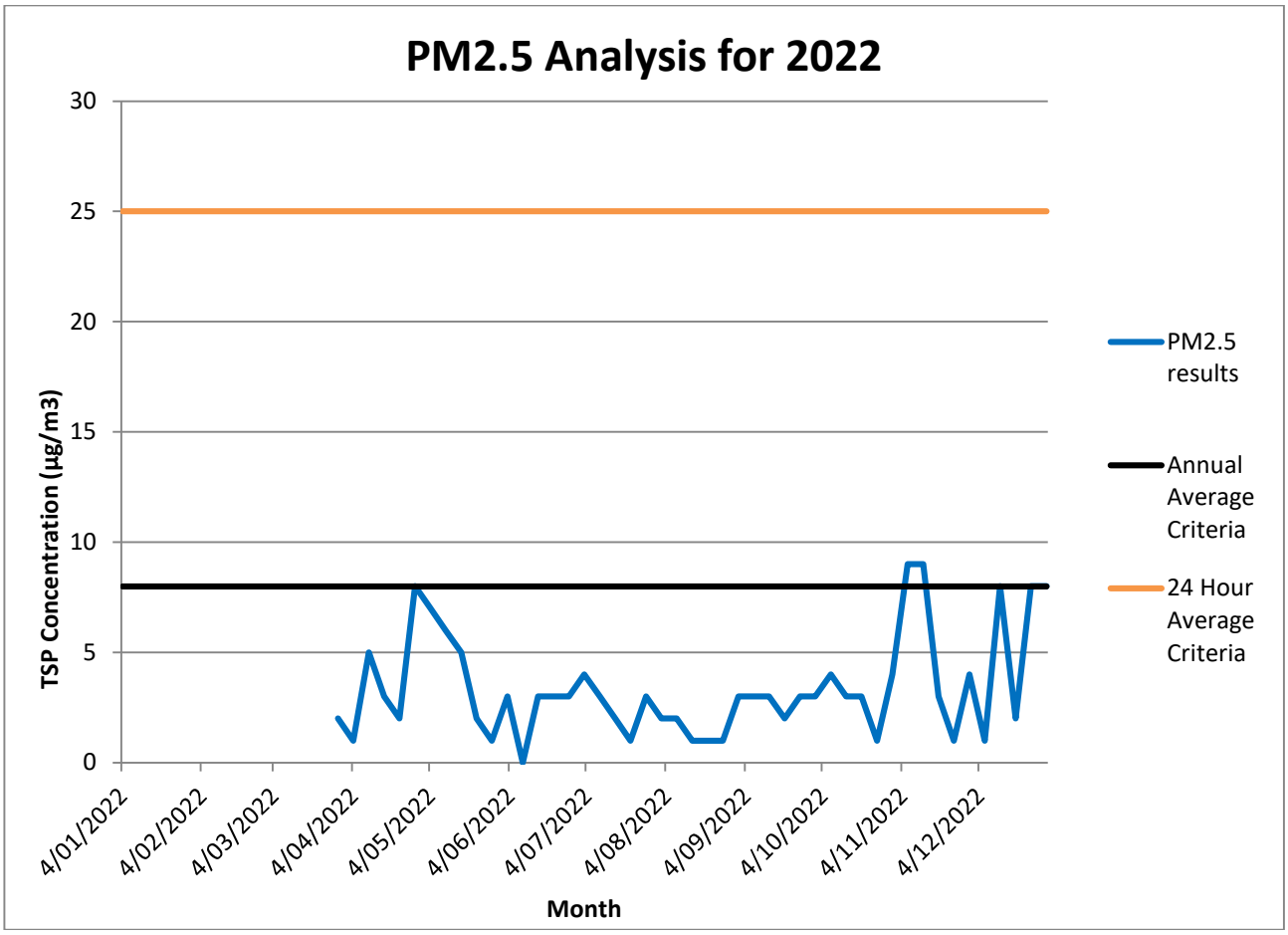


Figure 13: PM2.5 results for the reporting period

4.3.7 Discussion

Commentary on the various air monitoring data is below:

DDG

All DDG's were compliant based on the annual average and individual results achieved during the reporting period.

HVAS and LVAS (PM10, TSP and PM2.5)

The PM10 and TSP units operated as required for the entire duration of the reporting period. The PM2.5 unit was installed in late March 2022 and operated appropriately from that time until the end of the reporting period.

All PM10, TSP and PM2.5 monitoring results obtained were compliant based on the annual average and 24 hour results achieved during the reporting period.

4.3.8 Conclusion

All DDG, PM-10, TSP and PM2.5 results obtained during the reporting period were compliant.

4.4 Flora and Fauna Habitat

4.4.1 Introduction

As part of the current consent, the three BOA's have been established as described in the off-set strategy. Please refer to Section 2.12 for further details of this ongoing process.

From a fauna perspective, nesting boxes were installed in April 2012 on Lot 187 DP 751028 as identified in the sites Landscape Management Plan. It is a requirement of the plan that annual inspections of the nesting boxes are conducted for the life of the quarry, and this occurred again in early 2023 (Covid and staff shortages again delayed the original scheduled date in late 2022). Please refer to Appendix 6 for a copy of the 2022 Ardglen Annual Biodiversity Monitoring report.

4.4.2 Fauna Management

Appropriate feral animal control is an important aspect of the correct management of the site. Feral animal control is therefore ongoing and completed on the site (including offset areas) as required. Once again, this occurred for the entire duration of the reporting period with records kept of feral animals controlled during that time;

4.4.3 Nest Box Usage

The report associated with the annual inspections of the nesting boxes is attached in **Appendix 6**. Photo 3 below also demonstrates nest box usage as detailed within the 2022 Rehabilitation and nesting inspection report.

4.4.4 Biodiversity offset and rehabilitation areas

The full report associated with the 2022 Rehabilitation and nesting inspection report is attached in **Appendix 6**. A summary of this report is shown in section A, B and C below.

A. <u>BOA inspection (and offset planting)</u>

Four permanent monitoring plots (Q01, Q02, Q03 and Q04) were established within each of the four vegetation zones in the BOAs identified by Orogen (2010). These vegetation zones have been assigned a Plant Community Type (PCT) in order to be comparable with PCT benchmarks and track condition and progress over time. These PCTs have been described using floristic data, broad-scale vegetation mapping (DPE 2020) and using knowledge of the local topography and landscape.

Table 23 shows the vegetation zones and corresponding PCT associated with each of the four monitoring plots used.

Table 23: Vegetation Zones and Corresponding PCT and Plot Information

Plot Name	Easting	Northing	Zone	Vegetation Zone (Orogen 2010)	PCT Name
Q01	290019	6485647	56	Blakelys Red Gum (+/- Yellow Box) Dry Sclerophyll Grassy Woodlands/Open Woodland	PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion
Q02	289747	6486167	56	River Oak (*Casuarina cunninghamiana*) Dry Sclerophyll Woodland	PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)
Q03	289761	6485921	56	White Box (*Eucalyptus albens*) and Rough barked Apple (*Angophora floribunda*) Dry Sclerophyll Grassy Woodland	PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion
Q04	289144	6486073	56	Derived Native Grassland	PCT 796 - Derived grassland of the NSW South Western Slopes

A comparison of the data collected at each of the monitoring sites to the previous year's results and their corresponding PCT benchmarks is outlined below:

Q01 - PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion. Native species richness at this site has been in decline since 2019 and is currently at 32% of the benchmark. Overstorey foliage cover has dropped marginally since 2021 however this may be attributable observer bias due to a change in observer. The development in the mid storey foliage cover which was observed in 2021 was not observed this year, likely due to competition from high grass. Native grass cover well exceeded the benchmark, and exotic species cover has decreased from 94 to 62%. This is likely because the ground cover has increased so much in general following a sustained period of increased rainfall. Native forbs and 'other' species saw an increase this year and have exceeded the benchmark. Fallen log cover dropped this year and this is likely a function of either low visibility due to the thick ground cover or decomposition due to high levels of rainfall. Regeneration of canopy species was evident in this plot.

Q02 - PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion). Native species richness was stable in 2022, meeting just 14% of the benchmark. Overstorey foliage cover has dropped marginally since 2021 however this may be attributable observer bias due to a change in observer. Mid storey foliage cover also remained low at 15% of the benchmark. 2022 monitoring event saw a marked increase in native grass cover, native forbs and 'other' species, with these exceeding their benchmark. Exotic cover remained high at 60% however this number has dropped since 2020 and 2021. It is likely that given the position of this plot in the landscape, exotic seeds have culminated at the low point of the topography in the riparian area and flourished after consecutive rainfall flushes. Fallen logs were not observed in 2022 but given the low canopy cover and very tall obscuring grass cover, this is a reasonable result. Regeneration of canopy species again has not been observed in this area.

Q03 - PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion. Native species richness decreased between the 2021 and 2022 monitoring events, meeting 39% of the benchmark, an 11% decrease. Overstorey foliage cover has decreased slightly since 2020 and is now at 67% of the benchmark. The development in the mid storey foliage cover which was observed in 2021 was not observed this year, likely due to competition from high grass. Native grass cover again well exceeded the benchmark at 157%, which is an excellent result. As with all vegetation zones, exotic cover was very high at 80%. There has been a further increase in native forbs and 'other' species, with these exceeding the benchmark at 285%. Overstorey regeneration was not observed in this plot, and fallen logs remained absent.

Q04 - PCT 796 - Derived grassland of the NSW Southwestern Slopes. Native species richness was higher in the 2022 monitoring event than the results seen in 2021, but slightly lower than baseline results, reaching 67% of the benchmark. Native overstorey and mid-storey cover were appropriately absent, as were fallen logs. Exotic species cover was very high at 96%, a slight increase from 2021. Native grass cover score dropped this year to 35% of the benchmark. Native forbs and 'other' species met the benchmark, consistent with previous results at this site.

Approximately 447 tubestock were planted within Offset A and Offset B in 2021 in the indicative planting areas shown in **Figure 5**. Older offset supplementary plantings were made in Autumn 2021, with recent plantings made in Spring 2021. Though most species could not be identified due to their young age, the species mix appeared to be a satisfactory mix of representative canopy and mid-storey species for the area. Heights ranged from approximately 0.5 – 1.7 m. Condition and survivorship of these plantings was good, with approximately 75% of plantings surviving. Most of the losses encountered appeared to have been contributed to by destructive behaviour by feral pigs and deer, which has also resulted in damage to tree guards. In some cases, weeds and high grass are competing with saplings for space.

B. Rehabilitation planting inspection

Approximately 500 saplings were planted in the two rehabilitation areas outside of the BOAs and identified in the indicative planting areas in Figure 2.4. Two areas were planted within the quarry boundary. The Western Rehabilitation plantings were undertaken in September 2019 along with the

lower/eastern plantings in the and the Southern Rehabilitation area. The top/western portion of this area was planted in March/April 2020.

Both areas continued to show a high survival rate, and although the count of saplings was not exhaustive, only a small number of planted individuals appeared to have perished. Survival rate appeared to be above 75% in both areas. Though some species could not be identified due to their young age, the species mix appeared to be a satisfactory mix of representative canopy and mid-storey species for the area.

In the Western Rehabilitation plantings, the plant guards in this area seemed mostly intact apart from those on the southern side of the slope near R01. Pickets and barriers were often observed fallen over, possibly attributable to feral animal interference. Plant heights ranged from 0.2 to 2.5 metres in height, which is a low increase since the 2021 monitoring event. Given the timing of plantings in this area in the height of intense drought, the survival rate and condition of these plantings is very high. In the Southern Rehabilitation area, the survival rate is slightly lower than that of the plantings further up the slope in the Western Rehabilitation. This is likely because the plantings are in a more open, easterly facing setting at the edge of the quarry face, with less surrounding canopy cover and lower groundcover height. A few smaller saplings were observed at around 30 cm height with stakes fallen and broken. The Eucalypts that have survived are in good condition, now established as small trees that could have the guards removed for their continual growth and safety.

C. Recommendations from the Rehabilitation and Nesting Inspection Report

Additionally, as also detailed in the 2022 Rehabilitation and nesting inspection report (Appendix 6), the following recommendations (including proposed actions in red) are provided for consideration in the 2022 Annual Review:

• Perimeter fencing of the BOAs is adequate, but internal fences can be removed if practical. These may hinder the movement of native fauna throughout the BOAs. It is noted that this issue will be resolved once the Conservation Agreement (CA) is approved by the BCT – Once the CA is approved by BCT, the removal of redundant internal fences in the BOA's will occur soon thereafter;

• Daracon should continue to engage the services of a feral animal shooter for feral pest animals that frequent the BOAs (e.g., foxes and wild dogs). Daracon may liaise with Local Land Services to discuss the merits of a wild dog baiting program if considered necessary – Daracon continues to engage the services of a feral animal shooter and will continue to do so for the foreseeable future;

• Weed infestations have increased across all Offset sites. This included the spread of species into areas that they had not been recorded in within past monitoring events. Further and ongoing weed management of St John's wort (*Hypericum perforatum*) and Blackberry (*Rubus fruticosus* agg.) is recommended in all offsets. It is suggested that Spear thistle (*Cirsium vulgare)* is additionally targeted following moderate observations of the species across Offsets A, B and C in large clusters which, if left unattended, can easily dominate landscapes – There have been multiple weed spraying events on site during the reporting period, however recent and persistent rain has severely hindered the effectiveness of these events. The weed management strategy will improve once BCT approve the CA;

• It is noted that track access has impeded the ability of Daracon to conduct maintenance such as weed and pest control over the past two years. It is recommended that Daracon considers track upgrades where necessary to allow for services to access the offsets. Pest and weed activity is high such that the condition of the offsets will worsen considerably if these issues are not attended to - Daracon have recently re-established a small team to site to undertake various preparatory tasks on site and the maintenance of access tracks is part of this proposed work. Additionally, once the CA is approved by BCT, the access tracks in the BOA's will also improve;

• It is recommended that Nest Box 20 should be fixed to have the base reattached to the main structure as the nest box will not remain functional for much longer. It is also recommended that the ply stuck to the upper part of Nest Box 17 (TT158) is removed to better facilitate monitoring of the box, however this is a low priority as access to the box by animals is not impeded – Following the Umwelt inspection in early 2023, the base of nest box 20 was promptly repaired and the ply stuck to the upper part of nest box 17 was removed as shown in Photo 2;

Photo 2: Nest box repairs completed

Photo 3: Nest box usage

4.5 Greenhouse Gas

4.5.1 Introduction

As part of the current consent, we need to monitor and report the gas emissions generated by the project.

4.5.2 Reporting

Due to the fact that there is no permanent electrical power connected to the site and there has been no machinery used on site during the reporting period, the greenhouse gas emissions for the site are negligible and well below any official reporting thresholds.

4.6 Analysis of monitoring results against those predicted in the EA

4.6.1 Water Quality

Due to the fact that the quarry has mostly been in "care and maintenance" for many years, the fact that the site has substantial water storage capacity on site, there have been no documented water discharge events or known water quality issues identified. This is consistent with those predicted in the EA which states "the project is unlikely to result in any significant impacts on water".

4.6.2 Noise and Blast

Due to the fact that the quarry has mostly been in "care and maintenance" for many years and the fact that the site has not undertaken blasting or significant quarrying operations during this time, there have been no issues relating to noise or blasting identified. We are yet to fully implement all mitigation measures detailed in the EA as we have not yet entered the extension area. Upon entering the extension area, the various additional mitigation measures will be implemented and monitored in accordance with the consent.

4.6.3 Air Quality

Due to the fact that the quarry has mostly been in 'care and maintenance' for many years and the fact that the site has not undertaken blasting or significant quarrying operations during this time, there have been no substantial issues relating to air quality identified. There have obviously been a few (but infrequent) air quality monitoring results that have not complied with the consent during previous reporting periods, however these have easily been discounted for reasons not specifically associated with quarry operations (regional dust storms or persistent intense drought conditions). This is consistent with those predicted in the EA which states "air quality modelling indicates that worst case dust emissions generated by the project would comply with the DECC criteria for dust deposition, TSP and small particulate matter (PM-10) at all privately owned residences in the vicinity of the site".

4.7 Trends of monitoring over the life of the project

4.7.1 Water Quality

Due to the fact that the quarry has mostly been in 'care and maintenance' for many years, the fact that the site has substantial water storage capacity on site there have been no documented water discharge events or known water quality issues identified. It must be noted however that the Approval includes additional water management strategies to permit appropriate water discharge subject to approval of a variation to the EPL.

4.7.2 Noise and Blast

Due to the fact that the quarry has mostly been in 'care and maintenance' for many years and the fact that the site has not undertaken blasting or significant quarrying operations during this time, there have been no issues relating to noise or blasting identified. It must be noted however that the Approval includes additional noise mitigation measures that will be implemented and monitored in accordance with the consent.

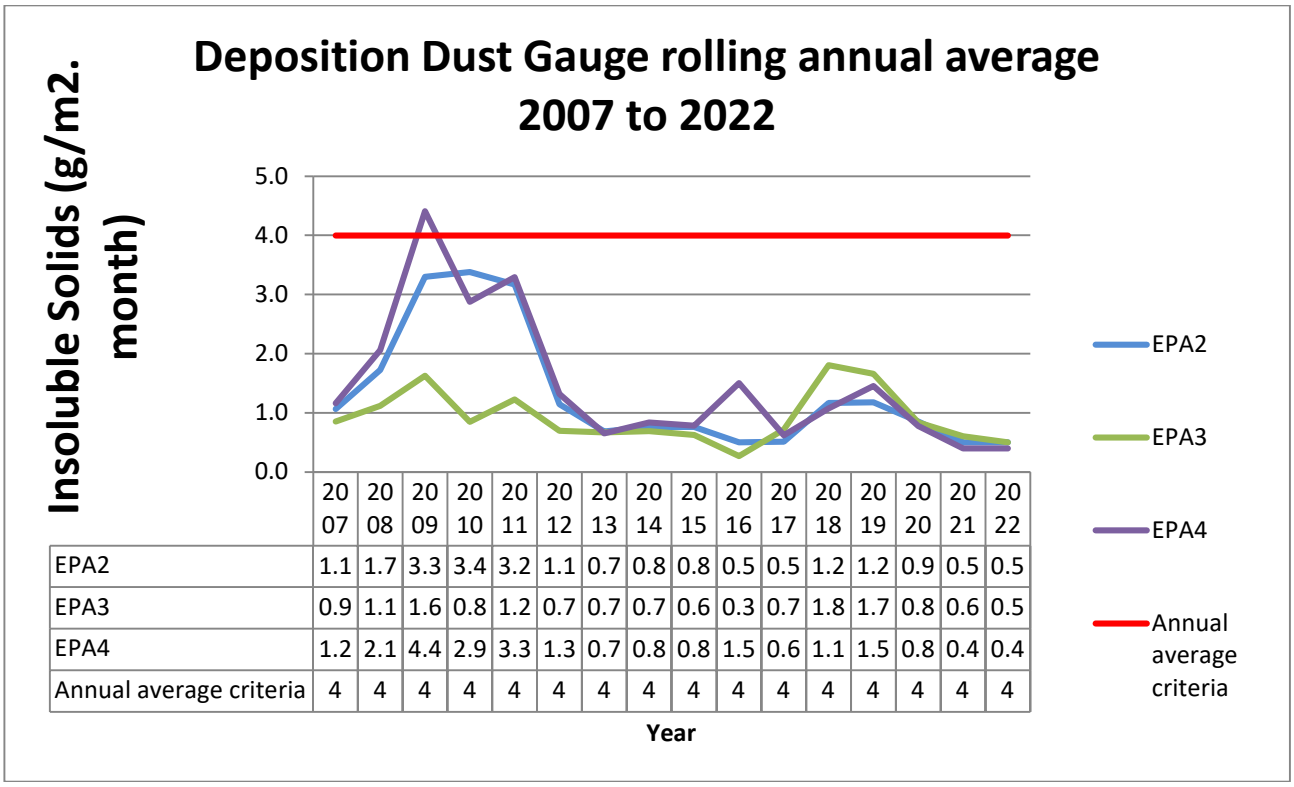
4.7.3 Air Quality

Due to the fact that the quarry has mostly been in 'care and maintenance' for many years and the fact that the site has not undertaken blasting or significant quarrying operations during this time, there have been no substantial issues relating to air quality identified.

As shown in Figures 13, 14, 15 and 16 below, the long-term trends associated with the various air quality monitoring parameters are summarised as follows:

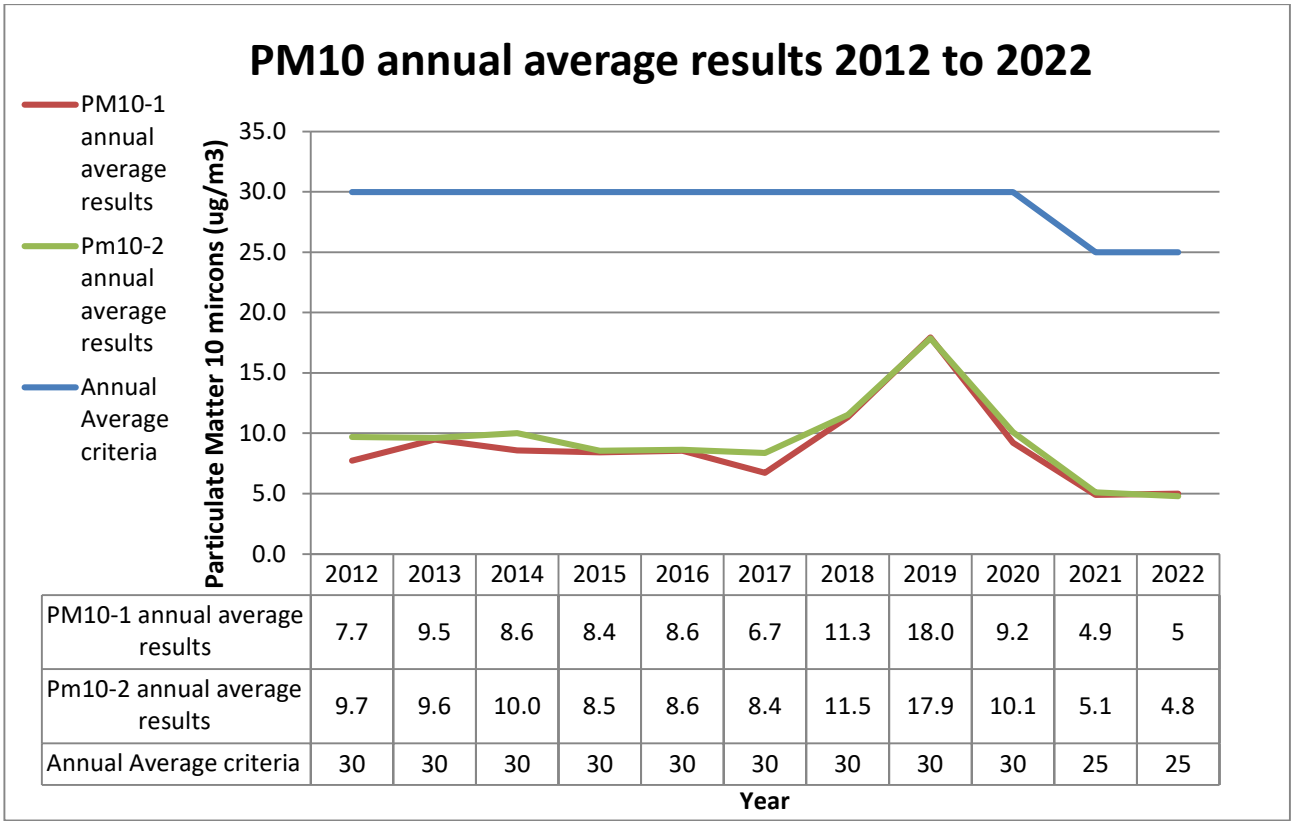
- Figure 14 – This shows the Dust Deposition Gauge (DDG) monitoring results from 2007 to 2022. As seen in this figure, the annual average results are all below the criterion apart from the average result for EPA #4 from 2009;
- Figure 15 – This shows the HVAS PM10 "annual average" monitoring results from 2012 to 2022. As seen in this figure, the annual average results are all below the criterion;

- Figure 16 – This shows the HVAS PM-10 “24 hour” monitoring results from 2012 to 2022. As seen in this figure, the annual average results are all below the criterion apart from the results obtained in 2012 and more recently during late 2018, late 2019 and into early 2020. For clarification regarding the prevailing weather conditions during this reporting period, please see also see below Figure 17 (taken from the biodiversity monitoring report) which demonstrates that the region surrounding Ardglen quarry was experiencing ‘non drought’ conditions for the first time since 2017;
- Figure 17 – This shows the HVAS TSP monitoring results from 2012 to 2022. As seen in this figure, the TSP results are all below the criterion apart from the results obtained during late 2018, late 2019 and into early 2020. For clarification regarding the prevailing weather conditions during this reporting period, please see also see below Figure 19 (taken from the biodiversity monitoring report) which demonstrates that the region surrounding Ardglen quarry was experiencing ‘non drought’ conditions for entire reporting period;
- Figure 18 – This shows the PM2.5 monitoring results from 2022. As seen in this figure, all results obtained are well below the 24 hour criteria;



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
EPA2	1.1	1.7	3.3	3.4	3.2	1.1	0.7	0.8	0.8	0.5	0.5	1.2	1.2	0.9	0.5	0.5
EPA3	0.9	1.1	1.6	0.8	1.2	0.7	0.7	0.7	0.6	0.3	0.7	1.8	1.7	0.8	0.6	0.5
EPA4	1.2	2.1	4.4	2.9	3.3	1.3	0.7	0.8	0.8	1.5	0.6	1.1	1.5	0.8	0.4	0.4
Annual average criteria	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Figure 14: DDG rolling averages from 2007 to 2022



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
PM10-1 annual average results	7.7	9.5	8.6	8.4	8.6	6.7	11.3	18.0	9.2	4.9	5
Pm10-2 annual average results	9.7	9.6	10.0	8.5	8.6	8.4	11.5	17.9	10.1	5.1	4.8
Annual Average criteria	30	30	30	30	30	30	30	30	30	25	25

Figure 15: Annual average PM-10 results from 2012 to 2022

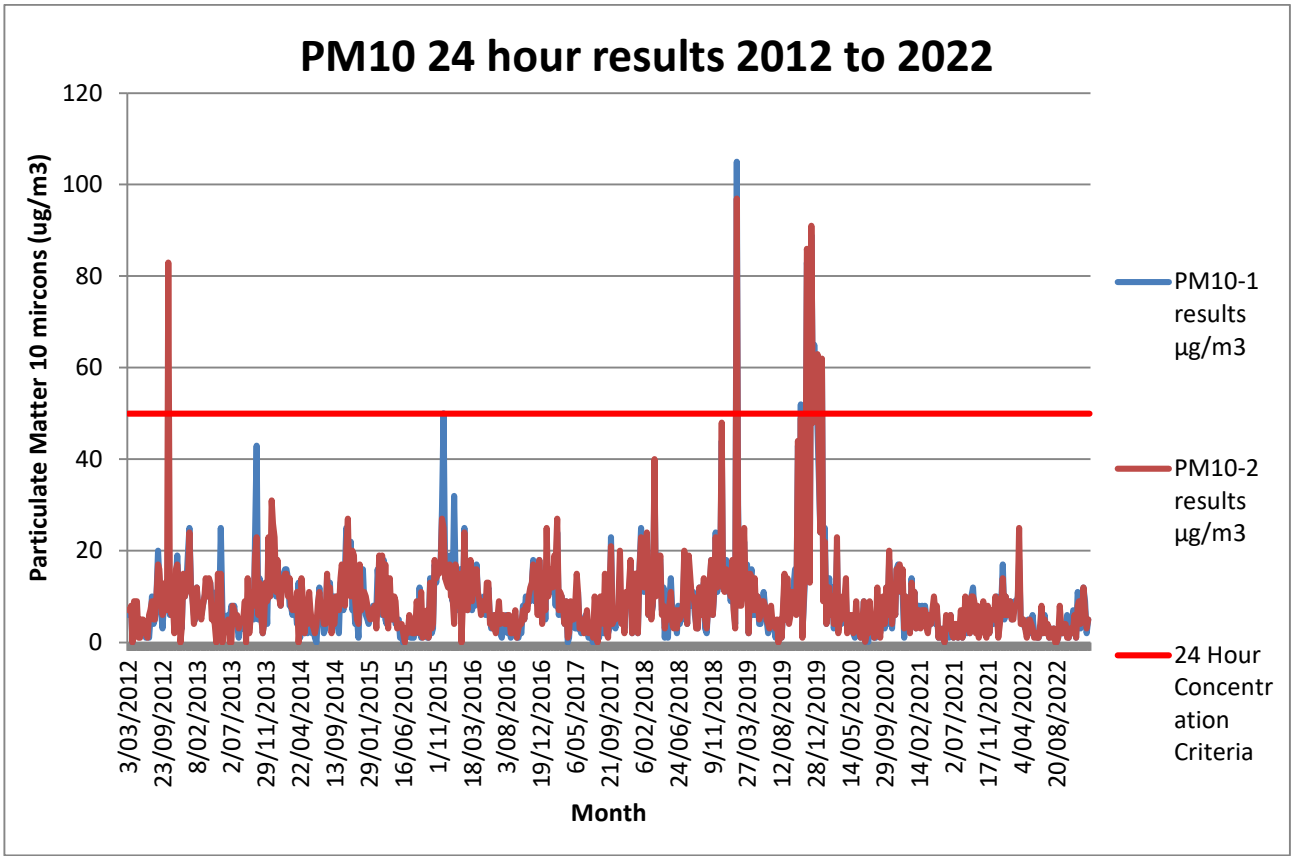


Figure 16: Twenty-four-hour concentration PM-10 results from 2012 to 2022

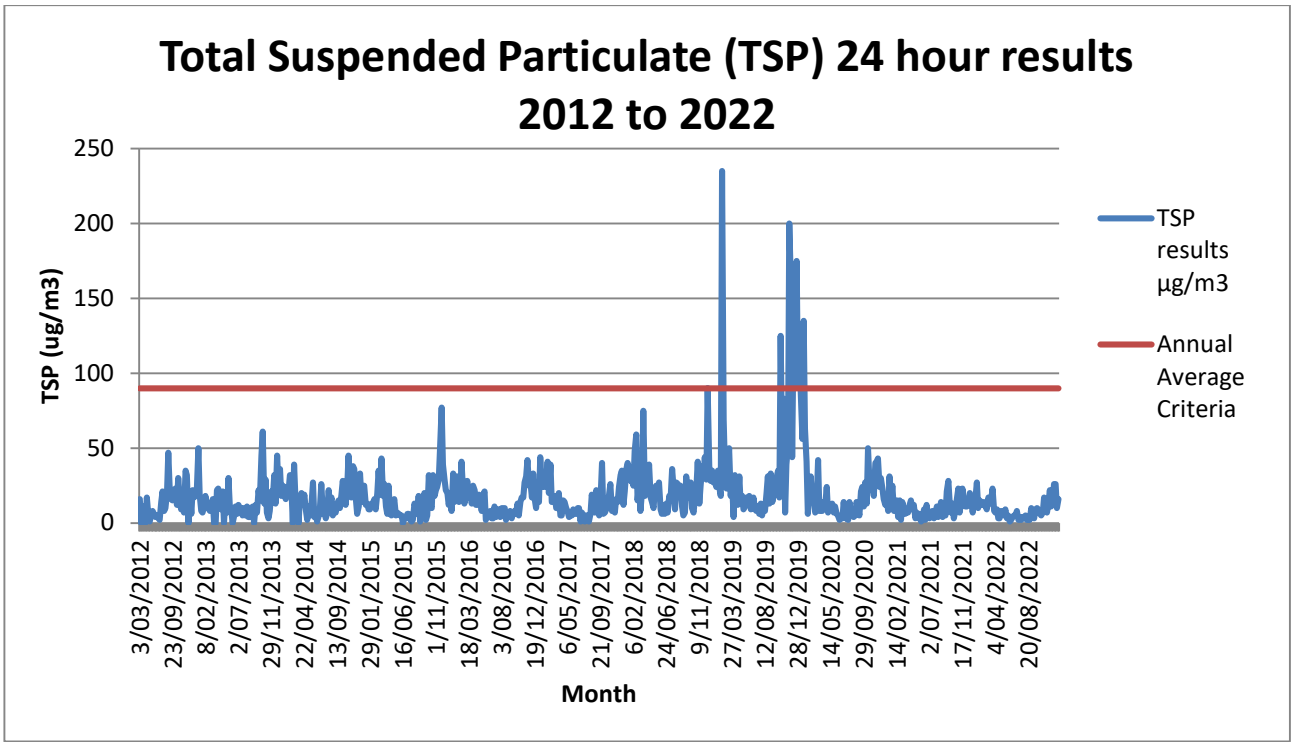


Figure 17: Annual average TSP results from 2012 to 2022

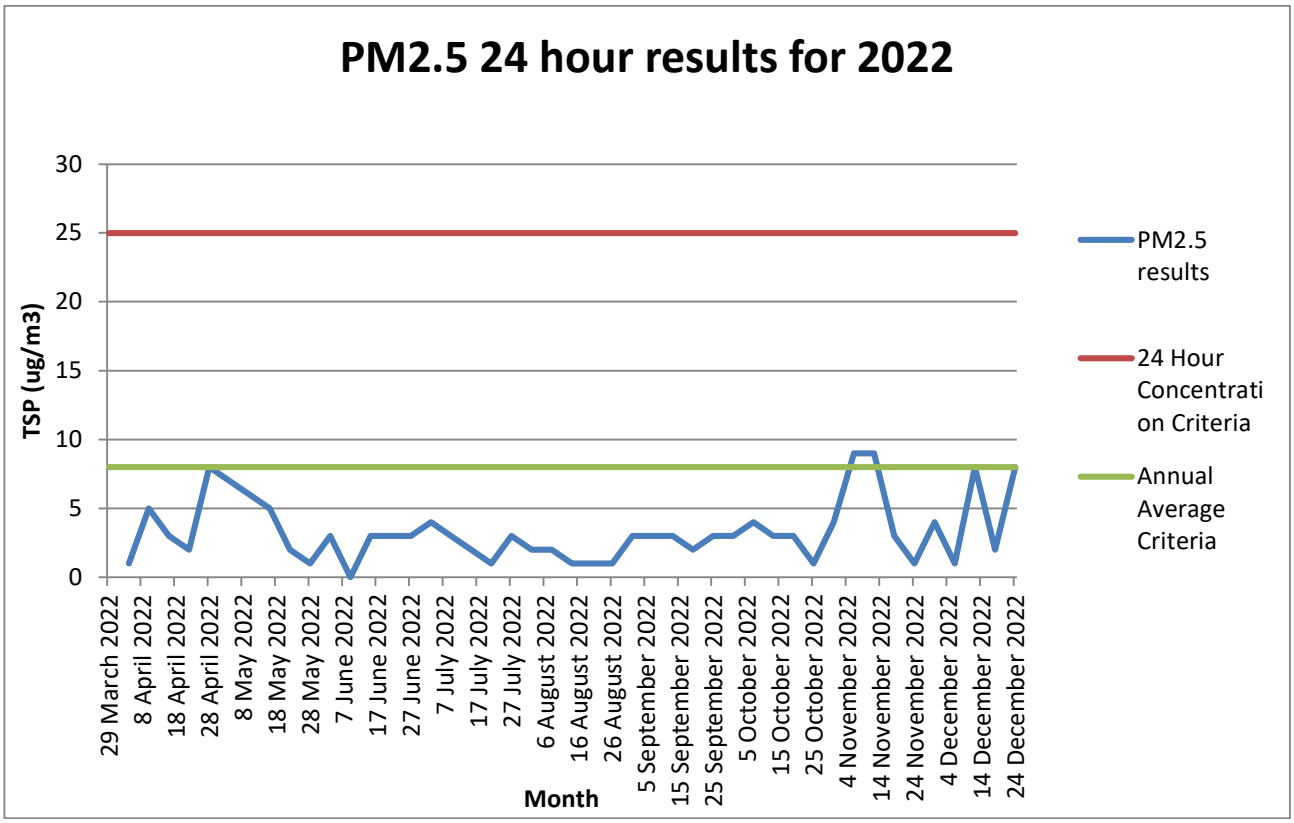


Figure 18: PM2.5 results for 2022

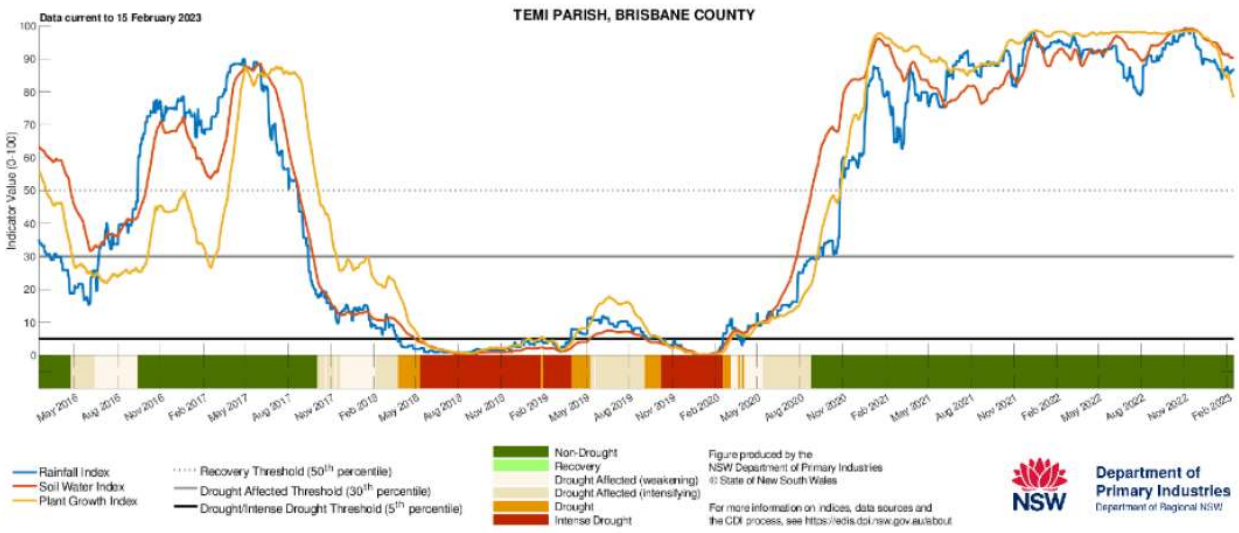


Figure 19: DPE 'Combined Drought Indicator' taken from Biodiversity monitoring report (Appendix 6)

5. COMPLIANCE ASSESSMENT

5.1 Environmental Protection Licence

Daracon hold Environmental protection Licence 1115 for a 'land based' extractive industry. The licence has an anniversary date of 1 January. The annual return covering the reporting period identified no non-compliances with the conditions of the licence and was submitted to the EPA in February 2023. The current version of the Ardglen Quarry Environment Protection Licence (EPL 1115) is available on site.

Daracon also received approval for a variation to the EPL to accommodate the requirements of Mod 2. This was approved by the EPA during 2022.

5.2 Discrepancies With Predicted and Actual Quarry Operations

The previous AEMR included a list of various activities planned for the following reporting period. With regard to the actual activities undertaken on site during the reporting period, the discrepancies between those predicted and those undertaken are summarised below:

- The security of the offset areas associated with the quarry extension approval continues to take longer than expected, however we're continuing to work closely with the Biodiversity Conservation Trust to enable the completion of a Conservation Agreement which will be resolved before entering the Extension Area in accordance with Mod 2;
- The Umwelt rehabilitation inspection report included in Appendix 6 of this document includes the most recent update we received from BCT in early 2023;

5.3 Independent Audit

During 2022, Daracon engaged the services of an environmental auditor to undertake the Independent Environmental Audit (IEA) in accordance with the Project Approval MP 06_0624 MOD 2. A copy of the IEA report and Response to Audit Recommendations were provided to DPE and accepted in December 2022. Please also refer to Table 3 for a summary of the non-compliances arising from the 2022 IEA including the current status of each.

It is also worth noting the comment below as taken from the 2022 IEA report completed by James Bailey and Associates (DPE approved auditor - Dorian Walsh):

"The review of AQ documentation and the May 2022 site inspection found that AQ are generally operating in compliance with their regulatory approvals and associated environmental management documents.

The management strategies, plans and other documents required for AQ to manage the environmental impacts from site operations were found to be being implemented to minimise the key risks on site. As such, the non-compliances and recommendations identified in this report are generally administrative in nature and relate to the need for AQ to gain regulatory approval of and implement updated environmental management documentation to address MOD2 requirements."

5.4 Summary of Incidents and Non-Compliances

Table 24 includes a summary of the incidents raised by Daracon during the reporting period. Please also refer to **Appendix 4** for a summary of complaints received and **Table 3** for a summary of the non-compliances arising from the IEA undertaken by Pitt and Sherry in 2018.

Table 24: Summary of incidents raised

Date occurred	Description	Outcome / action	Closed (Y / N)
N/A	NIL	NIL	

6. ACTIVITIES PROPOSED DURING THE NEXT REPORTING PERIOD

6.1 Introduction

The following section provides a brief summary of operational & non-operational activities planned throughout the 2023 reporting period. **Table 25** provides a summary of the proposed quarry activities.

Table 25: Proposed Activities for 2023

January - December 2023	• Ongoing review, update and submission of Management Plans as required; • Ongoing monthly noise monitoring once quarrying operations recommence; • Regular Site Inspections; • Ongoing Air Quality Monitoring; • Continue to address and resolve the corrective actions identified in the Road Safety Audit (RSA) as necessary; • Attend to the revised conditions associated with Mod 2, with a view to recommencing quarrying activities (overburden removal, blasting and crushing) in due course;

	• Ongoing site rehabilitation work as required; • Progress the security of the BOA's with BCT; • Preparatory and construction works to facilitate the recommencement of quarrying activities; • Recommencement of quarrying activities, subject to the completion of the various tasks within the Approval that are required 'before entering the extension area';

6.2 Extraction Operations from the 'Extension Area'

Subject to the completion of the various tasks within the Approval that are required 'before entering the extension area', extraction operations from the 'Extension Area' may be undertaken during the next reporting period.

6.3 Processing of material from the 'Extension Area'

Subject to the completion of the various tasks within the Approval that are required 'before entering the extension area', processing of material from the 'Extension Area' may be undertaken during the next reporting period.

6.4 Overburden And Silt Management

Subject to the completion of the various tasks within the Approval that are required 'before entering the extension area', overburden removal from the 'Extension Area' may be undertaken during the next reporting period.

6.5 Waste Management

Subject to the completion of the various tasks within the Approval that are required 'before entering the extension area', additional waste management processes may be implemented during the next reporting period.

6.6 Site Infrastructure and Services

In accordance with the revised Approval and updated EPL, changes are likely to occur to the site infrastructure and services during the next reporting period such as additional noise mitigation and water management structures. The reconnection of services to the site offices may also occur during the next reporting period.

6.7 Water Management

In accordance with the revised Approval and updated EPL, changes are likely to be made to the current water management practices during the next reporting period.

Progression of the Groundwater study in accordance with the Approval.

6.8 Bushfire Management

Bush fire management practices will remain in place and monitored.

6.9 Hazardous Materials Management

There will be no importation or disposing of hazardous materials on site. Subject to the completion of the various tasks within the Approval that are required 'before entering the extension area', changes may be made to the management practices associated with hazardous materials during the next reporting period.

6.10 Product Transportation

Subject to the completion of the various access road and intersection improvements detailed in the Approval, it is likely that we will increase truck movements in accordance with Mod 2 to export material contained within the existing stockpiles for local projects.

If this was to occur, we'd liaise further with the CCC and various stakeholders prior to commencement.

Daracon also commits to the re-installation of the truck 'wheel wash' prior to recommencing the export of quarry material by truck from the site.

6.11 Rehabilitation and landscape management

During the next reporting period it is likely that the following rehabilitation and landscape management activities will occur:

- Subject to the advice received from the BCT, Daracon may revise the Landscape Management Plan (LMP) again with assistance from Umwelt and submit to the DPE for review and approval;
- Inspection and maintenance of rehabilitation planting in areas identified in the LMP as required;
- Monitoring of BOA's will be conducted on a regular basis;
- Long term security of the off-set areas to be resolved;
- Implement the various management strategies as detailed in the consent and revised LMP prior to entering the extension area;

7. REFERENCES

1. ANZECC (2000) – Australian and New Zealand Guidelines Fresh and Marine Water Quality
2. DEC (2007) Approved Methods for Sampling of Air Pollutants in New South Wales
3. DECCW (2007) Methods for the Sampling and Analysis of Air Pollutants in New South Wales
4. EPA (2000) New South Wales Industrial Noise Policy
5. DPE (2015) Annual Review Guideline

8. APPENDICES

Appendix 1 Project Approval MP 06_0264 (Mod 2)

Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

I approve the application referred to in schedule 1, subject to the conditions in schedules 2 to 5.

These conditions are required to:
- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

The Hon Kristina Keneally MP
Minister for Planning

Sydney **2008**

SCHEDULE 1

Application Number:	06_0264
Proponent:	Buttai Gravel Pty Limited (Daracon Quarries)
Approval Authority:	Minister for Planning
Land:	Lot 1 DP 1001734 Lot 218 DP 751028 Lot 1 DP 1164494 Lot 39 DP 751028 Lot 49 DP 751028 Lot 187 DP 751028 Various Crown public roads
Project:	Ardglen Quarry Extension

Blue type represents December 2010 modification (MOD 1)
Green type represents March 2021 modification (MOD 2)

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DEFINITIONS

Aboriginal object / Aboriginal place	Has the same meaning as the definition of the term in section 5 of the *National Parks and Wildlife Act 1974*
Annual Review	The review required by condition 4 in Schedule 5
Applicant	Buttai Gravel Pty Limited (Daracon Quarries), or any person carrying out any development under this consent
ARTC	Australia Rail Track Corporation
BCA	Building Code of Australia
BCS	Biodiversity, Conservation and Science Directorate within the Department
BCT	Biodiversity Conservation Trust
Biodiversity Offset Areas	The areas shown conceptually in Appendix 3
Biodiversity Offset Strategy	The Biodiversity Offset Strategy described in the EA and Response to Submissions and as shown conceptually in Appendix 3, subject to any revisions required under condition 25 of Schedule 3
Calendar year	A period of 12 months from 1 January to 31 December
CCC	Community Consultative Committee
Conditions of this consent	Conditions contained in Schedules 2 to 5
Construction	All physical works to enable quarrying operations to be carried out, including demolition and removal of buildings or works, and erection of buildings and other infrastructure permitted by this consent
Council	Liverpool Plains Shire Council
Day	The period from 7.00am to 6.00pm on Monday to Saturday, and 8.00am to 6.00pm on Sundays and Public Holidays
Department	Department of Planning, Industry and Environment
Development	The development as described in the documents listed in condition 2 of Schedule 2, as modified by the conditions of this consent
DPIE Crown Lands	Crown Lands Group within the Department
DPIE Water	Water Group within the Department
EA	Environmental assessment titled *Ardglen Quarry Extension Environmental Assessment,* dated June 2007, including the response to submissions, dated November 2007
EA MOD 2	Means: • the amended environmental assessment titled *Section 4.55 Modification to Existing Consent* dated May 2019 prepared by Monteath & Powys; • the Response To Submissions dated 14 November 2018 prepared by Monteath & Powys; • additional information dated 12 September 2019 prepared by Monteath & Powys; and • additional information dated 24 October 2019, 28 February 2020 and 23 April 2020 prepared by Daracon
EEC	Endangered Ecological Community as defined under the NSW *Biodiversity Conservation Act 2016*
Environment	Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence
Evening	The period from 6.00pm to 10.00pm
Extension Area	The Extension Area as shown in Appendix 1
Feasible	Means what is possible and practical in the circumstances
Heritage NSW	Heritage NSW within the Department of Premier and Cabinet
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance
Laden trucks	Trucks transporting quarry products from the site and/or trucks transporting blending products to the site
Land	Land means the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this consent

Material harm	Is harm to the environment that: • involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial; or • results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment) This definition excludes "harm" that is authorised under either this consent or any other statutory approval
MEG	Regional NSW – Mining, Exploration and Geoscience
Minister	Minister for Planning and Public Spaces, or delegate
Minimise	Implement all reasonable and feasible mitigation measures to reduce the impacts of the development
MOD 2	The modification described in EA MOD 2
Non-compliance	An occurrence, set of circumstances or development that is a breach of this consent
Night	The period from 10.00pm to 7.00am on Monday to Saturday, and 10.00pm to 8.00am on Sundays and Public Holidays
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
Privately-owned Land	Land that is not owned by a public agency, or a quarrying company (or its subsidiary)
Processing	Includes all crushing, grinding or screening undertaken in the production of quarrying products
Quarry access route	The access route from the New England Highway to the site entrance, comprising Ardglen Street (Main Street), High Street (Swinging Ridges Road), St Stephen Street and Warra Street
Quarrying operations	The extraction, processing, stockpiling and transportation of extractive materials carried out on the site and the associated removal of vegetation, topsoil and overburden
Quarrying products	Includes all saleable quarry products, but excludes tailings and other wastes and rehabilitation material
Reasonable	Means applying judgement in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements
Rehabilitation	The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting
Residence	Existing or approved dwelling at the date of grant of this consent
Site	The land referred to in Schedule 1 and shown outlined in red in Appendix 1
Statement of Commitments	The Applicant's commitments in Appendix 4
TfNSW	Transport for NSW
Truck movements	Means combined inbound and outbound movements
Waste	Has the same meaning as the definition of the term in the Dictionary to the POEO Act

SCHEDULE 2
ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

1. In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.

Terms of Consent

2. The Applicant must carry out the development:
   (a) generally in accordance with the EA;
   (b) generally in accordance with the EA MOD 2;
   (c) generally in accordance with the Statement of Commitments; and
   (d) in compliance with the conditions of this consent.

   Note: The general layout of the development is shown in Appendix 1.

3. The conditions of this consent and any reasonable and feasible requirement/s of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document/s listed in condition 2(a)-(c) of this Schedule. In the event of an inconsistency, ambiguity or conflict between any of the document/s listed in condition 2(a)-(c) of this Schedule, the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

4. The Applicant must comply with any reasonable and feasible requirement/s of the Planning Secretary arising from the Department's assessment of:
   (a) any reports, plans, programs, strategies or correspondence that are submitted in accordance with this approval; and
   (b) the implementation of any actions or measures contained in these reports, plans, programs, strategies or correspondence.

Limits on Consent

5. This consent expires on 31 August 2038.

   Note: Under this consent, the Applicant is required to rehabilitate the site and implement biodiversity offsets to the satisfaction of the Planning Secretary. Consequently, this consent will continue to apply in all other respects other than the right to conduct extractive operations until the site has been rehabilitated and the biodiversity offset provided to a satisfactory standard.

6. The Applicant must not extract or process more than 500,000 tonnes of material on the site each year.

7. The Applicant must not transport more than:
   (a) 250,000 tonnes of quarrying products from the site by rail a year;
   (b) 500,000 tonnes of quarrying products from the site by road a year; and
   (c) a combined total of 500,000 tonnes of quarrying products by rail and/or road a year.

8. The Applicant must not import more than 80,000 tonnes of materials for the purposes of blending and product quality improvement each year.

Surrender of Consents

9. Within 3 years of this consent, the Applicant must surrender all development consents or continuing use rights for the Ardglen Quarry, to the satisfaction of the Planning Secretary.

Management Plans/Monitoring Programs

10. With the approval of the Planning Secretary, the Applicant may submit any management plan or monitoring program required by this consent on a progressive basis.

Structural Adequacy

11. The Applicant must ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

Notes:

- *Under Division 6.2 of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of development.*

Demolition

12. The Applicant must ensure that all demolition work is carried out in accordance with *Australian Standard AS 2601-2001: The Demolition of Structures*, or its latest version.

Operation of Plant and Equipment

13. The Applicant must ensure that all plant and equipment used at the site is:
    (a) maintained in a proper and efficient condition; and
    (b) operated in a proper and efficient manner.

Protection of Public Infrastructure

14. The Applicant must:
    (a) repair, or pay all reasonable costs associated with repairing any public infrastructure that is damaged by the development; and
    (b) relocate, or pay all reasonable costs associated with relocating any public infrastructure that needs to be relocated as a result of the development.

Use of Crown Roads

14A. The Applicant must make reasonable efforts to assist in the transfer of any Crown roads forming part of the quarry access route to Council, prior to undertaking any works in the Extension Area.

Revision of Strategies, Plans or Programs

15. Within three months of:
    (a) the submission of an incident report under condition 3 of Schedule 5;
    (b) the submission of an Annual Review under condition 4 of Schedule 5;
    (c) the submission of an Independent Environmental Audit under condition 5 of Schedule 5;
    (d) the approval of any modification of the conditions of this consent (unless the conditions require otherwise),

    the suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant.

16. The Applicant must continue to apply existing management strategies, plans or programs approved prior to the approval of MOD 2, until the approval of a similar plan, strategy or program following the determination of MOD 2.

17. If necessary, to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary and submitted to the Planning Secretary for approval within six weeks of the review.

    Note: *This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.*

18. Where conditions of this consent require consultation with an identified party, the Applicant must:
    (a) consult with the relevant party prior to submitting the subject document; and
    (b) provide details to the Department of the consultation undertaken including:
        (i) the outcome of that consultation, matters resolved and unresolved; and
        (ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.

SCHEDULE 3
SPECIFIC ENVIRONMENTAL CONDITIONS

HOURS OF OPERATION

1. The Applicant must comply with the hours of operation in Table 1.

Table 1: Hours of Operation

Activity	*Day*	*Time*
Topsoil/overburden removal/emplacement	Monday-Saturday	7.00am to 5.00pm
	Sunday	None
Blasting	Monday-Friday	10:00am to 3.00pm
	Saturdays, Sundays and Public Holidays	None
In-pit activities (including drilling, extraction, and transfer of material out of the pit)	Monday-Saturday	7.00am to 5:30pm
	Sundays and Public Holidays	None
Out-of-pit activities (including processing, and stockpiling)	Monday-Saturday	7.00am to 5:30pm
	Sundays and Public Holidays	None
Maintenance (if inaudible at nearby residences)	Monday-Sunday	Any time
Truck loading and distribution	Monday-Saturday	6.30am to 5.30pm
	Sundays and Public Holidays	None
Rail loading	Monday-Sunday	7:00am to 10:00pm

Note:
- *The Applicant may load no more than 2 trains each year outside the hours listed in Table 1 (see condition 41).*
- *The Applicant may carry out blasting operations outside the hours listed in Table 1 for safety reasons provided the Applicant has notified EPA and the local community about the proposed blast.*

NOISE

Noise Impact Assessment Criteria

2. The Applicant must ensure that the combined construction and operational noise generated by the development does not exceed the noise impact assessment criteria in Table 2 at any residence on privately-owned land, except where construction works are authorised under a Construction Noise Protocol which has been approved by the Planning Secretary under condition 4A of this Schedule.

Table 2: Noise impact assessment criteria dB(A)

Land	*Day*	*Evening*	*Night*	
	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{A1(1\ min)}$
4	44	35	35	45
5, 6	45	35	35	45
9	37	35	35	45

Land	Day	Evening	Night	
	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{A1(1\ min)}$
10	38	35	35	45
12, 14	36	35	35	45
15	43	35	35	45
16	40	35	35	45
All other privately-owned land	35	35	35	45

However, if the Applicant has a written negotiated noise agreement with any landowner of the land listed in Table 2, and a copy of this agreement has been forwarded to the Department and EPA, then the Applicant may exceed the noise limits in Table 2 in accordance with the negotiated noise agreement. The Applicant may also exceed the $L_{A1(1\ min)}$ and $L_{Aeq(15\ min)}$ noise impact assessment criteria during out of hours rail loading activities provided they are conducted in accordance with condition 41 below.

Notes:

- *For information on the numbering and identification of properties used in this approval see Appendix 5.*
- *Noise generated by the development must be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy (EPA, 2000). Appendix 6 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.*

3. The Applicant must undertake all construction work within standard construction hours (7.00am to 6.00 pm Monday to Friday and 8.00am to 1.00pm Saturday, excluding Sundays and Public Holidays).

4. The Applicant must ensure that combined construction and operational noise generated by the development does not exceed the limits outlined in Table 2 of this Schedule, except where:

   (a) the Applicant has a written negotiated agreement with the owner(s) of the relevant residence/land as outlined in condition 2 of this Schedule; or

   (b) an alternative temporary limit has been approved by the Planning Secretary for specific construction works or for a fixed period of time.

4A. In order to seek an alternative temporary construction noise limit under condition 4(b) of this Schedule, the Applicant must submit a Construction Noise Protocol to the Planning Secretary for approval, prior to undertaking the nominated construction works. This protocol must:

   (a) be prepared in consultation with the EPA and any landowners who may be affected by noise generated by the nominated construction works; and

   (b) address the relevant requirements of the Interim Construction Noise Guideline (DECC 2009).

4B. The Applicant must implement any Construction Noise Protocol as approved by the Planning Secretary.

Operating Conditions

4C. The Applicant must:

   (a) take all reasonable steps to minimise noise from construction and operational activities, including low frequency noise and other audible characteristics, as well as road noise associated with the development;

   (b) operate a noise management system to guide day to day planning of quarrying operations and implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this consent;

   (c) take all reasonable steps to minimise the noise impacts of the development during noise-enhancing meteorological conditions, particularly when the noise criteria in this consent do not apply (see Appendix 6);

   (d) carry out regular noise monitoring (at least once a month while quarrying operations are being carried out, unless otherwise agreed by the Planning Secretary) to determine whether the development is complying with the relevant conditions of this consent; and

   (e) regularly assess the noise monitoring data and modify or stop operations on the site to ensure compliance with the relevant conditions of this consent.

4D. Prior to carrying out any processing activities under this consent, the Applicant must implement the recommended noise mitigation measures as outlined in the MOD 2 EA to the satisfaction of the Planning Secretary.

4E. The Applicant must not operate processing equipment while undertaking:
(a) rail loading; and/or
(b) topsoil/overburden removal or emplacement.

Continuous Improvement

5. The Applicant must:
(a) investigate ways to reduce the noise generated by the development, including off-site road and rail noise and maximum noise levels which may result in sleep disturbance; and
(b) report on these investigations and the implementation and effectiveness of these measures in the Annual Review, to the satisfaction of the Planning Secretary.

Monitoring

6. The Applicant must prepare a Noise Monitoring Program for the development in consultation with EPA and to the satisfaction of the Planning Secretary. The program must:
(a) include:
(i) a combination of attended and unattended noise monitoring measures;
(ii) detailed measures to comply with condition 4C of this Schedule; and
(iii) a noise monitoring protocol for evaluating compliance with the noise criteria in Table 2 of this Schedule; and
(b) be submitted to the Planning Secretary for approval within three months of the determination of MOD 2 (or other timeframe as agreed by the Planning Secretary).

6A. The Applicant must implement the Noise Monitoring Program as approved by the Planning Secretary.

BLASTING AND VIBRATION

Airblast Overpressure Criteria

7. The Applicant must ensure that the airblast overpressure level from blasting at the development does not exceed the criteria in Table 5 at any privately-owned residence.

Table 5: Airblast overpressure impact assessment criteria

Airblast overpressure level (dB(Lin Peak))	Allowable exceedance
115	5% of the total number of blasts over a period of 12 months
120	0%

Ground Vibration Impact Assessment Criteria

8. The Applicant must ensure that the ground vibration level from blasting at the development does not exceed the criteria in Table 6 at any privately-owned residence.

Table 6: Ground vibration impact assessment criteria

Peak particle velocity (mm/s)	Allowable exceedance
5	5% of the total number of blasts over a period of 12 months
10	0%

Blasting Frequency

9. The Applicant must not carry out more than 30 blasts a year, or more than 1 blast per day, without the written approval of the Planning Secretary.

Operating Conditions

10. The Applicant must implement best blasting practice to:
(a) protect the safety of people, property, public infrastructure and livestock; and

(b) minimise the dust and fume emissions from blasting at the development, to the satisfaction of the Planning Secretary.

11. The Applicant must not undertake blasting within 500 metres of any privately-owned land or any land not owned by the Applicant, unless suitable arrangements have been made with the landowner and any tenants to minimise the risk of flyrock-related impact to the property to the satisfaction of the Planning Secretary.

Public Notice

12. The Applicant must:
    (a) notify the landowner/occupier of any residence within 1 kilometre of the quarry pit who registers an interest in being notified about the blasting schedule at the quarry;
    (b) operate a Blasting Hotline, or alternate system agreed to by the Planning Secretary, to enable the public to get up-to-date information on the blasting schedule at the quarry;
    (c) keep local residents informed about this hotline (or any alternative notification protocols), to the satisfaction of the Planning Secretary.

Property Investigations

13. If any landowner of privately-owned land within 1 kilometre of the site claims that buildings and/or structures on his/her land have been damaged as a result of blasting at the site, following commencement of operations within the extension area, then he/she may ask the Planning Secretary in writing to investigate the claim.

    If the Planning Secretary is satisfied that an independent property investigation is warranted, the Applicant must within 3 months of the Planning Secretary's determination:
    (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Planning Secretary, to investigate the claim; and
    (b) give the landowner a copy of the property investigation report.

    If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant must repair the damages to the satisfaction of the Planning Secretary.

    If the Applicant or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Planning Secretary for resolution.

Blast Monitoring Program

14. The Applicant must prepare a Blast Monitoring Program for the development in consultation with the EPA and to the satisfaction of the Planning Secretary. This program must:
    (a) include a protocol for demonstrating compliance with the blasting criteria in Table 6 of this Schedule; and
    (b) be submitted to the Planning Secretary for approval within three months of the determination of MOD 2 (or other timeframe as agreed by the Planning Secretary).

14A. The Applicant must implement the Blast Monitoring Program as approved by the Planning Secretary.

AIR QUALITY

Impact Assessment Criteria

15. The Applicant must ensure that the dust emissions generated by the development do not cause additional exceedances of the air quality impact assessment criteria listed in Tables 8, 9 and 10 at any residence on privately-owned land.

Table 8: Long term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	[a, c] 90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	[a, c] 25 µg/m^3
Particulate matter < 2.5 µm ($PM_{2.5}$)	Annual	[a, c] 8 µg/m^3

Table 9: Short term impact assessment criterion for particulate matter

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM_{10})	24 hour	[b] 50 µg/m^3
Particulate matter < 2.5 µm ($PM_{2.5}$)	24 hour	[b] 25 µg/m^3

Table 10: Long term impact assessment criteria for deposited dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
[d]Deposited dust	Annual	[b] 2 g/m^2/month	[a] 4 g/m^2/month

Notes:

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

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

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

[d] *Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.*

15A. The air quality criteria in Tables 8, 9 and 10 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or infrastructure to exceed the air quality criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Operating Conditions

16. The Applicant must:
    (a) take all reasonable steps to:
        (i) minimise the particulate matter (including PM_{10} and $PM_{2.5}$) emissions of the development, paying particular attention to minimising wheel-generated haul road emissions;
        (ii) improve energy efficiency and reduce greenhouse gas emissions of the development;
        (iii) minimise any visible off-site air pollution generated by the development; and
        (iv) minimise the extent of potential dust generating surfaces exposed on the site at any given point in time;
    (b) operate an air quality management system to guide the day to day planning of quarrying operations and implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this consent;
    (c) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see Note C to Tables 8 to 10 above);
    (d) carry out regular air quality monitoring to determine whether the development is complying with the relevant conditions in this consent; and
    (e) regularly assess meteorological and air quality monitoring data and relocate, modify or stop operations on the site to ensure compliance with the relevant conditions of this consent.

Monitoring

17. The Applicant must prepare an Air Quality Monitoring Program for the development in consultation with EPA and to the satisfaction of the Planning Secretary. This program must:
    (a) use a combination of high volume air samplers and dust deposition gauges to monitor the dust emissions from the development;
    (b) include a protocol for demonstrating compliance with the air quality impact assessment criteria in this approval; and
    (c) be submitted to the Planning Secretary for approval prior to within three months of the determination of MOD 2 (or other timeframe as agreed by the Planning Secretary).

17A. The Applicant must implement the Air Quality Monitoring Program as approved by the Planning Secretary.

METEOROLOGICAL MONITORING

18. The Applicant must ensure the development has a suitable meteorological station in the vicinity of the site that:
    (a) complies with the requirements in the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales* (DEC, 2007); and
    (b) is capable of measuring meteorological conditions in accordance with the *NSW Industrial Noise Policy* (EPA, 2000),

    unless a suitable alternative is approved by the Planning Secretary following consultation with the EPA.

SURFACE AND GROUND WATER

18A. The Applicant must ensure that the sediment basin described in EA MOD 2 and any associated drainage structures required for the carrying out of the development are located wholly within the site, except as authorised in writing by ARTC and/or DPIE Crown Lands (as relevant).

18B. The Applicant must obtain any necessary licences and/or approvals from DPIE Crown Lands under the *Crown Lands Management Act 2016* prior to:
    (a) carrying out any works on Crown Land; or
    (b) allowing the controlled discharge of water from the site to Doughboy Hollow Creek.

18C. The Applicant must obtain any necessary licences and/or approvals from the ARTC prior to carrying out any works described in the MOD 2 EA within the Right of Carriageway which burdens Lot 1 DP 1001734.

18D. The Applicant must not undertake any excavation exceeding 2 m in depth within 25 m of the Main Northern Railway corridor unless otherwise approved in writing by ARTC.[a]

[a] *The 25 m setback is to be measured from the site boundary adjacent to the Main Northern Railway.*

18E. Prior to commencing quarrying operations in the Extension Area (or other timeframe as agreed by the Planning Secretary), the Applicant must install a groundwater monitoring bore with a minimum depth equivalent to the finished depth of the in-pit sump, in consultation with DPIE Water.

Notes:
- *The in-pit sump is shown in Appendix 1*
- *The purpose of the groundwater monitoring bore is to inform the development of the Groundwater Monitoring Program*

18F. The Applicant must ensure that any works to be conducted on waterfront land are carried out in accordance with *Guidelines for Controlled Activities on Waterfront Land* (2018) and in consultation with DPIE Water.

Surface Water Discharges

19. The Applicant must only discharge water from the site in accordance with the provisions of an EPL.

Site Water Management Plan

20. The Applicant must prepare a Site Water Management Plan for the development,[a] in consultation with EPA, DPIE Water, DPIE Crown Lands and ARTC, and to the satisfaction of the Planning Secretary. This plan must be prepared by suitably qualified expert/s whose appointment/s have been approved by the Planning Secretary, and must include:
    (a) a Site Water Balance;
    (b) an Erosion and Sediment Control Plan; and
    (c) a Surface Water Management Plan;

(d) a Groundwater Monitoring Program; and
(e) a Dewatering Management Plan.[b]

[a] *The Site Water Management Plan must incorporate the existing quarry operations and operations within the extension area*
[b] *In accordance with condition 23D of this Schedule, the Planning Secretary may waive the requirement for a Dewatering Management Plan if no pit dewatering is required*

Site Water Balance

21. The Site Water Balance must include details of:
(a) sources and reliability of water supply;
(a1) predicted annual inflows to and outflows from the site;
(b) water storage capacity;
(c) water use and management on the site;
(d) licensed discharge points and limits;
(e) reporting procedures, including the annual preparation of an updated site water balance during quarrying operations.

Erosion and Sediment Control

22. The Erosion and Sediment Control Plan must:
(a) be consistent with the requirements of the *Managing Urban Stormwater: Soils and Construction Manual* (Landcom 2004, or its latest version);
(b) identify activities that could cause soil erosion and generate sediment;
(c) describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters;
(d) describe the location, function, and capacity of erosion and sediment control structures; and
(e) describe what measures would be implemented to maintain the structures over time.

Surface Water Management Plan

23. The Surface Water Management Plan must include:
(a) detailed baseline data on surface water quality in Doughboy Hollow Creek;
(b) flow modelling of Doughboy Hollow Creek;
(c) surface water impact assessment criteria, including trigger levels for investigating any potentially adverse impacts, and surface water management performance measures;
(d) a detailed description of the surface water management system on the site, including the:
(i) clean water diversion system;
(ii) erosion and sediment controls;
(iii) dirty water management system; and
(iv) water storages;
(e) a program to monitor and evaluate:
(i) any surface water discharges;
(ii) the effectiveness of the water management system, particularly in minimising the risk of uncontrolled discharges from the site; and
(iii) surface water flows and quality in watercourses and/or waterbodies that could potentially be impacted by the development;
(f) a protocol for identifying and investigating any exceedances of the surface water impact assessment criteria and for notifying the Department and relevant stakeholders of these events; and
(g) a trigger action response plan to respond to any exceedances of the relevant performance measures or performance criteria.

23A. The Applicant must submit the Site Water Balance, Erosion and Sediment Control Plan and Surface Water Management Plan to the Planning Secretary for approval within three months of the determination of MOD 2 (or other timeframe as agreed by the Planning Secretary).

Groundwater Monitoring Program

23B. The Groundwater Monitoring Program must:
(a) incorporate at least 12 months of baseline data on groundwater levels obtained from the monitoring bore required under condition 18E of this Schedule;

(b) include groundwater performance criteria, including trigger levels for identifying and investigating any potentially adverse groundwater impacts (or trends) associated with the development;
(c) include a program to identify, report on and respond to any unauthorised groundwater interference, including inflows into extraction areas or interaction between on-site water storages and the groundwater system; and
(d) include a protocol to obtain appropriate water licence(s) for any groundwater take; and
(e) be submitted to the Planning Secretary for approval within 12 months of commencing quarrying operations in the Extension Area (or other timeframe as agreed by the Planning Secretary).

Dewatering Management Plan

23D. Unless otherwise agreed by the Planning Secretary[a], the Applicant must prepare a Dewatering Management Plan for the overburden infill area[b] to the satisfaction of the Planning Secretary. This plan must:
(a) include details of:
  (i) any pumping or pipeline infrastructure to be used for dewatering activities;
  (ii) proposed water transfer and discharge arrangements; and
(b) include a program to monitor and report on any dewatering activities that involves any discharges from the site; and
(c) be submitted to the Planning Secretary for approval prior to carrying out emplacement activities in the overburden infill area.

[a] *The Planning Secretary may waive the requirement for a Dewatering Management Plan if no pit dewatering is required*
[b] *The overburden infill area is shown in Appendix 2*

23E. The Applicant must implement the Site Water Management Plan as approved by the Planning Secretary.

REHABILITATION AND LANDSCAPE MANAGEMENT

Rehabilitation

24. The Applicant must progressively rehabilitate the site in a manner that is generally consistent with the conceptual rehabilitation principles and proposed rehabilitation strategy in the documents listed in condition 2(a)-(c) of Schedule 2 and as shown conceptually in Appendix 2, and must comply with the objectives in Table 11.

Table 11: Rehabilitation objectives

Feature	Objective
All areas of the site affected by the development	• Safe • Hydraulically and geotechnically stable • Non-polluting • Fit for the intended post-quarrying operations land use(s) • Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land
Surface infrastructure	• Decommissioned and removed, unless otherwise agreed by the Planning Secretary
Quarry benches and pit floor	• Landscaped and vegetated using native tree and understorey species representative of Yellow Box White Box Blakely's Red Gum Woodland EEC
Overburden infill area[a]	• Backfilled areas integrated with surrounding natural landforms as far as is reasonable and feasible • Emplacement areas integrated with the site water management system • Establish grassland to support sustainable agricultural activities • Use species found in the local area that are suitable for pasture production

[a] *The overburden infill area is shown in Appendix 2*

Offset Strategy

25. Prior to undertaking any works in the Extension Area, the Applicant must revise the Biodiversity Offset Strategy described in the EA and Response to Submissions (shown conceptually in Appendix 3), to the satisfaction of the Planning Secretary. The revised strategy must be prepared in consultation with the BCS, and include additional areas where Yellow Box White Box Blakely's Red Gum Woodland EEC would be actively re-established within the identified Biodiversity Offset Areas shown in Appendix 3.

26. Prior to undertaking any works in the Extension Area (or other timeframe as agreed by the Planning Secretary), the Applicant must make suitable arrangements to provide appropriate long term security for the Biodiversity Offset Areas to the satisfaction of the BCT.

26A. By the end of June 2021, the Applicant must ensure that the Biodiversity Offset Areas are fenced to an appropriate standard to exclude stock access. The Applicant must maintain the exclusionary fencing over the life of the development, to the satisfaction of the Planning Secretary.

Landscape Management Plan

27. The Applicant must prepare a detailed Landscape Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:
    (a) be prepared by suitably qualified expert/s whose appointment/s have been approved by the Planning Secretary;
    (b) submitted to the Planning Secretary for approval within three months of the determination of MOD 2 (or other timeframe as agreed by the Planning Secretary); and
    (c) include a:
        - Doughboy Hollow Creek Rehabilitation Strategy;
        - Rehabilitation and Biodiversity Offset Management Plan; and
        - Quarry Closure Plan.

    Note: The Department accepts that the initial Landscape Management Plan may not include the detailed Quarry Closure Plan. However, if this occurs, the Applicant will be required to seek approval from the Planning Secretary for an alternative timetable for the completion and approval of the Quarry Closure Plan.

Doughboy Hollow Creek Rehabilitation Strategy

28. The Doughboy Hollow Creek Rehabilitation Strategy must:
    (a) be prepared in consultation with BCS, DPIE Crown Lands and DPIE Water;
    (b) describe the measures that would be implemented to:
        - remove the weir from Doughboy Hollow Creek;
        - rehabilitate sections of the creek within or directly adjacent to Lot 1 DP1001734 and Lot 39 DP 751028; and
        - rehabilitate and/or re-establish riparian vegetation within Lot 39 DP 751028.

Rehabilitation and Biodiversity Offset Management Plan

29. The Rehabilitation and Biodiversity Offset Management Plan must:
    (d) be prepared by suitably qualified expert/s whose appointment/s have been approved by the Planning Secretary;
    (e) describe in general the short, medium, and long term measures that would be implemented to:
        - rehabilitate the site;
        - implement the Biodiversity Offset Strategy and Doughboy Hollow Creek Rehabilitation Strategy; and
        - manage the remnant vegetation and habitat on the site;
    (f) include a detailed description of what measures would be implemented over the next 3 years to implement the Biodiversity Offset Strategy and Doughboy Hollow Creek Rehabilitation Strategy;
    (g) include a detailed description of what measures would be implemented over the next 5 years to rehabilitate the site, including the procedures to be implemented for:
        - progressively rehabilitating areas disturbed by quarrying as shown conceptually in Appendix 2;
        - implementing revegetation and regeneration as shown conceptually in Appendix 2, including establishment of canopy, sub-canopy (if relevant), understorey and ground strata;
        - managing the remnant vegetation and habitat on site;
        - managing impacts on fauna;

- reducing the visual impacts of the development, including the vegetation of the noise barrier shown in Appendix 2 and the establishment of screen planting as described in EA MOD 2 and the Statement of Commitments;
- landscaping the site to minimise visual impacts;
- protecting areas outside the disturbance areas;
- conserving and reusing topsoil;
- collecting and propagating seeds for rehabilitation works;
- salvaging and reusing material from the site for habitat enhancement;
- controlling weeds and feral pests;
- controlling access; and
- bushfire management;

(h) detailed performance and completion criteria for the rehabilitation of the site and implementation of the Biodiversity Offset Strategy and Doughboy Hollow Creek Rehabilitation Strategy;

(i) a detailed description of how the performance of the rehabilitation of the site and implementation of the Biodiversity Offset Strategy and Doughboy Hollow Creek Rehabilitation Strategy would be monitored over time to achieve the relevant objectives and completion criteria;

(j) a description of the potential risks to successful revegetation and/or rehabilitation in the offset areas and development area, and a description of the contingency measures that would be implemented to mitigate these risks; and

(k) details of who is responsible for monitoring, reviewing and implementing the plan.

Quarry Closure Plan

30. The Quarry Closure Plan must:

(l) define the objectives and criteria for quarry closure;

(m) investigate options for the future use of the site, including any final void(s);

(n) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the development ; and

(o) describe how the performance of these measures would be monitored over time.

30A. The Applicant must implement the Landscape Management Plan as approved by the Planning Secretary.

Rehabilitation Bond

31. Within 6 months of the approval of the Rehabilitation and Biodiversity Offset Management Plan, the Applicant must lodge a Rehabilitation Bond with the Department to ensure that the rehabilitation of the site is implemented in accordance with the performance and completion criteria set out in the plan and the relevant conditions of this consent. The sum of the bond must be an amount agreed by the Planning Secretary and determined by:

(a) calculating the cost of rehabilitating all disturbed areas of the site, taking into account the likely surface disturbance over the next 3 years of quarrying operations; and

(b) employing a suitably qualified, independent and experienced person to verify the calculated costs.

The calculation of the Rehabilitation Bond must be submitted to the Department for approval at least 2 months prior to the lodgement of the bond.

32. The Rehabilitation Bond must be reviewed and, if required, an updated bond must be lodged with the Department within 3 months following:

(a) any update or revision to the Rehabilitation and Biodiversity Offset Management Plan;

(b) the completion of an Independent Environmental Audit in which recommendations relating to rehabilitation have been made; or

(c) in response to a request by the Planning Secretary.

32A. If rehabilitation is completed generally in accordance with the relevant performance and completion criteria, to the satisfaction of the Planning Secretary, the Planning Secretary will release the bond.

32B. If rehabilitation is not completed generally in accordance with the relevant performance and completion criteria, the Planning Secretary will call in all, or part of, the bond and arrange for the completion of the relevant works.

TRANSPORT

Product Transport

33. The Applicant must:
    (a) keep records of the:
        - amount of quarry materials imported onto the site each calendar year;
        - amount of quarrying products transported from the site each calendar year;
        - number of truck movements generated by the development on an hourly basis on any days in which truck loading and distribution occurs;
        - registration plate details and time of departure for all laden trucks dispatched from the quarry;
        - number of train movements generated by the development, on a weekly basis;
        - date and time of each train movement generated by the development;
    (b) provide annual production data to MEG using the standard form for that purpose; and
    (c) include these records in the Annual Review.

Road Safety and Condition Audit

33A. Prior to truck movements associated with the development exceeding 55 movements per day, the Applicant must undertake (and complete) all agreed actions outlined in the Road Safety and Condition Audit Report prepared by Crossroads Civil Design dated October 2018, to the satisfaction of the relevant roads authority (i.e. TfNSW or Council). If there is a dispute about the implementation of these measures, then the Applicant may refer the matter to the Planning Secretary for resolution.

34. By 31 December 2025 or within five years of commencing quarrying operations in the Extension Area (whichever is the latter), the Applicant must undertake a Road Safety and Condition Audit for the development, to the satisfaction of the Planning Secretary. This audit must:
    (a) be prepared by a suitably independent and qualified expert/s whose appointment has been approved by the Planning Secretary;
    (b) be prepared in consultation with the TfNSW and Council;
    (c) assess the safety, performance and condition of the Ardglen Street (Main Street)-New England Highway intersection and the quarry access route; and
    (d) identify any road works that are required to comply with relevant AUSROAD standards or other relevant TfNSW or Council requirements.

35. Within 12 months of completing the Road Safety and Condition Audit required under condition 34 of this Schedule, unless otherwise agreed by the Planning Secretary, the Applicant must undertake (and complete) any road works recommended in the Audit, to the satisfaction of the relevant roads authority (i.e. TfNSW or Council). If there is a dispute about the implementation of these measures, then the Applicant may refer the matter to the Planning Secretary for resolution.

Road Signage

36. Within 3 months of this approval, the Applicant must install warning signs (“Truck Turning”) on the northern and southern approaches to the quarry access route on the New England Highway, to the satisfaction of the TfNSW.

Road Maintenance

37. The Applicant must maintain the quarry access route until the cessation of quarrying operations on the site, to the satisfaction of Council.

    If the Applicant and the Council fail to reach agreement on the road maintenance requirements, then either party may refer the matter to the Planning Secretary for resolution. Any determination by the Planning Secretary on this matter will be binding on the Applicant and the Council.

Road Haulage

38. The Applicant must ensure that truck movements associated with the development do not exceed:
    (a) a total of 110 movements per day;
    (b) a total of 5 movements between 6.30 am and 7.00 am; and
    (c) a total of 30 movements per hour between 7.00 am and 5.30 pm.

39. The Applicant must not use trucks which are larger than truck and dog combination vehicles[a] or have a capacity of greater than 38 tonnes to transport product from the site, unless otherwise agreed in writing by TfNSW.

[a] *In this condition, 'truck and dog combination vehicle' means National Class 2 Performance Based Standards Level 1 & 2A Truck and Dog Trailer (or equivalent) as determined by the National Heavy Vehicle Regulator*

40. The Applicant must:
(a) implement a speed limit of not more than 40 kilometres per hour for quarry-related truck movements[a] along the quarry access route;
(b) investigate options to impose a speed limit of 20 kilometres per hour for all heavy vehicle movements along the High Street bridge and install appropriate warning signage, in consultation with Council;
(c) ensure that all laden trucks entering or leaving the site are covered, and are cleaned of materials that may fall onto public roads;
(d) ensure that all laden trucks pass through a wheel wash prior to departing the site; and
(e) take all reasonable steps to minimise traffic safety issues and disruption to local road users.

[a] *In this condition, 'quarry-related truck movements' means trucks used for the transport of quarrying products or the importation of blending material to the site*

40A. Prior to commencing increased truck movements as described in EA MOD 2, or other timing as agreed by the Planning Secretary, the Applicant must undertake road widening along Ardglen Street (Main Street) to achieve a minimum pavement width of 7 m (excluding road shoulders), to the satisfaction of Council.

Rail Loading

41. The Applicant may only load a maximum of 2 trains outside the rail loading and distribution hours in Table 1 in any 12 month period, unless agreed to in writing by the Planning Secretary.

42. If the Applicant intends to undertake out of hours rail loading, it must use its best endeavours to notify all local residents at least 12 hours prior to the proposed rail loading, to the satisfaction of the Planning Secretary.

Traffic and Transport Management Plan

43. The Applicant must prepare a Traffic and Transport Management Plan, to the satisfaction of the Planning Secretary. The plan must:
(a) include a driver code of conduct which outlines;
- safety initiatives for haulage through the village and along school bus routes;
- an induction procedure for truck drivers; and
- complaints handling and disciplinary procedures;

(b) include:
- measures that would be put in place to ensure compliance with the driver code of conduct;
- measures that would be implemented to ensure compliance with condition 40 of this Schedule;
- measures that would be taken to avoid night time train loading operations; and
- procedures for notifying local residents about night time train loading activities when these occur; and

(c) be submitted to the Planning Secretary for approval prior to truck movements associated with the development exceeding 55 movements per day, (or other timeframe as agreed by the Planning Secretary).

43A. The Applicant must implement the Traffic and Transport Management Plan as approved by the Planning Secretary.

VISUAL IMPACT

44. The Applicant must:
(a) take all reasonable steps to minimise the visual and off-site lighting impacts of the development;
(b) ensure that all external lighting associated with the development complies with *Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting*,
to the satisfaction of the Planning Secretary.

ABORIGINAL CULTURAL HERITAGE

45. The Applicant must not destroy any known Aboriginal object or Aboriginal place (as defined in the *National Parks and Wildlife Act 1974*) without the written approval of the Planning Secretary.

45A. If any previously unknown Aboriginal object or Aboriginal place is discovered on the site:

(a) all work in the immediate vicinity of the object or place must cease immediately;

(b) a 10 metre buffer area around the object or place must be cordoned off; and

(c) Heritage NSW must be contacted immediately.

45B. Work in the immediate vicinity may only recommence if:

(a) the potential Aboriginal object or Aboriginal place is confirmed by Heritage NSW upon consultation with the Registered Aboriginal Parties not to be an Aboriginal object or Aboriginal Place; or

(b) an Aboriginal Cultural Heritage Management Plan is prepared in consultation with Registered Aboriginal Parties and Heritage NSW, and to the satisfaction of the Planning Secretary; or

(c) the Planning Secretary is satisfied as to the measures to be implemented in respect of the Aboriginal object or Aboriginal place and makes a written direction in that regard.

45C. If suspected human remains are discovered on site, then all work surrounding the area must cease, and the area must be secured. The Applicant must immediately notify NSW Police and Heritage NSW, and work must not recommence in the area until authorised by NSW Police and NSW.

GREENHOUSE GAS

46. The Applicant must:

(a) monitor the greenhouse gas emissions generated by the development;

(b) investigate ways to reduce greenhouse gas emissions generated by the development; and

(c) report on greenhouse gas monitoring and abatement measures in the Annual Review, to the satisfaction of the Planning Secretary.

WASTE MINIMISATION

47. The Applicant must:

(a) manage on-site sewage treatment and disposal in accordance with the requirements of an applicable EPL, and to the satisfaction of EPA and Council;

(b) minimise the waste generated by the development;

(c) ensure that the waste generated by the development is appropriately stored, handled, and disposed of; and

(a) report on waste minimisation and management in the Annual Review.

48. The Applicant must ensure that all waste generated or stored on site is assessed, classified and managed in accordance with the EPA's *Waste Classification Guidelines Part 1: Classifying Waste*.

SCHEDULE 4
ADDITIONAL PROCEDURES

NOTIFICATION OF LANDOWNERS

1. If the results of monitoring required in Schedule 3 identify that impacts generated by the development are greater than the relevant impact assessment criteria, then the Applicant must notify the Planning Secretary and the affected landowners and/or existing or future tenants (including tenants of quarry owned properties) accordingly, and provide quarterly monitoring results to each of these parties until the results show that the development is complying with the relevant criteria.

NOTIFICATION OF EXCEEDANCES

1A. As soon as practicable and no longer than 7 days after obtaining monitoring results showing an exceedance of any noise, blasting or air quality criterion in Schedule 3 of this consent, the Applicant must provide the details of the exceedance to any affected landowners and/or tenants. For any exceedance of any air quality criterion in Schedule 3 of this consent, the Applicant must also provide to any affected land owners and tenants a copy of the fact sheet entitled "*Mine Dust and You"* (NSW Health, 2017).

INDEPENDENT REVIEW

2. If a landowner (excluding quarry owned properties) considers that the operations of the development are exceeding the impact assessment criteria in Schedule 3 then he/she may ask the Planning Secretary in writing for an independent review of the impacts of the development on his/her land.

3. If the Planning Secretary is not satisfied that an independent review is warranted, the Planning Secretary will notify the landowner in writing of that decision, and the reasons for that decision, within 21 days of the request for a review.

4. If the Planning Secretary is satisfied that an independent review is warranted, within 3 months, or as otherwise agreed by the Planning Secretary and the landowner, of the Planning Secretary's decision, the Applicant must:
   (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Planning Secretary, to:
      (i) consult with the landowner to determine their concerns;
      (ii) conduct monitoring to determine whether the development is complying with the relevant criteria in Schedule 3 of this consent; and
      (iii) if the development is not complying with that criteria, identify measures that could be implemented to ensure compliance with the relevant criteria; and
   (b) give the Planning Secretary and landowner a copy of the independent review; and
   (c) comply with any written requests made by the Planning Secretary to implement any findings of the review.

SCHEDULE 5
ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING & REPORTING

ENVIRONMENTAL MANAGEMENT STRATEGY

1. The Applicant must prepare and implement an Environmental Management Strategy for the development to the satisfaction of the Planning Secretary. This strategy must:
   (a) provide the strategic framework for environmental management of the development;
   (b) identify the statutory requirements that apply to the development;
   (c) describe in general how the environmental performance of the development would be monitored and managed;
   (d) describe the procedures that would be implemented to:
      - keep the local community and relevant agencies informed about the operation and environmental performance of the development;
      - receive, handle, respond to, and record complaints;
      - resolve any disputes that may arise during the course of the development;
      - respond to any non-compliance; and
      - respond to emergencies; and
   (e) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the development.

1A. The Applicant must not carry out quarrying operations under this consent until the Environmental Management Strategy is approved by the Planning Secretary.

ENVIRONMENTAL MONITORING

2. Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance report and independent audit.

   For the purposes of this condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.

2A. Noise, blast and/or air quality monitoring under this consent may be undertaken at suitable representative monitoring locations instead of at privately-owned residences or other locations listed in Schedule 3, providing that these representative monitoring locations are set out in the respective management plan(s) and/or monitoring program(s).

REPORTING

Incident Notification

3. The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name) and set out the location and nature of the incident.

Non-Compliance Notification

3A. Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

***Note**: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.*

Annual Reporting

4. By the end of March in each year after the granting of the development consent, or other timeframe agreed by the Planning Secretary, a report must be submitted to the Department reviewing the environmental performance of the development, to the satisfaction of the Planning Secretary. This review must:
   (a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current financial/calendar year;
   (b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, including a comparison of these results against the:
      (i) relevant statutory requirements, limits or performance measures/criteria;
      (ii) requirements of any plan or program required under this consent;
      (iii) monitoring results of previous years; and
      (iv) relevant predictions in the documents listed condition 2(a)-(c) of Schedule 2.
   (c) identify any non-compliance or incident which occurred in the previous calendar year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence;
   (d) evaluate and report on:
      (i) the effectiveness of the noise and air quality management systems; and
      (ii) compliance with the performance measures, criteria and operating conditions of this consent;
   (e) identify any trends in the monitoring data over the life of the development;
   (f) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
   (g) describe what measures will be implemented over the next calendar year to improve the environmental performance of the development.

INDEPENDENT ENVIRONMENTAL AUDIT

5. Prior to 31 December 2012, and every 5 years thereafter, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:
   (a) be led by a suitably qualified, experienced and independent auditor whose appointment has been endorsed by the Planning Secretary;
   (b) be conducted by a suitably qualified, experienced and independent team of experts (including any expert in field/s specified by the Planning Secretary) whose appointment has been endorsed by the Planning Secretary;
   (c) be carried out in consultation with the relevant agencies and the CCC;
   (d) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent, water licences and mining leases for the development (including any assessment, strategy, plan or program required under these approvals);
   (e) review the adequacy of any approved strategy, plan or program required under the abovementioned approvals and this consent;
   (f) recommend appropriate measures or actions to improve the environmental performance of the development and any assessment, strategy, plan or program required under the abovementioned approvals and this consent; and
   (g) be conducted and reported to the satisfaction of the Planning Secretary.

6. Within three months of commencing an Independent Environmental Audit, or within another timeframe agreed by the Planning Secretary, the Applicant must submit a copy of the audit report to the Planning Secretary, and any other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. The recommendations must be implemented to the satisfaction of the Planning Secretary.

COMMUNITY CONSULTATIVE COMMITTEE

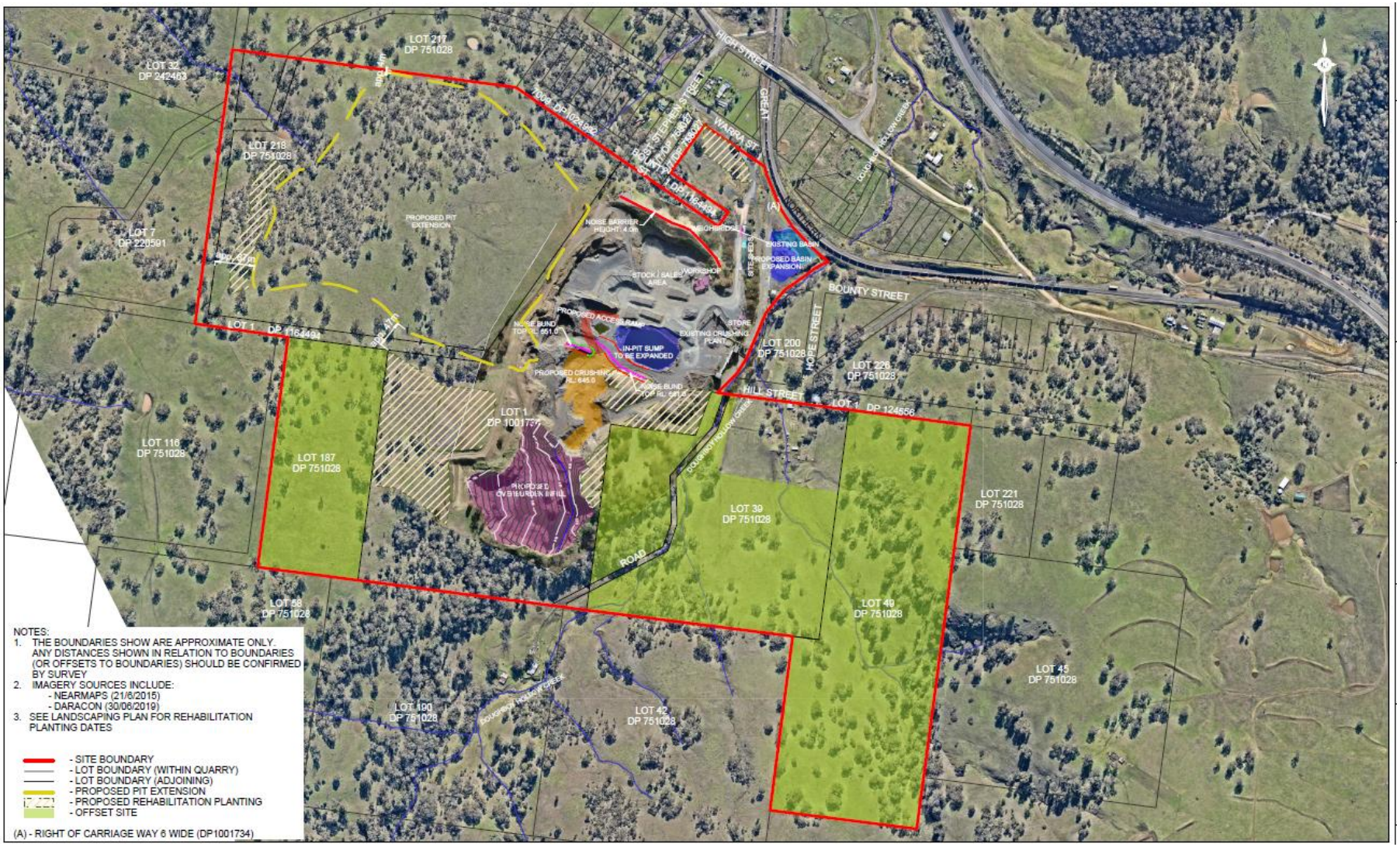
7. The Applicant must operate a Community Consultative Committee (CCC) for the project to the satisfaction of the Planning Secretary, in accordance with the Department's *Community Consultative Committee Guidelines: State Significant Projects* (2019).

ACCESS TO INFORMATION

8. Within 3 months of the approval of any plan/strategy/program required under this consent (or any subsequent revision of these plans/strategies/programs), or the completion of the audits or Annual Reviews required under this consent, the Applicant must:
   (a) provide a copy of the relevant document/s to the relevant agencies and CCC; and
   (b) put a copy of the relevant document/s on its website.

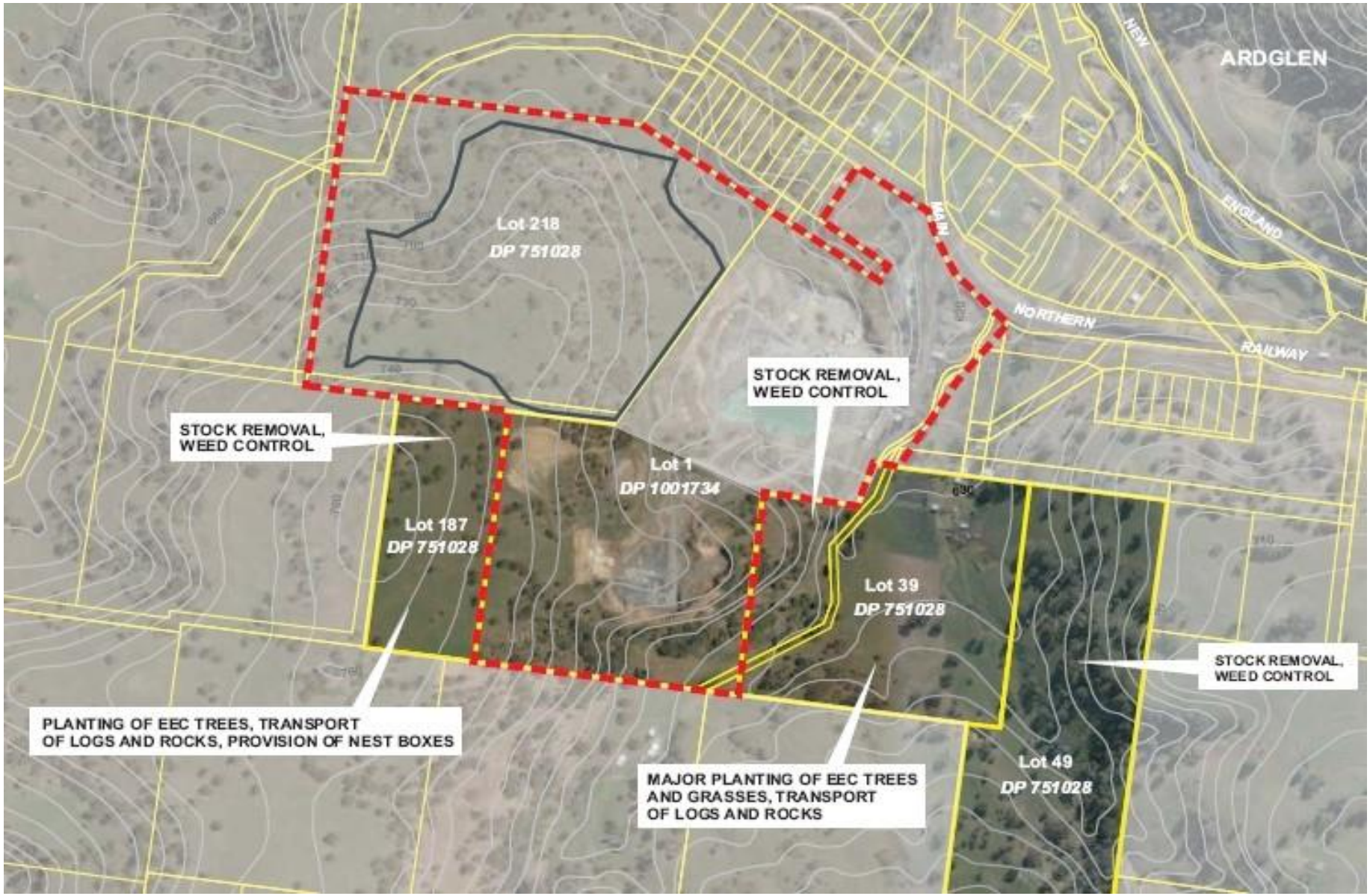
9. During the development, the Applicant must:
   (a) include a copy of this consent, as may be modified from time to time, on its website;
   (b) provide a full summary of monitoring results required under this consent on its website; and
   (c) update these results on a regular basis (at least every 6 months).

APPENDIX 1 GENERAL PROJECT LAYOUT



APPENDIX 2 CONCEPTUAL REHABILITATION PLAN

APPENDIX 3 CONCEPTUAL OFFSET PLAN



APPENDIX 4 STATEMENT OF COMMITMENTS

Table 1: Statement of Commitments

Item Number	Item	Commitment	Responsibility	Timing
1	Scope of Development	The project will be carried out generally in accordance with the following plans and documentation, except where amended by the conditions of the project approval: • the Environmental Assessment (EA) prepared by ERM (June, 2007) and accompanying specialist reports; • the Response to Submissions report prepared by ERM (November, 2007); and • this revised Statement of Commitments.	Daracon Quarries	Ongoing for the duration of the project.
2	Statutory Requirements	All necessary licences, permits and approvals will be obtained and maintained for the project.	Daracon Quarries	Ongoing for the duration of the project.
3		In accordance with section 104A of the EP&A Act, the proponent will surrender the existing development consent applying to Lot 1 DP 1001734, issued by Murrurundi Shire Council in May 1994.	Daracon Quarries	Within 2 years of work commencing within the extension area.
4	General	The proponent will prepare and implement an Environmental Management System (EMS) based on the AS/NZA ISO 14001:2004 - Environmental Management Systems. The EMS will: • incorporate an operational Environmental Management Plan (EMP); • detail potential environmental risks due to operation of the proposed quarry; • provide measures for the prevention, minimisation and management of these impacts to within acceptable limits; and • provide a means for the project to improve environmental performance and move towards environmental sustainability.	Daracon Quarries	EMS to be submitted for approval prior to work commencing within the extension area.
5	Water Management	The proponent will prepare and implement a Surface Water Management Plan for the project that will include: • an Erosion and Sediment Control Plan (including procedures to minimise erosion, capture of sediment on-site, and maintenance of control structures);	Daracon Quarries	Plan to be submitted for approval prior to work commencing within the extension area.

Item Number	Item	Commitment	Responsibility	Timing
		• a Site Water Balance; and • a Water Quality Monitoring Program		
6	Biodiversity	The proponent will implement the biodiversity offset strategy outlined in the EA, which includes the conservation and long term protection of the areas described in *Table 1*. *Table 1 Biodiversity Offset Areas* Land Description / Area (ha) / Proposed Management Strategy Lot 187 DP 751028 / 8.2 / stock removal, weed control, planting of EEC trees, transport of logs and rocks, provision of nest boxes Lot 39 DP 751028 / 11.65 / stock removal, weed control, major planting of EEC trees and grasses, transport of logs and rocks Lot 49 DP 751028 / 16.3 / stock removal, weed control **Total** / **36.15**	Daracon Quarries	Ongoing for the duration of the project.
7		The proponent will prepare a detailed biodiversity offset management plan in consultation with the DECC and submit it for approval by the Director-General. The plan will include: ▪ proposed staging; ▪ planting details such as final density, species mix, sowing rates, fertiliser; ▪ proposed maintenance schedule; ▪ weed control; ▪ importation of rock and log shelter; ▪ topsoil handling; ▪ fencing;	Daracon Quarries	Plan to be submitted for approval prior to work commencing within the extraction area.

Item Number	Item	Commitment	Responsibility	Timing
		▪ pre-clearing surveys of all hollow bearing trees within the proposed quarry extension area; ▪ herbivore control; and ▪ number and location of nest boxes.		
8		The proponent will make suitable arrangements to provide appropriate long term security for the offset areas.	Daracon Quarries	Within 3 years of work commencing within the extraction area.
9	Noise	The proponent will continue to implement the following measures, which are currently in place at Ardglen Quarry, to mitigate noise impacts: ▪ quarry hours are restricted to between 6am and 5.30pm; ▪ noise created by the haul trucks, both empty and loaded, is reduced by imposing a speed limit of 50 km/h when travelling on local roads between the quarry and the highway. Trucks on site are limited to a speed of 25 km/h; ▪ all on-site, fixed and mobile diesel-powered plant, excluding road vehicles, are correctly fitted and maintained to manufacturer specifications. Particular attention is given to engine exhaust systems and the care and maintenance of mufflers. Further noise control is nominated through the implementation of the following measures: ▪ reduction of equipment through the separation of site activities to overburden stripping and extraction, whereby they do not occur simultaneously; ▪ rail loading will be limited to the day period (7am to 6pm) as much as practicable; ▪ the surge bin will be lined with latex or polymer liners to reduce impulsive noise; ▪ a sheet metal enclosure will be built around the rail loader discharge and extend to include the rail wagon being loaded. The enclosure will be constructed of sheet metal and will cover the length of a minimum of three wagons whereby the wagon being loaded will be in the centre of the enclosure. The enclosure will be open at the ends and will contain a roof which will be connected to the rail loader discharge.	Daracon Quarries	Ongoing for the duration of the project.

Item Number	Item	Commitment	Responsibility	Timing
		Gaps between the loader discharge and the roof will be sealed; ▪ the two scrapers initially assigned for overburden stripping will be replaced by one excavator and two articulated dump trucks; ▪ the existing three crushers will be acoustically treated by extending the metal cladding on the crushing and screening station building to ground level with no gaps or openings; ▪ the existing screens will be located behind earth bunds; and ▪ mobile acoustic barriers or earth mounds will surround the drill rig and any mobile plant situated on the surface during initial stripping; and ▪ where land slopes away from stripping activities to receivers, barriers will be raised to a height of 4 metres, so there is no direct line of sight to receivers.		
10		Except during night-time rail loading activities, the proponent will ensure that the noise generated by the project does not exceed the levels set out in *Table 2*, at any privately-owned residence, unless a specific agreement is reached with the landholder, in which case the proponent may exceed the noise limits set out in *Table 2* in accordance with the negotiated noise agreement. *Table 2 Noise Criteria* **Land** — **Noise Level LAeq dB(A)** 1 - Burraston — 35 2 - Rose — 35 4 – CM Thomson — 44 5 – M Taylor — 45 6 – S Thompson — 45 9 – Bates — 37 10 – Avery — 38	Daracon Quarries	Ongoing for the duration of the project.

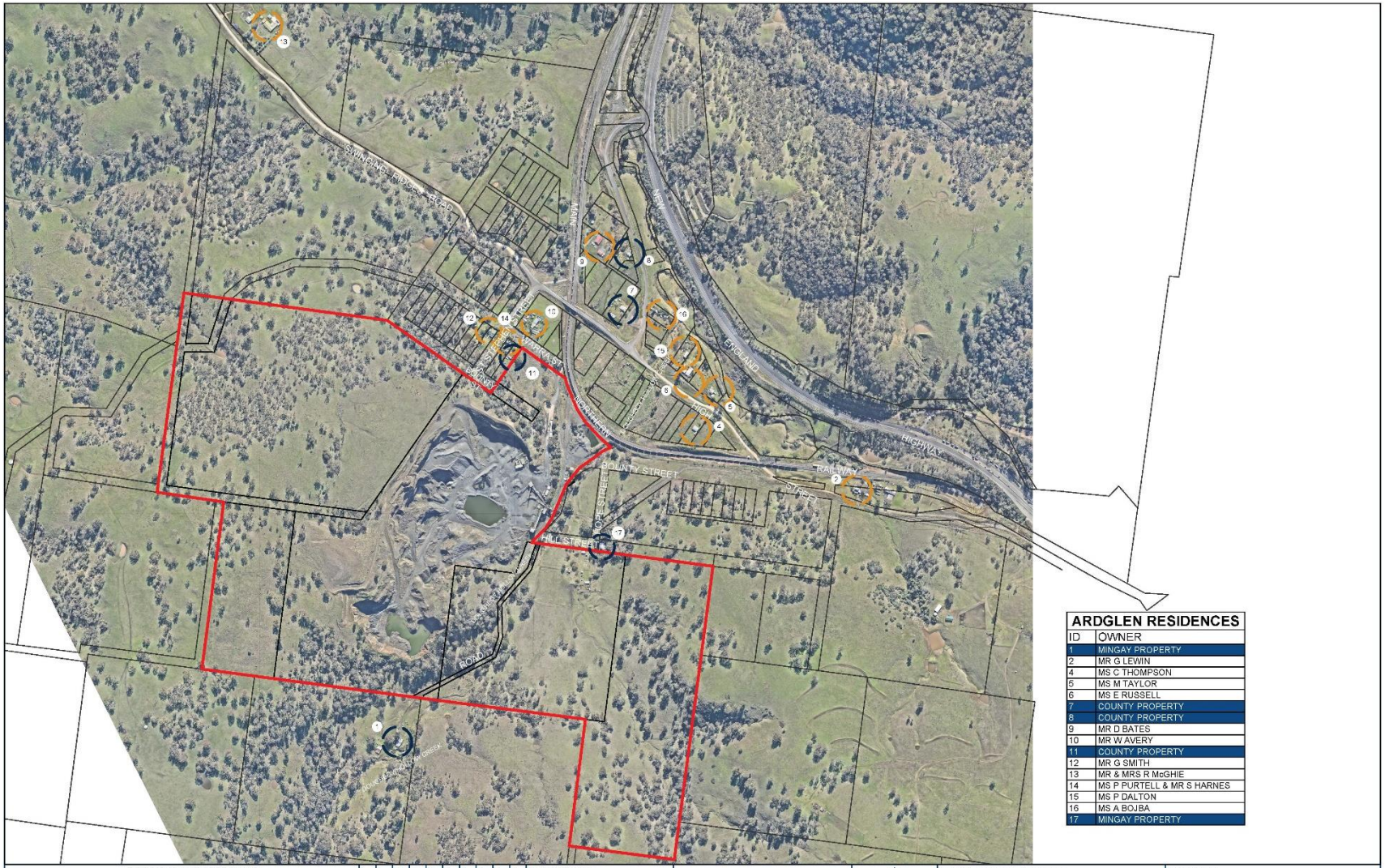
Item Number	Item	Commitment		Responsibility	Timing
		11 – Shipman	37		
		12 – Hall	36		
		13 – McGhie	35		
		14 – Purtell	36		
		15 – J Taylor	43		
		16 - Bojba	40		
11	Blasting and Vibration	The proponent will implement the following measures to mitigate the impacts of blasting and vibration: ▪ blasting will be limited to between the hours of 10am and 4pm, Monday to Friday and residents in the vicinity of the quarry will be given adequate notification of forthcoming blasts; ▪ air-blast overpressure from any blast will not exceed 120 dB(Lpeak) at any privately-owned residence for more than 5% of all blasts over a 12 month period. It will not exceed 115 dB(Lpeak) at any time, unless specific prior agreement is reached with the affected landholder; ▪ peak particle velocity (ppv) from ground vibration will not exceed 5 mm/s at any privately-owned residence for more than 5% of the total number of blasts over a 12 month period. The maximum level will not exceed 10 mm/s at any time; ▪ the existing blast management strategy will continue to be implemented to ensure appropriate charge masses are used to avoid excessive air blast overpressure and ground vibrations; and ▪ a Blast Monitoring Program will be prepared and submitted to the Director-General for approval		Daracon Quarries	Ongoing for the duration of the project.

Item Number	Item	Commitment	Responsibility	Timing
12	Air Quality	In addition to the dust mitigation measures currently employed, the proponent will implement the following measures to ensure particulate matter emissions are minimised: ▪ revegetation of exposed surfaces where possible; ▪ sealing the haul road; ▪ limiting the speed limit on unpaved surfaces to 15 km/hr; ▪ high level watering of unpaved road surfaces (greater than 2L/m2/hr); ▪ covering all loads leaving the site; ▪ building a wheel wash at the end of the unpaved section of the haul road (after the weighbridge); and ▪ wet suppression or chemical coating of static stockpiles.	Daracon Quarries	Ongoing for the duration of the project.
13		The proponent will prepare and implement an air quality monitoring program for the project. The program will include: ▪ a series of dust deposition gauges operated in accordance with Australian/New Zealand Standard AS/NZS 3580.10.1:2003; and ▪ a series of high volume or low volume air samplers to monitor levels of PM10, operated in accordance with Australian/New Zealand AS/NZS 3580.9.6:2003 and AS/NZS 3580.9.6:2003.	Daracon Quarries	Program to be submitted for approval prior to work commencing within the extension area.
14	Rehabilitation	The proponent will prepare a detailed biodiversity offset plan to provide an integrated plan for the whole site, considering the existing quarry areas, the western extension, the areas of box-gum woodland to be preserved and the areas to be planted as offsets. This plan will be prepared in liaison with the DECC and lodged for approval by the Director-General.	Daracon Quarries	Plan to be submitted for approval prior to work commencing within the extension area.
15		The proponent will progressively rehabilitate the site, generally in accordance with the rehabilitation strategy outlined in the EA.	Daracon Quarries	Ongoing for the duration of the project.

Item Number	Item	Commitment	Responsibility	Timing
16		The proponent will lodge a rehabilitation bond with the Director-General to ensure that rehabilitation of the site is satisfactorily completed, generally in accordance with the rehabilitation strategy outlined in the EA.	Daracon Quarries	Within 6 months of work commencing within the extension area.
17	Traffic Management and Access	The proponent will not transport more than 500,000 tonnes of product from the site each year.	Daracon Quarries	Ongoing for the duration of the project.
18		The proponent will keep daily records of: ▪ the type and amount of product transported from the site and the method of transportation i.e. road or rail; and ▪ the type and amount of quarry material imported onto the site and the method of transportation i.e. road or rail.	Daracon Quarries	Ongoing for the duration of the project.
19		The proponent will maintain the quarry access route from the New England Highway to the quarry entrance, to at least its present standard (two lane rural road), to the satisfaction of Council.	Daracon Quarries	Ongoing for the duration of the project.
20	Visual Amenity	The proponent will implement the following mitigation measures to reduce the potential visual impacts of the project: ▪ those areas of the quarry in which the resource has been exhausted will be progressively rehabilitated and revegetated; and ▪ further planting will be undertaken along the ridgeline to the west of the proposed extension area.	Daracon Quarries	Further planting to be undertaken prior to work commencing within the extension area.

21	Aboriginal Cultural Heritage	Should any Aboriginal objects (artefacts) be exposed during ground surface disturbance, all works involving ground surface disturbance will be suspended. A representative of the Nungaroo Local Aboriginal Land Council and an archaeologist will conduct an assessment of the significance of the Aboriginal object(s) and identify appropriate mitigation and management measures.	Daracon Quarries	Ongoing for the duration of the project.
22	Community Consultation	The proponent will continue to engage the community in consultation, with the aim of providing the community with up-to-date information in relation to the project and quarry operations in general, and allowing the community to provide feedback and raise any issues or concerns. On-going consultation will include distribution of an annual community newsletter and individual face-to-face meetings with adjoining landowners and other stakeholders when required.	Daracon Quarries	Ongoing for the duration of the project.
23	Annual Reporting	The proponent will prepare and submit to the Director-General an Annual Environmental Management Report (AEMR). The AEMR will: ▪ include a summary of the environmental monitoring results for the project for the past year; ▪ include an analysis of the monitoring results against relevant limits/criteria and monitoring results from previous years; and ▪ identify and discuss any non-compliances during the past year and detail any actions taken to ensure compliance.	Daracon Quarries	Report to be submitted annually

APPENDIX 5 LOCATION OF RESIDENCES



REVISIONS AND APPROVALS

REV	DATE	DESCRIPTION	DRN	CHKD	APPRD
01	19/02/21	ARDGLEN RESIDENCE LOCATIONS	MH	LR	JC
02	05/03/21	UPDATED OWNER TABLE	MH	LR	JC

SCALE: 1:8000 V 1:8000 — 0 5 10 15 20 25 30 35 40 45 50mm ON A0 SIZE ORIGINAL

SURVEY DATE: — PLOTTED BY: mw.comh
12d MODEL PROJECT: Site Plan — COORD. SYSTEM: MGA94
PLOT DATE: Fri Mar 5 14:15:51 2021 — HEIGHT DATUM: AHD
PLOT FILE: BAR-MAP-RES-001_02 — ORIGIN OF LEVELS:

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BERESFIELD | AUBURN | MOUNT THORLEY | GUNNEDAH

PROJECT: QUARRY DEVELOPMENT
ARDGLEN QUARRY
DARACON JOB No: BAR
CLIENT: SUTTA GRAVEL PTY LTD
CLIENT JOB No:
DRAWING STATUS: FOR INFORMATION
SHEET: 1 of 1

DRAWING TITLE:
ARDGLEN
LOCATION OF RESIDENCES
NEARMAP IMAGE DATED 21/06/15

A3 | BAR-MAP-RES-001 (DRAWING NUMBER) | 02 REV

APPENDIX 6 NOISE COMPLIANCE ASSESSMENT

Applicable Meteorological Conditions

1. The noise criteria in Schedule 3 of this consent are to apply under all meteorological conditions except the following:

   (a) where 3°C/100 metres (m) lapse rates have been assessed, then:

      (i) wind speeds greater than 3 metres/second (m/s) measured at 10m above ground level;

      (ii) temperature inversion conditions between 1.5°C and 3°C/100m and wind speeds greater than 2m/s measured at 10m above ground level; or

      (iii) temperature inversion conditions greater than 3°C/100m.

   (b) where Pasquill Stability Classes have been assessed, then:

      (i) wind speeds greater than 3m/s at 10m above ground level;

      (ii) stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or

      (iii) stability category G temperature inversion conditions.

Determination of Meteorological Conditions

2. Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be that recorded by the meteorological station required under condition 18 of Schedule 3 .

Compliance Monitoring

3. A noise compliance assessment must be undertaken within two months of commencement of quarrying operations in the Extension Area. The assessment must be conducted by a suitably qualified and experienced acoustical practitioner and must assess compliance with noise criteria presented above. A report must be provided to EPA within 1 month of the assessment.

4. Unless otherwise agreed by the Planning Secretary, attended compliance monitoring must be carried out in accordance with the relevant requirements for reviewing performance set out in the *NSW Industrial Noise Policy* (EPA, 2000), in particular the requirements relating to:

   (a) monitoring locations for the collection of representative noise data;

   (b) meteorological conditions during which collection of noise data is not appropriate;

   (c) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment; and

   (d) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration,

   (e) modifying factors apart from adjustments for duration,

   with the exception of applying appropriate modifying factors for low frequency noise during compliance testing. This should be undertaken in accordance with Fact Sheet C of the *NSW Noise Policy for Industry* (EPA, 2017).

Appendix 2 Noise monitoring reports

- None completed for the reporting period

Appendix 3 2022 Community Consultative Committee Meeting Minutes

MINUTES OF ARDGLEN QUARRY COMMUNITY CONSULTATIVE COMMITTEE (CCC)

Tuesday, 10 May 2022 at Murrurundi Library, Murrurundi commencing at 9.45 am

Attendees	**Initials**	**Position**
Michael Silver OAM	MJS	Independent Chairperson
Delma Ross	DR	Community Member
William Avery	WA	Community Member
Luke Robinson	LR	Systems Manager – Construction Materials, Daracon Group
Observers		
John Cannon	JC	Divisional Manager, Construction Materials, Daracon Group
Michelle Read	RD	Crown Lands, Tamworth
Anna Cronin	AC	Crown Lands, Tamworth
Apologies		
Christine Thompson	CT	Community Member
Penny Dalton	PD	Community Member
Megan Taylor	MT	Community Member
Liverpool Plains Shire Council		

Item	**Details and Actions**
1.0 Welcome and Introductions	Michael Silver welcomed all present. The Chair introduced himself, advising that he had been appointed to the role from the Department of Planning and Environment's (DPE) Independent Chair Panel following Shay Riley-Lewis' resignation. MJS noted that this was the first face to face meeting of the CCC in over two years due to Covid-19. Moving forward, it is intended that all meetings will be face to face unless notified otherwise.
2.0 Acknowledgement of Country	The Chair acknowledged the Traditional Owners of the land on which the meeting is being held and recognised their continuing connection to land, waters, and culture, paying respects to their Elders past, present and emerging.
3.0 Declarations of Interest	• MJS declared that his expenses as Independent Chairperson are borne by the proponent. • The Chair requested that Community Members complete a new Declaration of Pecuniary or Other Interests Form and the Code of Conduct Declaration and return them to him prior to the next CCC meeting. • Daracon advised it is paying the costs to hire the room at Murrurundi library for this meeting
4.0 Correspondence	• Nil

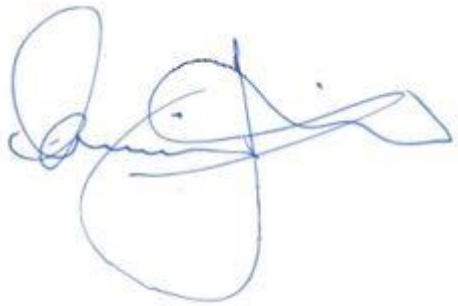
5.0 Previous Meeting	• It was noted that the meeting notes of the 14 October 2021 virtual meeting had been endorsed. • No Business Arising
6.0 Action Items	• Nil
7.0 Proponent's Report	• Luke Robinson presented the Proponents summary of the Annual Report. *(Copy attached to the Minutes)* • LR provided an explanation of Modification 2 to the project and the determination by the DPE. He advised that the original consent provided for a 50% split of haulage between road and rail. The modified consent now permits 100% of output to be hauled by road. He noted that the primary considerations in the DPE's assessment of the Modification were associated with changes to traffic, noise and water aspects of the quarry operation. LR also indicated that discussions were in progress with DPE regarding the various site management plans including the site Water Management Plan, following the approval of Modification 2. • LR provided a historical overview of the quarry noting that the current consent is in place until 2038. He highlighted that the resource is most unlikely to be exhausted within that time frame and Daracon may apply for a modification to the consent seeking an extension of the operating life of the quarry as the 2038 expiration date approaches. • LR outlined the current operational status of the quarry, noting that a variety of environmental monitoring work is continuing. He advised that ground water monitoring wells are in place in the existing quarry and extension area as described in the Annual Report. • LR advised that the proposed design for upgrade works to the access road are currently being reviewed by Liverpool Plains Shire Council (LPSC). • In terms of air quality, LR indicated that dust monitoring is ongoing. He highlighted that the dust depositions had been very low, likely due to the rain in recent times. He also indicated that there had been few issues in terms of overall air quality with only a few spikes in the 2018-19 period which are attributed to the drought conditions prevailing at the time. LR noted that the conditions within the Modification 2 determination provided for tightened criteria associated with dust monitoring, particularly in respect of PM10 and PM2.5 monitoring. He advised that the PM2.5 monitoring equipment is now operational. • In respect of noise monitoring, LR explained that the criteria have changed under the Modification 2 conditions. There is now no noise monitoring

	required when the quarry is not operating, however when the quarry is operational, noise monitoring is required monthly. He explained the difference between 'attended monitoring' and 'unattended monitoring' noting that attended monitoring was more valuable in assessing and addressing noise issues. LR advised that further noise assessment work will be required when the quarry becomes operational to validate the predictions in the Modification 2 against actual site activities. • LR advised that weed control had been impacted by recent climatic conditions with weed spraying adversely impacted due to rain. He also commented that feral animals in the area, particular pigs and deer were of concern. The 'feral animal controller' is aware of this and is taking the necessary action to resolve. • LR advised that there have been no incidents or complaints registered given the quarry is presently not operational as described in the Annual Report. • LR highlighted that rehabilitation works are ongoing and noted particularly the success of tree planting works. He indicated that recent growth in grasses and vegetation due to the rain had protected seedlings with a high strike rate. • In respect of proposed works during 2022, LR noted there is still quarried material stockpiled that could be exported. Any transport of this existing stockpiled material in the immediate term would be in accordance with the conditions contained in Modification 1 until the relevant revised conditions of Modification 2 are complete and compliant. In terms of Modification 2, work is progressing on the completion of various management plans for submission to the responsible government agencies in order to facilitate the activation of the quarry operations under Modification 2.
8.0 Other Agenda Items	**Questions from Community Members and Agencies** • WA asked when will the access road upgrade works begin? LR responded that the design is currently being reviewed by LPSC for approval. When approved, the design includes installation of guard rails on the culvert adjacent to the Bates' property and along Warra Street near WA's property. • DR questioned what implications the easement for the Hunter Gas Pipeline project would have on the quarry. LR indicated he was not specifically aware of any approaches regarding the proposed gas pipeline easement. WA indicated that approaches had been received by property owners in the area regarding refinements to the proposed easement. • AC sought clarification on the status of the Water Management Plan. LR advised that the Plan was

	submitted to DPE Water last year and he is awaiting further comment and input from DPE. LR indicated he would be following up on the matter as the required works for the Modified project cannot commence until the Water Management Plan is approved. AC highlighted those discharges to Crown Reserves and Crown waterways need to be advised to Crown Lands, as there may need to be approvals obtained. LR noted the advice and explained the situation with the Doughboy Hollow Creek Rehabilitation Plan and the challenges associated with developing an agreeable and acceptable level of works. Discussion occurred on the impact of the railway culvert, DR noting the brick arch culvert has heritage significance. LR advised that back up of water at the rail culvert is not the major issue for the quarry, rather it is a matter of balancing the potential impact of rehabilitation works against doing nothing. The Doughboy Rehabilitation strategy is still under development and should be finalised shortly. • DR requested an explanation of the ground water levels and drilling on the site. LR explained that water level at bore P3 located at the top of the extension area (approximately 120m deep), is presently, generally at 100 metres below ground level although in the other bores the depth to the water table is typically less. The geological drilling works is designed to better understand the water flows and the intersection of the resource. LR advised that there is some excellent resource at the lower levels with a large larva flow evident – this resource is of high quality as it has not been substantially weathered. JC added that better understanding of the available resource will feed into the Optimisation Study for the quarry. • The Chair requested clarification on the likely future development of the quarry. JC responded that this will be dependent on markets and demand for product. He indicated the main priority currently, is to satisfy all the conditions of Modification 2 in order to allow the quarry to be operational when market demands permit.
9.0 General Business	• Nil
10.0 Next Meeting	• Proposed for Tuesday, 1 November 2022

Meeting closed at 10.50 am.
MJS thanked all present for their attendance.

Meeting Minutes Approved:



Michael J Silver OAM
Independent Chair

Date: 30 May 2022

MINUTES OF ARDGLEN QUARRY COMMUNITY CONSULTATIVE COMMITTEE (CCC)

Tuesday, 1 November 2022 at Murrurundi Library, Murrurundi commencing at 9.40 am

Attendees	**Initials**	**Position**
Michael Silver OAM	MJS	Independent Chairperson
Delma Ross	DR	Community Member
William Avery	WA	Community Member
Christine Thompson	CT	Community Member
Megan Taylor	MT	Community Member
Luke Robinson	LR	Systems Manager – Construction Materials, Daracon Group

Observers

John Cannon	JC	Divisional Manager, Construction Materials, Daracon Group

Apologies

Penny Dalton	PD	Community Member
Nathan Skelly	NS	Director Infrastructure & Environmental Services, Liverpool Plains Shire Council

Item	**Details and Actions**
1.0 Welcome and Introductions	Michael Silver welcomed all present. The extended a welcome to Christine Thompson and Megan Taylor attending their first meeting since he assumed the Chair. MJS provided a brief overview of his career and experience. In response to a question from CT, MJS advised that he has been appointed by the Department of Planning and Environment to chair one other Community Consultative Committee for Daracon, being the Martins Creek Quarry Project. However, the committee has not met since MJS's appointment given the status of the project and is unlikely to do so until there is a determination of the project application.
2.0 Acknowledgement of Country	The Chair acknowledged the Traditional Owners of the land on which the meeting is being held and recognised their continuing connection to land, waters, and culture, paying respects to their Elders past, present and emerging.
3.0 Declarations of Interest	• MJS declared that his expenses as Independent Chairperson are borne by the proponent. • MJS noted that there were no declarations of pecuniary or other conflict of interests from Community Members.

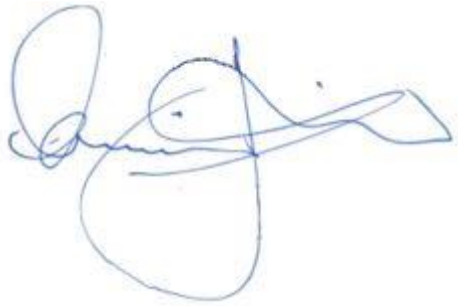
	• The Chair requested that members who haven't completed a new Declaration of Pecuniary or Other Interests Form and the Code of Conduct Declaration do so and return them to him prior to the next CCC meeting.
4.0 Correspondence	• NSW Department of Planning and Environment – advising of draft Community Consultative Committee Guidelines for review by CCC members.
5.0 Previous Meeting	• It was noted that the minutes of the meeting of 10 May 2022 were approved on 30 May 2022. • No Business Arising
6.0 Action Items	• Nil
7.0 Proponent's Report	• Luke Robinson presented the Proponent's Presentation. *(Copy attached to the Minutes)* • LR provided an historical overview of the quarry and a summary of the quarry's status. There are no operational works, with monitoring of ground water wells and environmental works associated with maintenance and monitoring the only activities. • LR spoke to the Dust Deposition Gauges table noting that the site is not operating, and it has been extremely wet of recent times. He referenced the relevant graphs to emphasise this. LR stepped the committee through the air quality monitoring results detailing the PM10 and PM2.5. He noted that the recent Modification 2 approval had lowered the annual average exceedance threshold for PM10 from 30 micrograms per cubic meter of air (µg/m³) to 25 µg/m³. • In terms of Noise Monitoring, LR explained that Modification 1 required noise monitoring reports to be provided every three months. However, Modification 2 now only requires noise monitoring to occur when the quarry is operating. Similarly, no blasting has occurred with no consequential monitoring required. • LR outlined the current activities in respect of flora and fauna, advising that weed spraying has been severely hindered by recent wet weather. He also highlighted ongoing issues with feral animal control. Delma Ross commented that feral pigs are extremely prevalent, doing significant damage. She also noted that deer are present in increased numbers. LR responded that Daracon are continuing to monitor and cull feral animals where possible. • LR advised that there have been no incidents recorded during the calendar year in respect of the quarry. He did however highlight recent incidences of trespass onsite. Additional security measures are presently being implemented. He thanked CT for recent advice on persons sited in the vicinity of

	the quarry. JC encouraged the provision of advice from residents in relation to unwanted persons or activities in the area. • The CCC noted that Daracon along with other residents in the area had received advice from Santos regarding the proposed Hunter Gas Pipeline. • LR advised that rehabilitation was progressing in accordance with the revised Landscape Management Plan. He noted that the weather over the past 12 months or so has been very supportive of tree growth. • LR outlined the proposed works for the balance of 2022. He indicated environmental monitoring (air quality, noise, and water) will continue. There will be ongoing maintenance works consistent with the Landscape Management Plan. Assessment of previously quarried material will be undertaken for the supply of selective local projects. JC advised that there is an overall shortage of available ballast, however an evaluation as to the quality and quantity at Ardglen needs to be undertaken together with the viability of preparing and transporting the material. • In terms of finalisation of the requirements of Modification 2, LR advised that there are several Management Plans that require approval, and the road upgrade works from the New England Highway require completion. In response to a question from BA, LR explained the scope of the works – he hoped construction work would commence soon. LR indicated that quarrying will not commence in the extension area until all conditions of Modification 2 have been satisfied. **ACTION*: Daracon to provide a copy of the access road widening design drawing to the CCC.*** • JC explained the recent Geological Study and the information it has provided regarding future quarrying of the site. He indicated that it suggests a slightly different approach to that detailed in Modification 2. Daracon is currently working through the information and its implications for future operations, particularly in respect of the noise profile for the site. • CT asked whether the existing crusher will be moving. JC advised all old equipment (fixed crushing plant) will be demolished. LR noted that Modification 2 provides for the operation of a mobile crusher which is currently planned to be located on a crushing pad with a noise wall and additional noise barriers installed. CT enquired whether, as previously indicated to her, there will be a need to build a noise wall if the proposed mobile crusher is to be in a new location. LR commented that this may not be necessary given the proposed new location of the crusher, as noise

	from the mobile crusher may not be a major issue, but Daracon is currently reviewing this matter and will advise further once more information is known. LR added that there will be an overall review of quarrying operations if it is decided to alter the proposed quarry staging. LR confirmed that the CCC will be informed of any start up in the future, once known. The Chair enquired what was the likelihood of quarrying activity prior to Christmas. JC responded that this would depend on the evaluation of the existing resource and completion of all condition under Modification 2. MJS suggested that should activity be limited to evaluation and assessment this should be communicated to the CCC by email. However, if operational work and material transportation are proposed, then the CCC should be convened for a formal meeting. • LR outlined the recently completed Independent Environmental Audit and response actions to DPE currently being undertaken by Daracon. Further detail is provided in the Daracon presentation.
8.0 Other Agenda Items	• Nil
9.0 General Business	• Nil
10.0 Next Meeting	• Proposed for April/May 2023 – date to be confirmed

Meeting closed at 10.50 am.
MJS thanked all present for their attendance.

Meeting Minutes Approved:



Michael J Silver OAM
Independent Chair

Date: 24 November 2022

Appendix 4 2022 Community Complaints Register

Date received	***Complaint was received regarding?***	***Complaint was received from?***	***Buttai Gravel response***	***Buttai Gravel action following complaint***	***Closed out (Y/N)***
Nil	N/A				

Appendix 5 Rubicon (formerly TREES) Erosion & Sediment Control Inspection Report

RUBICON ENVIRO PTY LTD
ABN: 75 616 518 211

Inspection Report – Daracon Group

CLIENT	Daracon Group	REPORT DATE	19th July 2022	REPORT NO.	6	REPORT TO:	Luke Robinson, Jason Gorton – Daracon Group
PROJECT	Ardglen Quarry	INSPECTION DATE	12th July 2022	ATTENDEES:	Andrew Littlewood – Rubicon Enviro		
WEATHER	Partly cloudy, cool, moderate gusty winds	COMMENT	The inspection was conducted as a periodic review of management practices within the quarry. The quarry has remained inactive since the time of the previous inspection. Runoff within the quarry environs continues to be managed by a series of dams and sump areas which are monitored and managed under the quarry's Water Management Plan. We noted that the targeted weed suppression program has continued with dieback of weed species noted at various locations in the quarry surrounds. The tree-planting program is continuing in the western offset area. No significant issues were identified and our comments from the inspection are detailed below.				

ISSUE NO.	LOCATION	ISSUE/MATTER	RECOMMENDATION/COMMENT	PHOTOGRAPH
1.	Main central dam.	The inspection occurred following an extended period of ongoing rainfall totalling approximately 60mm in the preceding week. Runoff from the quarry slopes and floor is directed to the main central dam, which was spilling via overland drainage line at the time of the inspection. The visual water quality of the central dam was very good with very low turbidity levels.	Continue to monitor the dam, adjacent drainage lines and the contributing catchment.	
2.	Main central dam.	As above.	As above.	
3.	Lube shed and fuel storage area.	As noted on previous inspections, the lube shed area remains secure and dormant with adequate bund storage and controls. Ponded water in the surrounding areas was clear and no oil sheens were present.	Continue maintain the area and visually monitor water quality in the surrounding areas.	

PROJECT:	Ardglen Quarry	INSPECTION REPORT NO.	6	INSPECTION DATE	12th July 2022

ISSUE NO.	LOCATION	ISSUE/MATTER	RECOMMENDATION/COMMENT	PHOTOGRAPH
4.	Sediment basin adjacent rail corridor.	The sediment basin adjacent to the rail corridor was inspected. As noted, recent ongoing rainfall has been experienced in the catchment. The water quality in the dam was visibly good indicating low turbidity levels.	Continue to monitor and maintain the drainage lines and the contributing catchment of the basin.	
5.	Warra Street rail siding area.	The area around the former stockpile area near the Warra Street rail siding was inspected. In the time since the previous inspection, the area has been fully recolonised by emergent vegetation. It was noted that weed outbreaks in the area had been treated in the time since the previous inspection.	As discussed, the area is now vegetated and stable. Continue to monitor the area and ensure the area continues to be included in the periodic weed treatment program.	
6.	Rail loading area.	The rail loading area is largely colonised by ground cover vegetation and pasture grasses. Run-off from the upper quarry areas is filtered by vegetation along the length of the drainage line.	Continue to monitor the drainage lines and undertake periodic weed suppression in the area as required.	

Inspection Report – Daracon Group

PROJECT:	Ardglen Quarry	INSPECTION REPORT NO.	6	INSPECTION DATE	12th July 2022

ISSUE NO.	LOCATION	ISSUE/MATTER	RECOMMENDATION/COMMENT	PHOTOGRAPH
7.	Weed control – main quarry.	As noted on previous inspections, the weed suppression program has been implemented regularly within the quarry surrounds. Evidence of die back of previously treated areas was noted in several areas. In general, outbreaks of weeds are being regularly supressed and no significant weed outbreaks were noted in the main quarry floor and surrounds.	Continue to monitor the quarry working area and perimeter areas and implement periodic weed control as required.	

Report by: Andrew Littlewood – Senior Soil Conservationist & CPESC No. 5988	Signed:	Date: 19th July 2022

Appendix 6 Rehabilitation and nesting inspection report - Ardglen Quarry

umwelt
Environmental & Social Consultants

DARACON Group

2022 ARDGLEN QUARRY ANNUAL BIODIVERSITY MONITORING

Ardglen Quarry

FINAL

March 2023

2022 ARDGLEN QUARRY ANNUAL BIODIVERSITY MONITORING

Ardglen Quarry

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Daracon Group

Project Director:	Shaun Corry
Project Manager:	Amber Wilson
Report No.	23046_R01_V1
Date:	March 2023

This report was prepared using Umwelt's ISO 9001 certified Quality Management System.

Acknowledgement of Country

Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.

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Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
V1	Amber Wilson	27 February 2023	Naomi Buchhorn	27 February 2023
V2	Amber Wilson	28 February 2023	Naomi Buchhorn	1 March 2023

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1.0 Introduction

Umwelt (Australia) Pty Ltd (Umwelt) was engaged to undertake the 2022 annual biodiversity monitoring program at Ardglen Quarry on behalf of Buttai Gravel Pty Limited (Daracon Quarries). This report documents the methods and results of the 2022 monitoring and compares the results to the baseline monitoring results conducted in 2019 to assist with continued monitoring of the site under a Conservation Agreement in accordance with the *Biodiversity Conservation Act 2016* (BC Act).

The 2022 monitoring was undertaken in accordance with the Landscape Management Plan (LMP) (Umwelt 2021a) for the site, in turn satisfying the relevant conditions contained in the Project Approval 06_0264, and the *Environment Protection and Biodiversity Conservation Act 1999* Approval (EPBC2007/3442).

1.1 Background

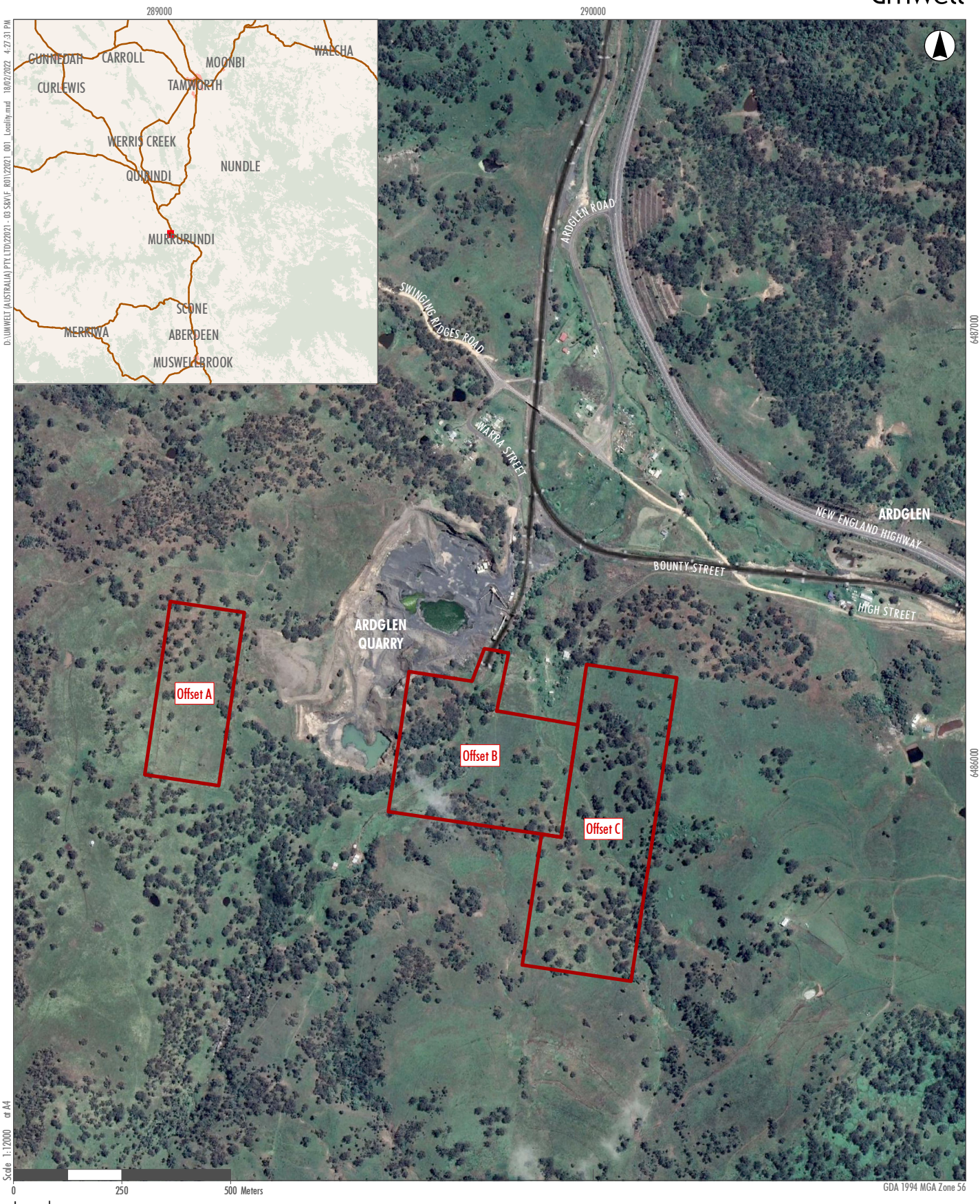
Buttai Gravel Pty Limited (Daracon Quarries) operates the Ardglen Quarry (the quarry), a hard rock quarrying, processing and handling operation located approximately 5 kilometres (km) northwest of Murrurundi in Ardglen, NSW (refer to **Figure 1.1**). The Quarry has been in operation for over 100 years with Daracon Quarries (Daracon) holding ownership of the Quarry since 2005. The site is approximately 64 hectares (ha) and is situated in the small rural community of Ardglen, NSW which supports mainly agricultural land.

Three existing Biodiversity Offset Areas (BOAs) are located adjacent to the quarry, being Offset A, Offset B and Offset C (refer to **Figure 1.1**). The land contained in these offset areas consists of box gum woodland and cleared pastoral lands, with a small ephemeral creek line (Doughboy Hollow Creek) and associated riparian vegetation. A small weir was historically established on the creek as the water supply access point for the quarry. A small causeway located approximately 200 metres (m) north of the weir was a historical access point across Doughboy Hollow Creek.

Within Offset A and B, rehabilitation plantings have been made in 2021. Outside the offsets, adjacent to Offset A, two areas of rehabilitation plantings were established in 2020. The rehabilitation plantings both inside and outside the offsets were subject to a walkover and monitoring in the 2022 monitoring event.

Monitoring results from previous years (Umwelt 2020, Umwelt 2021b; Umwelt 2022; Conacher Consulting 2018; Kendall & Kendall 2013) have been referenced in this report, where appropriate, to track the trajectory of conservation commitments in the BOAs.

It is understood that Daracon is in consultation with the Biodiversity Conservation Trust (BCT) to secure the BOAs under a Conservation Agreement, in accordance with the BC Act. In addition to the standard monitoring program, permanent monitoring sites within each vegetation zone have been monitored to satisfy the requirements of the proposed Conservation Agreement for the proposed Conservation (offset) Areas.



Legend

Biodiversity Offset Area Boundary

FIGURE 1.1

Location Map

Image Source: Google Earth (Nov 2020) Data source: DFSI (2020)

1.2 Objectives

The key objective of this report is to describe the relevant methods, results and recommendations of the monitoring program, and assess performance outcomes with completion criteria outlined in the LMP. The LMP states that the program should monitor:

- condition of perimeter fencing around offset properties to exclude livestock
- weed composition within BOAs including the need for any works to control weeds during the following 12-month period
- the location, condition and usage of salvaged hollows which have been placed in the BOAs
- the location and usage of nest boxes which have been placed within the BOAs
- the extent of natural regeneration within BOAs
- whether any assisted revegetation is required within BOAs.

As described in the LMP:

> *"The completion of this offset monitoring will then inform whether any additional management or remediation measures are required to be implemented with the results of the Offset Monitoring reported in the Annual Review".*

This document also seeks to provide methods and results of the rehabilitation monitoring, both within and outside the BOAs.

Where appropriate, management recommendations have been provided (**Section 6.0**) to guide the improvement of biodiversity values.

2.0 Methods

The 2022 monitoring program was undertaken on 9 and 10 February 2023 by two Umwelt Ecologists.

2.1 Existing Offset Monitoring Program

The field monitoring program covered 34.9 ha, encompassing three BOAs, being Offset A, Offset B and Offset C (refer to **Table 2.1**). This program was conducted in accordance with the requirements of the LMP and follows the methods undertaken in 2019 (Umwelt 2020).

Table 2.1 Biodiversity Offset Areas (BOAs)

Biodiversity Offset Area (BOA)	Lot Number	Total Area (ha)
Offset A	Lot 187 DP 751028	6.8
Offset B	Lot 39 DP 751028	12.3
Offset C	Lot 49 DP 751028	15.8
	Total	**34.9**

As with previous years, erosion transect and soil monitoring as described in the 2017 monitoring report (Conacher Consulting 2018) was not undertaken during this annual monitoring period.

2.1.1 Walkover Assessment

A walkover assessment was undertaken across the BOAs, which involved observation of:

- condition of perimeter fencing around BOAs to exclude livestock
- weed composition within BOAs, including the need for any works to control weeds during the following 12-month period.

2.1.2 Natural Regeneration Monitoring

Natural regeneration was assessed within Derived Native Grassland communities at each of the BOAs. Four 50 m x 20 m plots were established in 2019 in the grassland area within each BOA (12 plots in total), with a small wooden picket marking the northeast corner of each permanent plot. The canopy cover (projective foliage cover %) was assessed within each plot. The location of the natural regeneration monitoring plots is shown on **Figure 2.1**.

Additionally, the number of saplings was counted within each natural regeneration plot. Saplings were defined as individuals of native canopy species with a diameter at breast height (DBH) <5 cm. This number was then multiplied to give the number of saplings per hectare.

Sapling counts included a separate count for obviously planted individuals to best capture the health and rate of regeneration that is occurring naturally compared to that of rehabilitation plantings.

2.1.3 Nest Box Monitoring

Nest box monitoring was undertaken for 27 nest boxes installed in Offset A (Lot 187 DP 751028) which are shown in **Figure 2.2**. These boxes were comprised of:

- 9 brush-tailed phascogale boxes (rear entry)
- 9 glider boxes (front entry)
- 9 microbat boxes (base entry).

Boxes were inspected using a pole-mounted camera. Monitoring comprised content and condition assessment and included the following:

- content monitoring
- target species use
- signs of presence such as nesting material or feathers
- predator use
- presence of native fauna
- presence of non-target species such as bees, wasps and introduced birds.
- condition monitoring:
- collapsing joints
- missing lids
- bowing timber
- perishing timber
- tree attachment.

Legend

- Biodiversity Offset Area Boundary
- Natural Regeneration Monitoring Plot

FIGURE 2.1

Natural Regeneration Monitoring Plots

Image Source: Google Earth (Nov 2020) Data source: DFSI (2020)

Legend

Biodiversity Offset Area Boundary

Nest Box Locations

- Glider
- Microbat
- Phascogale

FIGURE 2.2

Nest Box Locations

Image Source: Google Earth (Nov 2020) Data source: DFSI (2020)

2.2 Conservation Agreement Monitoring

Four permanent monitoring plots have been established within each of the four vegetation zones in the BOAs identified by Orogen (2010). Each plot was marked in the northeast corner (of the 20 m x 20 m subplot) with a steel picket and high visibility flagging tape. Plot locations are shown in **Figure 2.3**. Photo monitoring, floristic and biometric data collection and a walkover assessment were completed according to the BioBanking Assessment Method (BBAM) methodology (OEH 2014) and are further described in the following sections.

2.2.1 Photo Monitoring

Photo monitoring was undertaken at each plot and is used to identify any observable changes in the vegetation condition and development of vegetation structure over time. Photo monitoring was completed at the northeast plot corner, with photos taken facing north, south, east and west.

2.2.2 Floristic and Biometric Data Collection

Floristic and biometric monitoring was completed four permanent monitoring sites established at each of the vegetation zones previously outlined by Orogen (2010) in the BOAs. This monitoring was completed in a manner consistent with the BBAM (2014) and consisted of a:

- 50 m transect
- 50 m by 20 m plot
- 20 m by 20 m sub-plot.

For each flora monitoring site, vascular species present within the 20 m x 20 m sub-plot were identified. Searches were generally undertaken through parallel transects from one side of the plot to another. Most effort was spent on examining the groundcover, which usually supports well over half of the species present, however the composition of any shrub, mid-storey, canopy and emergent layers were also thoroughly examined.

For each species recorded in the plot, the scientific name, common name, stratum, cover and abundance were recorded. The total native species richness was then calculated for the 20 m x 20 m sub-plot.

Along the 50 m transect, and within the 50 m x 20 m plot, the following were noted:

- overstorey foliage cover
- mid-storey foliage cover
- groundcover – grasses foliage cover
- groundcover – shrubs foliage cover
- groundcover – other foliage cover
- proportion of overstorey regeneration
- exotic cover

- hollow-bearing trees
- length of fallen logs.

This data was then compared to benchmark levels for each Plant Community Type (PCT) as outlined in the Vegetation Information System (VIS) database (DPE 2023).

2.2.3 Walkover Assessment

As outlined in the BBAM, a walkthrough assessment of opportunistic sightings was undertaken across the BOAs, making observations of:

- fire events or impacts of fire management
- weeds (including compilation of list of exotic species and recording new weed infestations including location and extent)
- pest animals (species and location must be recorded, including evidence of pest animals such as burrows, scats or disturbance)
- visitor impact and vehicle access (including evidence of any recent usage, and the presence of any new access trails or tracks)
- rubbish dumping
- natural regeneration of previously disturbed areas
- sightings of threatened species.

As this methodology is similar to the walkover assessment in the existing offset monitoring program, the results for each of these have been combined for readability in **Section 4.1**.

2.3 Rehabilitation Assessment

2.3.1 Rehabilitation Walkover (Offset)

Approximately 447 trees were planted across Offset Areas A and B, however these were planted Autumn and Spring in 2021 and were not at a stage of maturity such that it was meaningful to conduct biometric monitoring. Rather, Umwelt conducted a brief walkover inspection of these recently planted areas and made general notes on the condition, suitability of planted species, planting density and approximate survivability of the plants within the rehabilitated areas. Formal monitoring plots will be established at a more appropriate time when a suitable level of maturity has been reached.

2.3.2 Rehabilitation Monitoring (Quarry)

Approximately 500 saplings have been planted in areas adjacent the existing quarry in September 2019 and March/April 2020, with some replanting in 2021 as shown in **Figure 2.4**. Please note that the rehabilitation planting areas on this figure represent the intended planting areas in the LMP and are indicative of the planting areas. The following was undertaken in these areas:

- Two rehabilitation monitoring plots (20 m x 50 m) were monitored using floristic and biometric data collection methods in accordance with the BioBanking Assessment Methodology (BBAM) (OEH 2014).
- The proportion of seedling survivability was monitored in each of the rehabilitation monitoring plots. This was calculated by counting the number of stems within each rehabilitation monitoring plot and assessing their survivability status (dead, alive, senescent etc.) over time.
- No soil sample analysis was undertaken during the 2022 monitoring survey. Soil samples are undertaken on a three yearly monitoring rotation.

Legend

- Biodiversity Offset Area Boundary
- Permanent Floristic Monitoring Plots

FIGURE 2.3

Conservation Agreement Plot Locations

Image Source: Google Earth (Nov 2020) Data source: DFSI (2020)

Legend

- Site Boundary
- Recent Rehabilitation Planting
- Older Rehabilitation Planting
- Older Offset Planting
- Recent Offset Planting
- Permanent Rehabilitation Monitoring Plots

FIGURE 2.4

Rehabilitated Areas and Permanent Plots

Image Source: Google Earth (Nov 2020) Data source: DFSI (2020)

3.0 Weather

Monitoring for 2022 period was conducted on the 9 and 10 of February 2023, **Table 3.1** provides the range of weather conditions that occurred in 2023 prior to monitoring. These results show the Murrurundi region experienced much higher than average rainfall during winter and early spring this was consistent to higher than average precipitation rates recorded across 2021 and 2022 (BOM 2023).

The precipitation rates in late winter and early spring 2022 are over twice the long term average. As a result, the vegetation biomass and plant height had increased significantly. This trend has maintained in 2022 and into early 2023 with groundcover much greater across the BOAs than what was observed in 2019, 2020 and 2021.

Temperatures in Murrurundi reflected long term averages, daily maximum temperatures reflected a mild year and did not meet the maximum temperatures recorded in 2019 and 2020.

Table 3.2 shows the weather conditions that were experienced during the 2022 monitoring period.

3.1 Climatic Conditions

The Combined Drought Indicator (CDI), developed by the NSW Department of Primary Industries, uses three indices (Rainfall Index, Plant Growth Index and Soil Water Index) to determine the drought category at any given time. The CDI classifies each parish in NSW into one of five drought categories:

- **Non drought:** At least one indicator is above the 50th percentile.
- **Recovering phase:** All indicators are below the 50th percentile but above the 30th percentile.
- **Drought Affected:** At least one indicator is below the 30th percentile.
- **Drought:** At least one indicator is below the 5th percentile.
- **Intense Drought:** All three indicators (rainfall, soil water, plant growth) are below the 5th percentile.

Temi Parish is the representative Parish for Ardglen Quarry, the Combined Drought Indicator (CDI) identifies the Temi Parish as “Non-Drought” during the 2022 monitoring period, these trends are shown in **Graph 3.1** (DPI 2023a). The CDI graph shows that Temi Parish remained in “Non-Drought” condition throughout the entire 2022, and early 2023 with the rainfall index, plant growth index and soil water index presently reaching peak records (dating back to 2017). Prior to this, the Parish had been undergoing varying degrees of drought conditions. The year 2018 saw the beginning of the “Drought” and “Intense Drought” periods, which had been fluctuating since November 2017. In the latter three quarters of 2020, a weakening of the drought was seen, subsequent to increased rainfall levels, and the CDI was brought into recovery in August and September 2020. The Parish has been in “Non-Drought” since this time.

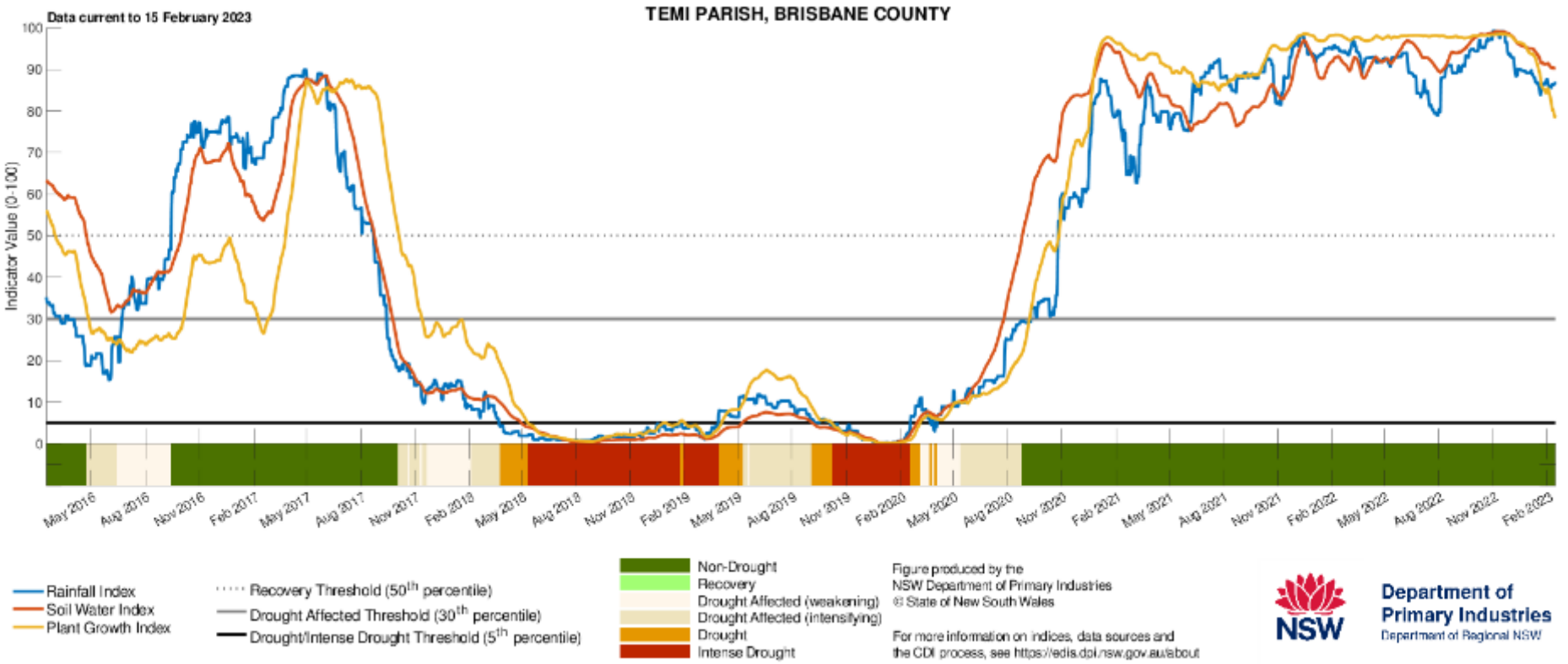
This has substantial implications in terms of vegetative performance, soil performance and ultimately landscape functioning of the rehabilitated areas at Ardglen. A prolonged period of rainfall, soil water index and plant growth index above and beyond the 50th percentile increases the capacity of the vegetation to recover and regenerate after a prolonged period of drought.

Table 3.1 Monthly Temperature and Rainfall Data from Murrurundi Gap AWS (Station 061392) during 2022 (BOM 2023)

	2022											2023
	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Maximum Temperature (°C)	30.5	28.0	26.0	24.1	16.9	15.9	20.1	21.9	23.6	27.8	30.3	33.6
Mean Maximum Temperature (°C)	25.0	22.0	20.4	16.6	12.3	12.3	14.0	16.2	19.3	21.1	23.9	28.0
Long Term Mean Maximum Temperature (°C)	*27.1*	*24.3*	*20.9*	*16.7*	*12.9*	*12.5*	*14.6*	*18.3*	*21.6*	*24.3*	*26.4*	*28.5*
Minimum Temperature (°C)	10.5	10.1	7.5	3.5	-0.2	-0.6	0.8	2.3	3.6	3.8	6.2	10.2
Mean Minimum Temperature (°C)	14.5	13.8	11.5	8.6	4.3	4.6	6.2	7.4	10.2	10.0	11.6	14.6
Long Term Mean Minimum Temperature (°C)	*15.7*	*14.1*	*11.3*	*8.2*	*5.9*	*4.9*	*5.7*	*8.5*	*10.9*	*13.0*	*14.7*	*16.6*
Total Rainfall (mm)	**39.8**	**77.2**	**5.4**	**56.8**	**20.2**	**63.6**	**112.4**	**133.6**	**120.4**	**7.4**	**10.2**	**53.4**
Long Term Mean Rainfall (mm)	70.3	79.2	32.2	36.4	65.2	48.2	42.0	47.4	56.8	85.2	83.0	65.9

Table 3.2 Temperature and Rainfall Data from Murrurundi Gap AWS (Station 061392) during the February 2023 Monitoring Event (BOM 2023)

	09/02/2023	10/02/2023
Maximum Daily Temperature (°C)	22.6	28.9
Minimum Daily Temperature (°C)	14.9	15.1
Rainfall (mm)	9.4	4.2



Graph 3.1 Combined Drought Indicator record for Temi Parish, May 2016 - February 2023

(DPI 2023a)

4.0 Results

4.1 Offset Monitoring Program

4.1.1 Walkover Assessment

4.1.1.1 Fence Condition

A walkover assessment was conducted across all three BOAs. Inspection of fences showed that external fences of the BOA properties are functioning adequately, and no breaches were observed. Upgrades made at some internal gates in recent years are continuing to function well. Fences are not appearing to deter feral dogs, pigs or deer, but increased security measures (e.g., mesh fencing) are not recommended, as these may also deter native animals. Internal fencing was noted in several cases, particularly between Offset B and Offset C, and this can be removed, if practical.

4.1.1.2 Pests and Livestock

Feral goats and horses caused substantial issues for the BOAs in 2019, however it is noted that both of these threats have been mitigated. In 2019 and 2020, Daracon had engaged the services of feral animal shooters to mitigate and reduce the impacts of feral animals both on the native wildlife and the condition of the BOAs and the obvious signs of trampling and over-grazing that were observed prior to this were subsequently resolved.

In 2022, wild dogs, deer and pigs remain a threat to the wildlife within the BOAs. In Offset A in particular, signs of digging and pig-rooting were evident, leaving patches of exposed soil, and leading to the deaths of several rehabilitation plantings. Due to consistent and ongoing adverse weather and track conditions, the ability of feral animal shooters to have safe access to site to has been severely hindered, though it is noted that a large number of animals have been removed from the BOAs and wider Daracon landholdings in 2022, as seen in **Appendix C**. Multiple feral pigs were sighted within offset A during the inspection including a litter of piglets accompanied by two adults. Disturbance including tracks, scats and digging from both feral dogs and pigs were observed consistently throughout both Offset B and Offset C. It is recommended that the practice of engaging feral animal shooters continues and develops more routinely within 2023 to reduce threats of these animals to native wildlife and rehabilitation plantings. If track access continues to be a hindrance to the effective engagement of pest control, then it is recommended that works to upgrade tracks should be considered. It is noted that once the BCT approve the BOAs under a Conservation Agreement, Daracon will be required to formalise and improve tracks in the offset areas.

If wild dog numbers are observed to increase across the BOAs, it is recommended that Daracon liaise with Local Land Services (and potentially neighbouring landholders) to discuss the merits of implementing a wild dog 1080 baiting protocol. Further information about integrated wild dog management and 1080 baiting can be found on the NSW Department of Primary Industries website (DPI 2023b).

Rabbits and hares persist across the BOAs however the observable evidence of both species was minor, and it is not considered that their presence poses a threat to the condition of the BOAs such that management is required.

4.1.1.3 Fire Events or Impacts of Fire Management

No fire events or fire management actions were experienced or undertaken in 2022.

Given the rapid groundcover growth in 2020, 2021 and 2022, with the break of the drought and advent of La Niña, bushfire fuel loads have increased since 2019. However, the absence of a dense shrub layer and the open nature of the woodland would likely reduce the intensity of fire if ignition occurred. Grass fire risk is considered to be higher this year, despite the wetter conditions, and grass fire is a possibility with the current warmer and drier weather that has been experienced across the region in early 2023. Daracon should monitor the climatic conditions in conjunction with the groundcover condition and undertake any bushfire hazard reduction management actions outlined in the LMP if necessary.

4.1.1.4 Weeds

Weeds with high invasive potential were generally observed at low to moderate levels throughout the BOAs. Exotic groundcover species were most abundant in the Derived Native Grassland areas, with more native groundcovers in the understorey of the open woodland.

St John's wort (*Hypericum perforatum*) was previously observed only in Offset A in 2021, however this species has also reappeared in moderate numbers across Offset B and C in 2022. Weed control across these areas is recommended.

Blackberry (*Rubus fruticosus sp. agg*) has previously been observed in small amounts across Offset A. In 2022 this species has been observed within Offsets A, B and C but remains in small patches where it has been found. The spread of this species across the three offsets has increased since 2021 and is recommended to be managed while it is a relatively still small infestation.

African lovegrass (*Eragrostis curvula*) was also seen in large patches across all BOAs. This species likely colonised the bare areas left after the drought. Generally, this species is an issue for grazing animals, which is not an issue within the BOAs however it has likely come from neighbouring properties and has become quite widespread such that weed control for this species is likely ill-advised. Slashing may help control biomass and seed heads.

Spear thistle (*Cirsium vulgare*) was additionally observed in 2022 in moderate levels across all BOA areas. The species has not been observed in these levels across any of the previous monitoring years. This is likely attributed to the increase of high rainfall events since 2020 and absence of trampling controls often provided by grazing animals allowing the species to maintain consistent growth into 2022.

Given the very dry conditions and very low groundcover observed in 2019, and the subsequent amount of rainfall during 2020, 2021 and 2022 regeneration of the groundcover layer has occurred to a high degree. However, most of the regeneration has occurred by exotic species, and has not boosted the native species diversity across the BOAs, as anticipated. It is noted that plains grass (*Austrostipa aristiglumis*) a persistent tufted species was observed in low to moderate abundancies across all three Offsets. This species has not previously been observed on-site and is likely attributed to the increase and steady rainfall since 2020. It is likely that the soil seedbank contained many exotic seeds due to the previous pastoral landuse, and the increased rainfall levels over the past year have allowed these species to flourish. As this is a side-effect of drought recovery, and it does not pose an immediate threat to the overall landscape function of the BOAs, is recommended that the exotic species cover is continued to be monitored. It is noted that significant wet weather and flooding has severely hindered access to the site and the ability for weed control works to be safely undertaken, and results are reflective of this. Once the BCT approve the BOAs under a Conservation Agreement, Daracon will be required to formalise and improve tracks in the offset areas, which will greatly assist with ongoing weed control.

4.1.1.5 Rubbish and Dumping

There were no significant rubbish or dumping issues observed across the BOAs.

4.1.1.6 Visitor and Vehicle Impacts

None observed in 2022.

4.1.1.7 Natural Regeneration of Previously Disturbed Areas

Discussed further in **Section 4.2**.

4.1.1.8 Threatened Species Sightings

No targeted threatened species searches were undertaken as part of this monitoring, and no other threatened species were observed.

4.1.2 Natural Regeneration Monitoring

The results of the natural regeneration monitoring for Offset A, Offset B and Offset C are presented in **Table 4.1**. The results include planted individuals that fell inside the plots in brackets.

The locations of the natural regeneration plots were the same as those established in 2019. The GPS co-ordinates in each of the tables below were taken from the northeast corner of each 50 m x 20 m plot.

Plot A4 was unable to be monitored due to safety concerns related to feral animals.

Table 4.1 Natural Regeneration Monitoring Results

Plot Name	Easting	Northing	Cover (%)	Sapling Count (per plot)	Sapling Count (per hectare)
Offset A					
A1	289077	6486201	0	0	0
A2	289062	6486145	0	0	0
A3	289060	6486090	0	0	0
A4	289150	6485973	-	-	-
Offset B					
B1	289822	6486108	0.1	3 (5)	30 (50)
B2	289821	6486014	0.4	5	50
B3	289945	6485915	0.3	4	40
B4	289854	6485906	0	0	0
Offset C					
C1	290061	6486188	0	0	0
C2	290034	6485967	0	0	0
C3	289953	6485745	1	9	90

Plot Name	Easting	Northing	Cover (%)	Sapling Count (per plot)	Sapling Count (per hectare)
C4	289943	6485582	0	0	0

The canopy cover (%) and sapling counts for natural regeneration plots were low, which is representative of Derived Native Grassland areas, however this number is increasing. Four plots (33.3%) had one or more saplings already present, which is a positive sign of recruitment already occurring in these areas without assistance. This is up two plots from 2021 and three plots in 2020. Offset A and Offset B had been planted with supplementary plantings and some of these plantings overlapped with the Natural Regeneration monitoring plots as seen in plot B1.

4.1.3 Nest Box Monitoring

The full nest box monitoring results are provided in **Appendix A**. A summary of results is outlined in **Table 4.2.**

Table 4.2 Nest Box Monitoring Results Summary

Box Type	No. with signs of occupation*	No. with pest species	No. with actual occupation	Target Species Identified	Nest Boxes requiring Repair/Replacement
Phascogale (rear entry) (9 boxes)	glider nest (2) bird nest (2) leaf litter (1) **Total = 5**	honeycomb (1) cobwebs (1) arachnid (1) **Total = 3**	0	No phascogales.	NB17/TT158 - part of lid stuck to inner box cavity but was able to be monitored with minor difficulty. Does not hinder use of box by fauna. NB10/TT164 – showing signs of water damage.
Microbat (9 boxes)	**Total = 0**	cobwebs (1) mud wasp nest (1) arachnid (1) **Total = 3**	0	No microbats.	
Glider (front entry) (9 boxes)	glider nest (4) worn or chewed entry (3) bird nesting material/leaf debris (2) **Total = 9**	cobweb (1) **Total = 1**	glider (1) **Total (1)**	Glider (sugar or squirrel - undetermined) identified. Multiple glider nests.	NB20/114 tree tag – carpet fallen inwards and bottom of nest box becoming loose. Bottom of nest box likely to fall out completely and will not remain functional for much longer.

Box Type	No. with signs of occupation*	No. with pest species	No. with actual occupation	Target Species Identified	Nest Boxes requiring Repair/Replacement
Total = 27	14	7	1	1	3
% of Boxes	51.9	25.9	3.7	3.7	11.1

* Sometimes these numbers will add to more than their total as a number of fauna species may utilise the same nest box

This year's monitoring period showed similar usage of nest boxes by vertebrate fauna as recorded in 2021, with a glider (sugar or squirrel - undetermined) identified in one box, target glider species utilising six nest boxes (22.2%), and bird species utilising four boxes (14.8%). Examples are shown in **Photo 4.1** and **Photo 4.2**.

There were positive signs of use (51.9%), which is marginally lower than what was recorded in the 2021 monitoring event, however the 2022 monitoring event produced stronger signs of occupation of target glider species.

Honeycomb was found in one box though there did not appear to be an active hive of bees utilising the box at the time of monitoring. It is likely that the honeycomb will be naturally cleared away by other animals seeking to use the box, and no specific management is required at this point in time.

Photo 4.1 Glider (sugar or squirrel, indeterminate) identified in NB23/TT111

Photo 4.2 Glider nest (sugar or squirrel, indeterminate) in NB01/TT175

4.2 Conservation Agreement Monitoring

Four permanent monitoring plots were established within each of the four vegetation zones in the BOAs identified by Orogen (2010). These vegetation zones have been assigned a Plant Community Type (PCT) to be comparable with PCT benchmarks and track condition and progress over time. These PCTs have been described using floristic data, broad-scale vegetation mapping (DPIE 2020) and using knowledge of the local topography and landscape. The vegetation zones with their corresponding PCT and site locations are outlined in **Table 4.3.**

Table 4.3 Vegetation Zones and Corresponding PCT and Plot Information

Plot Name	Easting	Northing	Zone	Vegetation Zone (Orogen 2010)	PCT Name
Q01	290019	6485647	56	Blakelys Red Gum (+/- Yellow Box) Dry Sclerophyll Grassy Woodlands/Open Woodland	PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion

Plot Name	Easting	Northing	Zone	Vegetation Zone (Orogen 2010)	PCT Name
Q02	289747	6486167	56	River Oak (*Casuarina cunninghamiana*) Dry Sclerophyll Woodland	PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)
Q03	289761	6485921	56	White Box (*Eucalyptus albens*) and Rough barked Apple (*Angophora floribunda*) Dry Sclerophyll Grassy Woodland	PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion
Q04	289144	6486073	56	Derived Native Grassland	PCT 796 - Derived grassland of the NSW South Western Slopes

The full flora list, biometric data and photo monitoring results for the monitoring of the permanent Conservation Agreement monitoring sites are presented in **Appendix B**.

A comparison of the data collected at each of the monitoring sites to previous year's monitoring results and their corresponding PCT benchmarks is outlined below:

Q01 - PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion

Native species richness at this site has been in decline since 2019 and is currently at 32% of the benchmark. Overstorey foliage cover has dropped marginally since 2021 however this may be attributable observer bias due to a change in observer. The development in the mid storey foliage cover which was observed in 2021 was not observed this year, likely due to competition from high grass. Native grass cover well exceeded the benchmark, and exotic species cover has decreased from 94 to 62%. This is likely because the ground cover has increased so much in general following a sustained period of increased rainfall. Native forbs and 'other' species saw an increase this year and have exceeded the benchmark. Fallen log cover dropped this year and this is likely a function of either low visibility due to the thick ground cover or decomposition due to high levels of rainfall. Regeneration of canopy species was evident in this plot.

Q02 - PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)

Native species richness was stable in 2022, meeting just 14% of the benchmark. Overstorey foliage cover has dropped marginally since 2021 however this may be attributable observer bias due to a change in observer. Mid storey foliage cover also remained low at 15% of the benchmark. 2022 monitoring event saw a marked increase in native grass cover, native forbs and 'other' species, with these exceeding their benchmark. Exotic cover remained high at 60% however this number has dropped since 2020 and 2021. It is likely that given the position of this plot in the landscape, exotic seeds have culminated at the low point of the topography in the riparian area and flourished after consecutive rainfall flushes. Fallen logs were not observed in 2022 but given the low canopy cover and very tall obscuring grass cover, this is a reasonable result. Regeneration of canopy species again has not been observed in this area.

Q03 - PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion

Native species richness decreased between the 2021 and 2022 monitoring events, meeting 39% of the benchmark, an 11% decrease. Overstorey foliage cover has decreased slightly since 2020 and is now at 67% of the benchmark. The development in the mid storey foliage cover which was observed in 2021 was not observed this year, likely due to competition from high grass. Native grass cover again well exceeded the benchmark at 157%, which is an excellent result. As with all vegetation zones, exotic cover was very high at 80%. There has been a further increase in native forbs and 'other' species, with these exceeding the benchmark at 285%. Overstorey regeneration was not observed in this plot, and fallen logs remained absent.

Q04 - PCT 796 - Derived grassland of the NSW South Western Slopes

Native species richness was higher in the 2022 monitoring event than the results seen in 2021, but slightly lower than baseline results, reaching 67% of the benchmark. Native overstorey and mid-storey cover were appropriately absent, as were fallen logs. Exotic species cover was very high at 96%, a slight increase from 2021. Native grass cover score dropped this year to 35% of the benchmark. Native forbs and 'other' species met the benchmark, consistent with previous results at this site.

4.3 Rehabilitation Assessment

4.3.1 Rehabilitation Walkover (Offset)

Approximately 447 tubestock were planted within Offset A and Offset B in 2021 in the indicative planting areas shown in **Figure 2.4**. Older offset supplementary plantings were made in Autumn 2021, with recent plantings made in Spring 2021. Though most species could not be identified due to their young age, the species mix appeared to be a satisfactory mix of representative canopy and mid-storey species for the area. Heights ranged from approximately 0.5 – 1.7 m. Condition and survivorship of these plantings was good, with approximately 75% of plantings surviving. Most of the losses encountered appeared to have been contributed to by destructive behaviour by feral pigs and deer, which has also resulted in damage to tree guards. In some cases, weeds and high grass are competing with saplings for space (**Photo 4.3 and Photo 4.4**).

Photo 4.3 **Plantings in Offset B – more successful on upper slopes were there is less competition and encroachment from tall grasses and weeds**

Photo 4.4 Planting in Offset B – see example of weed encroachment

4.3.2 Rehabilitation Monitoring (Quarry)

4.3.2.1 Condition and Survivability

Approximately 500 saplings were planted in the two rehabilitation areas outside of the BOAs and identified in the indicative planting areas in **Figure 2.4**. Two areas were planted within the quarry boundary. The Western Rehabilitation plantings were undertaken in September 2019 along with the lower/eastern plantings in the and the Southern Rehabilitation area. The top/western portion of this area was planted in March/April 2020.

Both areas continued to show a high survival rate, and although the count of saplings was not exhaustive, only a small number of planted individuals appeared to have perished. Survival rate appeared to be above 75% in both areas. Though some species could not be identified due to their young age, the species mix appeared to be a satisfactory mix of representative canopy and mid-storey species for the area.

In the Western Rehabilitation plantings, the plant guards in this area seemed mostly intact apart from those on the southern side of the slope near R01. Pickets and barriers were often observed fallen over, possibly attributable to feral animal interference. Plant heights ranged from 0.2 to 2.5 metres in height, which is a low increase since the 2021 monitoring event. Given the timing of plantings in this area in the height of intense drought, the survival rate and condition of these plantings is very high. In the Southern Rehabilitation area, the survival rate is slightly lower than that of the plantings further up the slope in the Western Rehabilitation. This is likely because the plantings are in a more open, easterly facing setting at the edge of the quarry face, with less surrounding canopy cover and lower groundcover height. A few smaller saplings were observed at around 30 cm height with stakes fallen and broken. The Eucalypts that have survived are in good condition, now established as small trees that could have the guards removed for their continual growth and safety (see **Photo 4.5**).

Survivability characteristics of plantings in rehabilitated plots are outlined in **Table 4.4**. Survivorship was good at both sites, with natural regeneration of the shrub layer boosting success.

Table 4.4 Survival of Plantings in Rehabilitated Plots

Plot Name	Alive	Dead/Missing	Total
R01 (2021)	8	1	9
R02 (2021)	6	3	9

Photo 4.5 Rehabilitation planting near R02 – the sapling is now established; fencing should be removed for tree safety

4.3.2.2 Rehabilitation Biometric Transect Data

Two plots were established in Southern and Western Rehabilitation (R01 and R02 respectively). Full floristics and biometric transect data are provided in **Appendix B**. No comparative benchmark data is available as these plots do not yet resemble any PCT, but assessment has been made based on mature woodland PCTs in the surrounds.

R01 – Southern Rehabilitation

Native species richness has improved and nearly doubled since 2021 at 14 species. This is still on the lower side, and this is a function of the exposed aspect of this site. Native overstorey was stable at 2%, however this, combined with no midstorey coverage is likely to improve as the recent plantings mature. Native grass cover was high, at 76%, and outcompeted exotic groundcover (68%). It is likely that the native species are more adapted to dry and exposed conditions than the exotic species that have flourished at the quarry after rain. Fallen logs and overstorey regeneration characteristics were predictably absent and these will improve in the years to come. Shrub characteristics were also absent however a shrub layer has started to emerge in the surrounding areas.

R02 – Western Rehabilitation

Native species richness has nearly doubled from 10 to 18 species in 2022 and is trending towards that of other native wooded areas on the site. Similar to last year, native grass and forb cover were very low for this site. The percentage cover of exotic species has decreased from 92% down to 27% in 2022 and conversely native ground cover has increased to 80%. The mid- and over-storey characteristics were quite good, and comparable with coverage that can be expected of open woodland, with a combined total of 14%. Fallen logs and overstorey regeneration characteristics were predictably absent and these will improve in the years to come.

4.3.2.3 Soil Results

Soil samples were not undertaken this year as these occur on a three-yearly rotation, however the 2021 results are outlined in **Table 4.5** for context.

Table 4.5 Rehabilitation Soil Testing Results

Plot Name	pH	Electrical Conductivity (µS/cm)	Total Nitrogen (mg/kg)	Total Phosphorus (mg/kg)
R01 (2021)	8.2	112	0.4	3480
R02 (2021)	6.5	61	11.7	1880
REF1	6.4	51	6.0	1110

These results show that the soil results for the rehabilitated sites are well within the normal limits for acidity and salinity (pH and EC), with R02 trending closer to the reference site. Nitrogen levels were variable, with levels very low at R01, likely due to its thin topsoil cover, and adequate levels (>10 mg/kg) at R02. Total Phosphorus at R02 was similar to that of the reference site, though both numbers were slightly high, however the Total P at R01 was very high. Since phosphorus is most available to plants between pH 6-7, these high phosphorus levels may not be as bioavailable as those at R02.

5.0 Compliance with LMP

An evaluation of the BOAs against the relevant performance/completion criteria outlined in the LMP is provided in **Table 5.1**. for the Offset Areas, and **Table 5.2** for Rehabilitated Areas.

Table 5.1 Assessment of the BOAs against LMP performance criteria

Feature	Aspect	Performance/Completion Criteria	Assessment
Landscape Condition	Weed infestation	Weeds do not comprise more than 15% cover in any stratum. There are no significant weed infestations.	**Progressing towards.** Weed cover was widespread and exotic species represent greater than 15% cover in the ground stratum of every plot. This is likely a side-effect of drought recovery and soil moisture promoting the growth of dormant exotic species in the seedbank, and the inability of Daracon to undertake substantial weed control works in 2021 or 2022 due to wet weather events and subsequent access issues. Track upgrades should be considered to support the continuation of weed infestations across the offsets so that condition does not decline further, and it is noted that once the BCT approves the Conservation Agreement that track formalisation will become a requirement.
	Rubbish removal	Offset Areas free of rubbish.	**Achieved**.
Natural Regeneration	**Short term** - Grazing exclusion	Fencing has been established around all offset areas and is maintained.	**Achieved.**
	Medium term - Quality and cover of existing overstorey within Offset Area C (Lot 49 DP 751028)	A stem count of >30 stems/ha is achieved via natural recruitment in over 75% of the Natural Regeneration monitoring plots by 2023.	**Progressing towards.** Offset B is progressing well in this regard and Offset C is starting to show signs of natural regeneration. It is unlikely that this parameter will be achieved by 2023 but the success of plantings that have occurred across the offsets thus far have been successful and should be considered. This can be monitored more closely in 2023.

Feature	Aspect	Performance/Completion Criteria	Assessment
	Long term - Recruitment and rehabilitation of overstorey	More than 15% cover of mid-storey and overstorey species is achieved in over half of the Natural Regeneration monitoring plots by 2030.	**Not yet applicable but progressing towards.** Cover in the natural regeneration monitoring plots did not meet this threshold via natural recruitment. Future years' monitoring will conduct a more thorough study of natural assisted regeneration to best inform this criterion.
Assisted Regeneration	**Short term -** Vegetation establishment	Assisted planting program as outlined in **Section 5.2.1.2** of the LMP is commenced in 2020. Species planting list follows that which is outlined in this Section.	**Achieved in 2021**.
	Medium term - Seedling survivability	Following the implementation of the assisted planting program, more than 70% of planted seedlings have survived in each of the offset rehabilitation monitoring plots. Seedlings must have a survival rate of >70% in each planting area for at least three years post-planting before monitoring this parameter can cease.	**Achieved.**
	Long term - Overstorey restoration	A density of >30 mature stems/ha is achieved in more than 75% of the offset rehabilitation monitoring plots ten years after the initial planting year. A mature stem is a tree (overstorey species) with a diameter at breast height (dbh) greater than 10 cm.	**Not applicable.**

Feature	Aspect	Performance/Completion Criteria	Assessment
	Long term - Vegetation community	Long term monitoring indicates that planted vegetation is recognisable as a vegetation community consistent with the NSW determination for White Box Yellow Box Blakely's Red Gum Woodland CEEC at the end of the Quarry life.	**Not applicable.**
Habitat Material	All salvageable hollows shall be re-erected within 12 weeks from completion of staged clearing operations	Hollows are installed as required and monitored annually (condition and content) for the life of the Quarry.	**Not applicable.** No clearing works that would yield salvageable hollows have been undertaken in 2022.
Long Term Security of Offset Site	Security of Offset	Offset security mechanism as detailed in **Section 5.6** of the LMP is established and implemented.	**Progressing towards.** Actively liaising with BCT to resolve. See **Appendix D** for progress – Conservation Agreement on track to be approved in 2023.

Table 5.2 Assessment of the Rehabilitated Areas against LMP performance criteria

Feature	Aspect	Performance/Completion Criteria	Assessment
Vegetation Establishment	**Short term –** Species appropriateness	Assisted planting program commenced in 2019. Species planting list follows that which is outlined in **Section 5.2.1.2** of the LMP.	**Achieved.**
	Medium term – Seedling survivability	Following the implementation of the assisted planting program, more than 70% of planted seedlings have survived in each of the Rehabilitation Monitoring plots. Seedlings must have a survival rate of >70% in each planting area for at least three years post-planting before monitoring this parameter can cease.	**Progressing towards.** This criterion has been achieved this year, but the parameter must be monitored to ensure further it is continued to be achieved.
	Long term - Overstorey restoration	A density of >30 mature stems/ha is achieved in more than 75% of the rehabilitation monitoring plots ten years after the initial planting year. A mature stem is a tree (overstorey species) with a diameter at breast height (dbh) greater than 10 cm.	**Not applicable.**
	Long term - Vegetation community	Long term monitoring indicates that planted vegetation is recognisable as a vegetation community consistent with the NSW determination for White Box Yellow Box Blakely's Red Gum Woodland CEEC at the end of the Quarry life.	**Not applicable.**

6.0 Recommendations

The following recommendations are provided for consideration in the 2022 Annual Review:

- Perimeter fencing of the BOAs is adequate, but internal fences can be removed if practical. These may hinder the movement of native fauna throughout the BOAs. It is noted that this issue will be resolved once the Conservation Agreement is approved by the BCT.
- Daracon should continue to engage the services of a feral animal shooter for feral pest animals that frequent the BOAs (e.g., deer, pigs and wild dogs). Daracon may liaise with Local Land Services and adjoining land owners to discuss the merits of a wild dog baiting program if considered necessary.
- Weed infestations have increased across all Offset sites. This included the spread of species into areas that they had not been recorded in within past monitoring events. Further and ongoing weed management of St John's wort (*Hypericum perforatum*) and Blackberry (*Rubus fruticosus* agg.) is recommended in all offsets. It is suggested that Spear thistle (*Cirsium vulgare)* is additionally targeted following moderate observations of the species across Offsets A, B and C in large clusters which, if left unattended, can easily dominate landscapes.
- It is noted that track access has impeded the ability of Daracon to conduct maintenance such as weed and pest control over the past two years. It is recommended that Daracon considers track upgrades where necessary to allow for services to access the offsets. Pest and weed activity is high such that the condition of the offsets will worsen considerably if these issues are not attended to.
- It is recommended that Nest Box 20 should be fixed to have the base reattached to the main structure as the nest box will not remain functional for much longer. It is also recommended that the ply stuck to the upper part of Nest Box 17 (TT158) is removed to better facilitate monitoring of the box, however this is a low priority as access to the box by animals is not impeded.

7.0 Conclusion

The key findings of the 2022 biodiversity offset monitoring event are:

- Despite the drought and unsettled weather patterns over the last four years, the vegetation appears resilient and, although weeds have flourished in the last 12 months, the general condition of the site remains relatively stable.
- Feral animals continue to be a detriment to the condition of the BOAs and surrounding quarry grounds, particularly in terms of groundcover modification, browsing juvenile plants and plantings (deer, pigs) and threats to native wildlife (wild dogs).
- Weed species were widespread and should continue to be monitored. Weeds of concern in infestation areas previously discussed are recommended for targeted removal.
- Rehabilitation is progressing well in all areas.
- There was a slightly lower percentage of nest box usage overall this year however a higher percentage (25.9%) of boxes had clear evidence of use by target glider species.
- PCT benchmarks were variable this year, with some increases in native plant diversity and foliage cover, but exotic cover remains high. There appears to be a moderate increase in native species.
- Weeds continue to be the main hindrances to the progression of the offsets towards benchmark conditions.
- Supplementary and rehabilitation plantings are doing well in all areas with high survivorship. The largest barrier to success appears to be browsing and trampling of tubestock by introduced herbivores.
- Completion criteria were almost all either met or progressing towards, apart from exotic species coverage.

8.0 References

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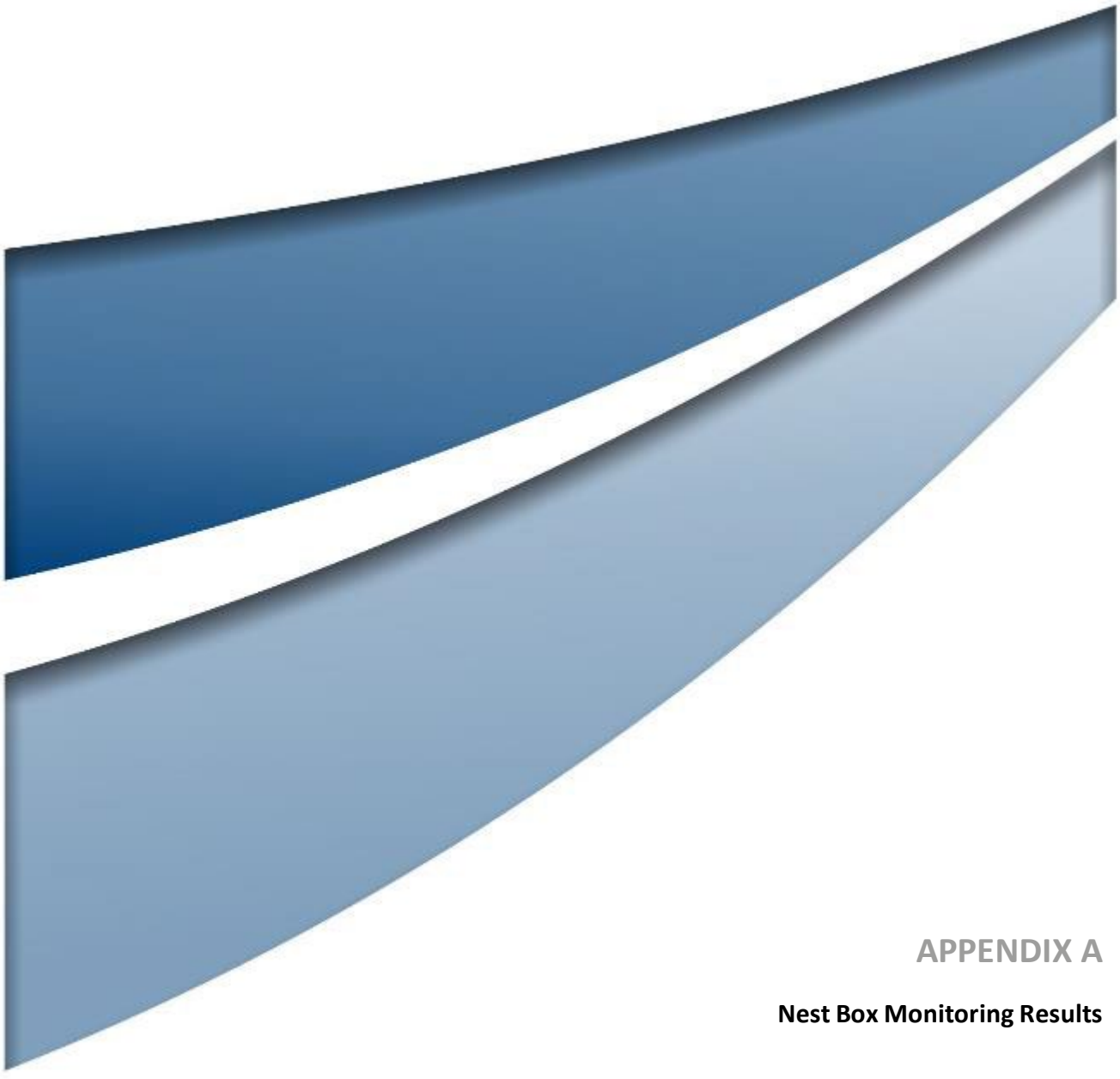
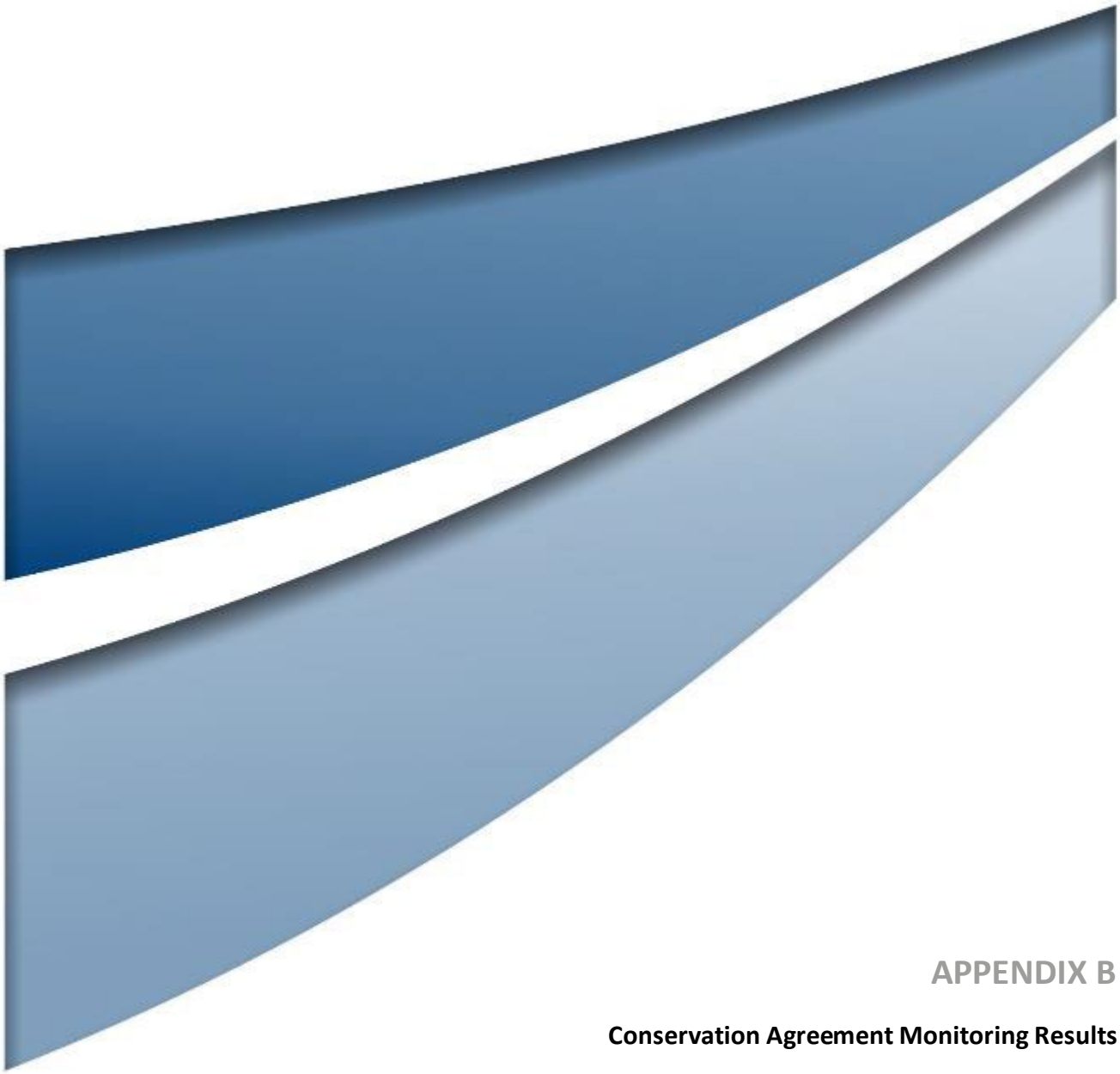


APPENDIX A

Nest Box Monitoring Results

Nest Box Monitoring Results

Date Monitored	Box Number	Tree Tag Number	Type	Contents	Condition
10.02.2023	1	175	phascogale	glider nest, arachnid	good
10.02.2023	2	-	glider	glider nest, appears inactive; chewed entry	good
10.02.2023	3	178	phascogale	glider nest	good
10.02.2023	4	177	glider	empty	good
10.02.2023	5	172	phascogale	empty, animal/bird activity	good
10.02.2023	6	173	microbat	empty	good
10.02.2023	7	171	glider	bird nest; chewed entry	good
10.02.2023	8	168	phascogale	Leaf litter, empty	good
10.02.2023	9	169	phascogale	bird nest, appears inactive	good
10.02.2023	10	164	phascogale	empty	water damage
10.02.2023	11	165	glider	eggshells; chewed entry	good
10.02.2023	12	-	glider	empty	good
10.02.2023	13	-	microbat	empty	no mesh, good
10.02.2023	14	163	microbat	Empty, large cobweb	frayed mesh, good
10.02.2023	15	161	glider	glider nest, cobweb over entry hole	good
10.02.2023	16	159	microbat	Empty, arachnid	frayed mesh, good
10.02.2023	17	158	phascogale	spiderwebs	part of lid stuck to inner box - view mostly obscured
10.02.2023	18	157	glider	Inactive nest	good, showing signs of wear
10.02.2023	19	156	microbat	empty	good
10.02.2023	20	114	glider	old glider nest	carpet fallen inwards, bottom of nest box broken exposing inside
10.02.2023	21	113	microbat	mud wasp nest, appears inactive, cobweb	good
10.02.2023	22	112	phascogale	honeycomb, appears inactive	good
10.02.2023	23	111	glider	glider	good
10.02.2023	24	115	phascogale	empty	good
10.02.2023	25	-	microbat	empty	mesh frayed, good
10.02.2023	26	176	microbat	empty	mesh frayed, good
10.02.2023	27	160	microbat	empty	mesh frayed, good



APPENDIX B

Conservation Agreement Monitoring Results

Biometric Plot and Transect Data

The following abbreviations or symbols are used in the list:

NPS	number of native plant species
NOC	native overstorey cover
NMC	native mid-storey cover
NGCG	native ground cover (grasses)
NGCS	native ground cover (shrubs)
NGCO	native ground cover (other)
EPC	exotic plant cover
NTH	number of trees with hollows
OR	overstorey regeneration, and
FL	total length of fallen logs (m).

Conservation Agreement (Offset) Biometric Transect Data

Plot Name	NPS	NOS	NMS	NGCG	NGCS	NGCO	EPC	NTH	OR	FL	Easting	Northing	Zone
PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion													
Q01 (2019)	29	25	0	32	0	4	6	0	0.5	24	290019	6485647	56
Q01 (2020)	17	28	0	44	2	0	54	0	1	9	290019	6485647	56
Q01 (2021)	18	24.5	1	42	0	8	94	0	1	16	290019	6485647	56
Q01 (2022)	12	11.5	0	74	0	30	62	0	1	10	290019	6485647	56
Benchmark	**37**	**43**	**7**	**45**	**7**	**13**				**26**	-	-	-
PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)													
Q02 (2019)	11	16	2	22	0	8	58	1	0.5	5	289747	6486167	56
Q02 (2020)	7	15	0	0	0	6	94	1	0	9	289747	6486167	56
Q02 (2021)	4	20	1	0	0	10	100	1	0	2	289747	6486167	56
Q02 (2022)	4	11.5	1.5	52	0	18	70	1	0	0	289747	6486167	56
Benchmark	**28**	**38**	**10**	**35**	**10**	**8**				**36**	-	-	-
PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion													
Q03 (2019)	13	7.5	0	40	0	10	4	0	1	2	289761	6485921	56
Q03 (2020)	13	16	0	52	0	0	48	0	1	0	289761	6485921	56
Q03 (2021)	18	16.5	0.5	62	2	15	94	1	1	0	289761	6485921	56
Q03 (2022)	12	12	0	66	0	20	80	0	1	0	289761	6485921	56
Benchmark	**31**	**18**	**2**	**42**	**2**	**7**				**41**	-	-	-
PCT 796 - Derived grassland of the NSW South Western Slopes													
Q04 (2019)	16	0	0	52	0	2	24	0	0	1	289144	6486073	56
Q04 (2020)	9	0	0	24	0	4	72	0	0	0	289144	6486073	56
Q04 (2021)	13	0	0	54	0	7	94	0	0	0	289144	6486073	56
Q04 (2022)	14	0	0	28	0	6	96	0	0	0	289144	6486073	56
Benchmark	**21**	**0**	**1**	**80**	**1**	**6**				**0**	-	-	-

Rehabilitation Biometric Transect Data

Plot Name	NPS	NOS	NMS	NGCG	NGCS	NGCO	EPC	NTH	OR	FL	Easting	Northing	Zone
Note – no benchmark data for comparison as rehabilitated plots do not yet resemble any PCT													
R01 (2021)	8	2	0	36	0	2	28	0	0	0	289310	6486230	56
R01 (2022)	14	2	0	76	0	12	68	0	0	0	289310	6486230	56
R02 (2021)	10	10	2	1	2	4	92	0	1	0	288983	6486508	56
R02 (2022)	18	11	3	80	0	14	27	0	1	0	288983	6486508	56

Floristic Results

Flora specimens recorded or collected were identified using the nomenclature and keys from Harden (1992, 1993, 2000 & 2002) and Wheeler et al. (2002). Recent changes to classification as identified from PlantNET (Botanic Gardens Trust 2022) were incorporated into floristic results.

The following abbreviations and symbols are used in the table below:

PC = Percent Cover AA = Actual Abundance * = exotic species ** = high threat weed

Scientific Name	Common Name	PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion		PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)		PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion		PCT 796 - Derived grassland of the NSW South Western Slopes		Rehabilitation Plot 1		Rehabilitation Plot 2	
		Q01		Q02		Q03		Q04		R01		R02	
		PC	AA	PC	AA	PC	AA	PC	AA	PC	AA	PC	AA
Acaena novazealandiae	Red Bidibid							0.001	10				
Aristida ramosa	Purple Wiregrass							0.01	100				
Asperula conferta	Common Woodruff									0.001	200	0.005	50
Austrostipa aristiglumis	Plains Grass							0.005	4			0.1	100
Austrostipa scabra	Speargrass											0.03	200
Austrostipa stipoides	Prickly Speargrass											0.02	400
*Avena barbata**	Bearded Oats					0.02	500			0.005	100		
Bothriochloa macra	Red Grass	0.02	100			0.01	500	0.01	400	0.005	100	0.01	100
Bothriochloa spp.						0.01	1000						
*Bromus spp**								0.05	1000	0.005	100	0.001	10
Bursaria spinosa	Native Blackthorn									0.002	3		
Cassinia spp.										0.01	2		
Casuarina cunninghamiana subsp. cunninghamiana	River Oak			0.4	3								
*Cenchrus clandestinus**	Kikuyu Grass	0.02	1000	0.8	1000								
*Chloris gayana**	Rhodes Grass	0.005	200			0.002	100						
*Cirsium spp.**												0.005	10
*Cirsium vulgare**	Spear Thistle	0.003	5	0.01	3			0.02	10	0.01	4	0.05	15
*Conyza bonariensis**	Flaxleaf Fleabane	0.001	2					0.005	20	0.01	25	0.005	25
Cymbopogon refractus	Barbed Wire Grass									0.01	100		
Cynodon dactylon	Common Couch			0.005	400								
*Cyperus eragrostis**	Umbrella Sedge					0.005	100						
*Cyperus papyrus**				0.005	500								
Cyperus spp.		0.005	40					0.001	50			0.001	15

Scientific Name	Common Name	PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion		PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)		PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion		PCT 796 - Derived grassland of the NSW South Western Slopes		Rehabilitation Plot 1		Rehabilitation Plot 2	
		Q01		Q02		Q03		Q04		R01		R02	
		PC	AA	PC	AA	PC	AA	PC	AA	PC	AA	PC	AA
Dichelachne micrantha	Shorthair Plumegrass									0.02	500		
Dichondra repens	Kidney Weed	0.002	100					0.01	500			0.01	200
Einadia nutans	Climbing Saltbush					0.001	50					0.005	50
Epilobium billardierianum	Glabrous Willow Herb									0.05	100		
Eragrostis brownii	Brown's Lovegrass			0.005	10								
*Eragrostis curvula***	African Lovegrass	0.01	150			0.01	100	0.03	200			0.1	100
Eucalyptus albens	White Box					0.4	5						
Eucalyptus albens <--> moluccana		0.08	4										
Eucalyptus blakelyi	Blakely's Red Gum	0.3	7										
Eucalyptus spp.								0.01	3	0.04	6	0.01	1
Geranium solanderi	Native Geranium	0.005	200			0.005	25	0.02	500	0.01	50	0.01	150
Glycine tabacina	Variable Glycine	0.001	100			0.001	35	0.01	200			0.01	150
*Gomphocarpus fruticosus**	Narrow-leaved Cotton Bush	0.002	1							0.005	1	0.01	1
*Hypericum perforatum subsp. Veronense***	St John's Wort	0.002	100			0.03	50	0.2	250	0.03	10	0.01	5
*Hypochaeris radicata**	Catsear									0.001	2		
Lobelia purpurascens	whiteroot							0.001	25				
Lobelia spp.		0.02	500										
*Marrubium vulgare**	White Horehound			0.03	50								
Mentha spp.												0.01	200
Microlaena stipoides	Weeping Grass	0.15	2000			0.1	2000	0.01	100				
*Opuntia stricta***	Common Prickly Pear	0.005	1									0.02	3
Panicum effusum	Hairy Panic											0.005	100
*Paspalum dilatatum**	Paspalum	0.05	1000	0.1	1000			0.2	1000	0.01	100	0.1	500

Scientific Name	Common Name	PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion		PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)		PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion		PCT 796 - Derived grassland of the NSW South Western Slopes		Rehabilitation Plot 1		Rehabilitation Plot 2	
		Q01		Q02		Q03		Q04		R01		R02	
		PC	AA	PC	AA	PC	AA	PC	AA	PC	AA	PC	AA
*Petrorhagia nanteuilii**	Proliferous Pink									0.02	1000		
*Phalaris aquatica**	Phalaris			0.01	50								
*Phytolacca octandra**	Inkweed			0.1	25								
*Plantago lanceolata**	Lamb's tongues							0.005	200				
Poa sieberiana	Snow Grass									0.001	50		
Rumex brownii	Swamp Dock	0.005	5	0.005	8					0.005	5	0.01	20
*Schinus areira**	Pepper Tree			0.02	1								
*Senecio madagascariensis***	Fireweed											0.02	20
Senecio quadridentatus	Cotton Fireweed							0.01	10	0.02	40	0.02	25
Sida spp.						0.005	200						
Sigesbeckia orientalis subsp. orientalis	Indian Weed					0.001	50						
Sporobolus creber	Slender Rat's Tail Grass					0.005	75			0.005	100		
*Taraxacum officinale**	Dandelion							0.001	5				
Themeda triandra	Kangaroo grass	0.02	750										
*Trifolium arvense**	Haresfoot Clover									0.001	40	0.01	500
*Trifolium campestre**	Hop Clover							0.01	100				
*Trifolium repens**	White Clover							0.01	300				
Unknown B								0.05	1000	0.005	100	0.001	10
*Verbena bonariensis**	Purpletop					0.005	30	0.001	2			0.02	25
*Verbena rigida var. rigida**	Veined Verbena	0.002	25			0.01	100			0.04	300		
Wahlenbergia communis	Tufted Bluebell	0.001	5			0.001	10	0.001	10			0.005	100

Photo Monitoring - Offset

Plot Q01: Blakelys Red Gum (+/- Yellow Box) Dry Sclerophyll Grassy Woodlands/Open Woodland			
North 2019	North 2020	North 2021	North 2022

Plot Q01: Blakelys Red Gum (+/- Yellow Box) Dry Sclerophyll Grassy Woodlands/Open Woodland			
East 2019	East 2020	East 2021	East 2022

Plot Q01: Blakelys Red Gum (+/- Yellow Box) Dry Sclerophyll Grassy Woodlands/Open Woodland			
South 2019	South 2020	South 2021	South 2022

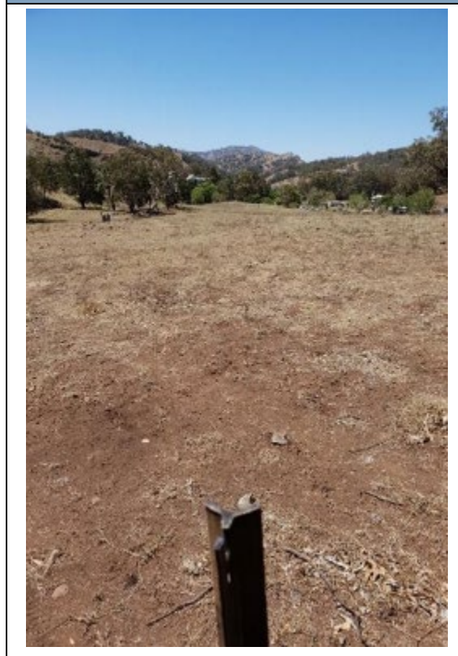
Plot Q01: Blakelys Red Gum (+/- Yellow Box) Dry Sclerophyll Grassy Woodlands/Open Woodland			
West 2019	West 2020	West 2021	West 2022

Plot Q02: River Oak (*Casuarina cunninghamiana*) Dry Sclerophyll Woodland			
North 2019	North 2020	North 2021	North 2022

Plot Q02: River Oak (*Casuarina cunninghamiana*) Dry Sclerophyll Woodland			
East 2019	East 2020	East 2021	East 2022

Plot Q02: River Oak (*Casuarina cunninghamiana*) Dry Sclerophyll Woodland			
South 2019	South 2020	South 2021	South 2022

Plot Q02: River Oak (*Casuarina cunninghamiana*) Dry Sclerophyll Woodland			
West 2019	West 2020	West 2021	West 2022

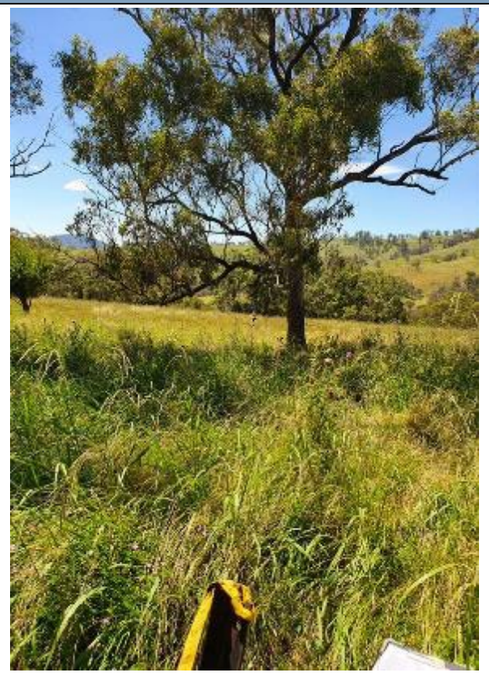
Plot Q03: White Box (*Eucalyptus albens*) and Rough barked Apple (*Angophora floribunda*) Dry Sclerophyll Grassy Woodland			
North 2019	North 2020	North 2021	North 2022
			

Plot Q03: White Box (*Eucalyptus albens*) and Rough barked Apple (*Angophora floribunda*) Dry Sclerophyll Grassy Woodland			
East 2019	East 2020	East 2021	East 2022

Plot Q03: White Box (*Eucalyptus albens*) and Rough barked Apple (*Angophora floribunda)* Dry Sclerophyll Grassy Woodland			
South 2019	South 2020	South 2021	South 2022

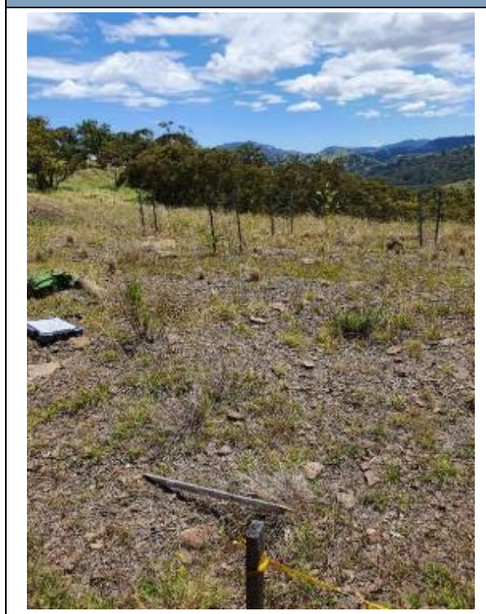
Plot Q03: White Box (*Eucalyptus albens*) and Rough barked Apple (*Angophora floribunda*) Dry Sclerophyll Grassy Woodland			
West 2019	West 2020	West 2021	West 2022

Plot Q04: Derived Native Grassland			
North 2019	North 2020	North 2021	North 2022

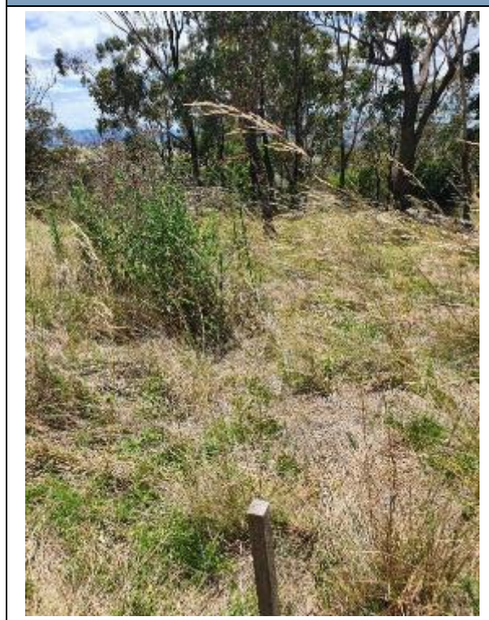
Plot Q04: Derived Native Grassland			
East 2019	East 2020	East 2021	East 2022
			

Plot Q04: Derived Native Grassland		
South 2019 (no picture taken 2020)	South 2021	South 2022

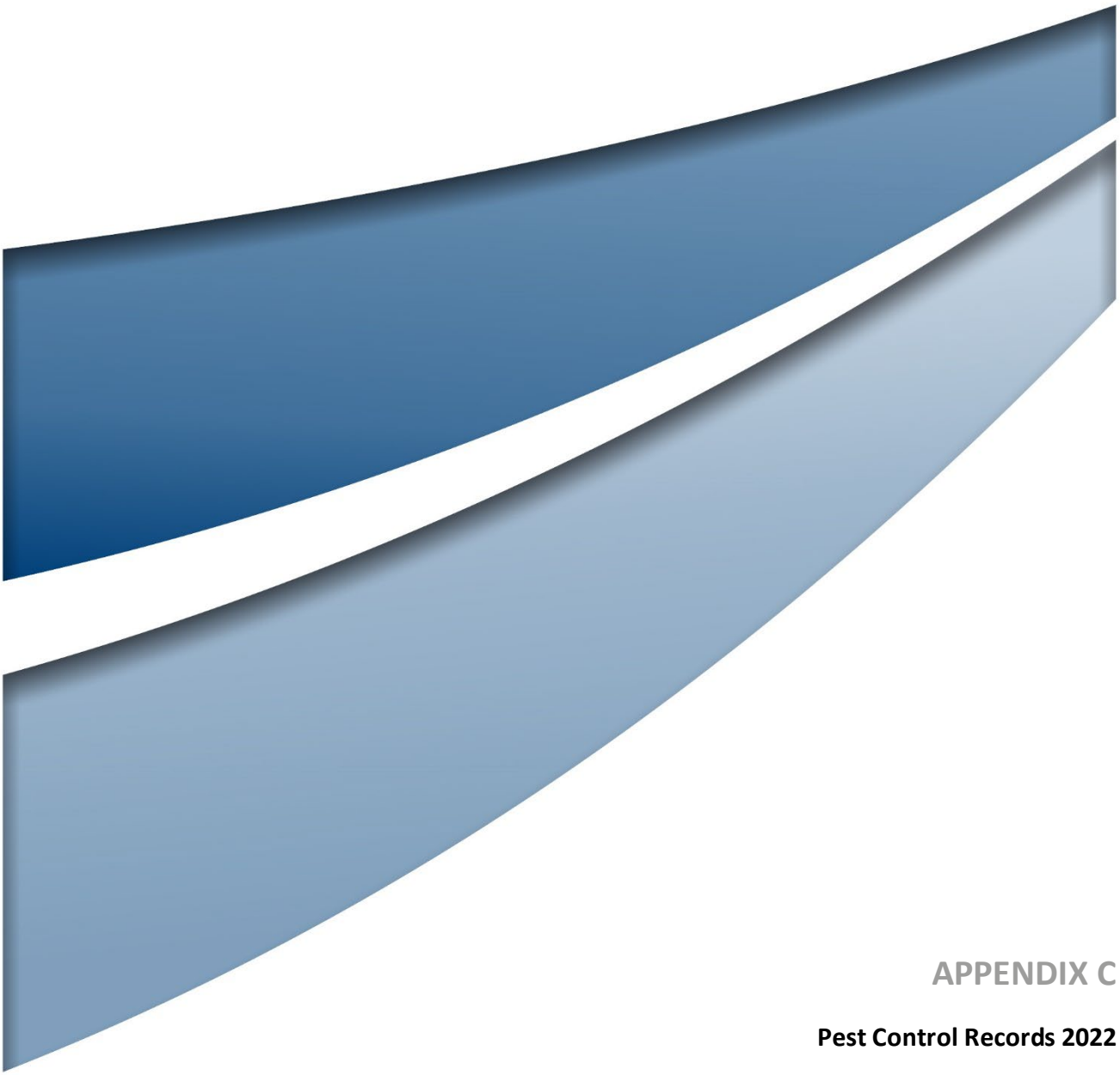
Photo Monitoring – Rehabilitation

Plot R01: Southern Rehabilitation			
North 2021	North 2022	East 2021	East 2022
			

Plot R01: Southern Rehabilitation			
South 2021	South 2022	West 2021	West 2022

Plot R02: Western Rehabilitation			
North 2021	North 2022	East 2021	East 2022
			

Plot R02: Western Rehabilitation			
South 2021	South 2022	West 2021	West 2022



APPENDIX C

Pest Control Records 2022

Shaun's Roo & Deer Shooting

Phone: 0431 034 447
E-mail: ss181984@hotmail.com

Shaun Stothard
33 Beauty Point Road,
Morisset,
NSW, 2264

To whom it may concern, **26th July, 2022**

Please find attached a brief outline of vermin harvested during the period January-June 2022:

TOTALS:

- Fallow Deer - 43
- Feral Cats - 0
- Foxes - 3
- Wild pigs - 35

Regards,

Shaun Stothard

SHAUN'S ROO & DEER SHOOTING

Shaun's Roo & Deer Shooting

Phone: 0431 034 447
E-mail: ss181984@hotmail.com

Shaun Stothard
33 Beauty Point Road,
Morisset,
NSW, 2264

To whom it may concern, **30th January, 2023**

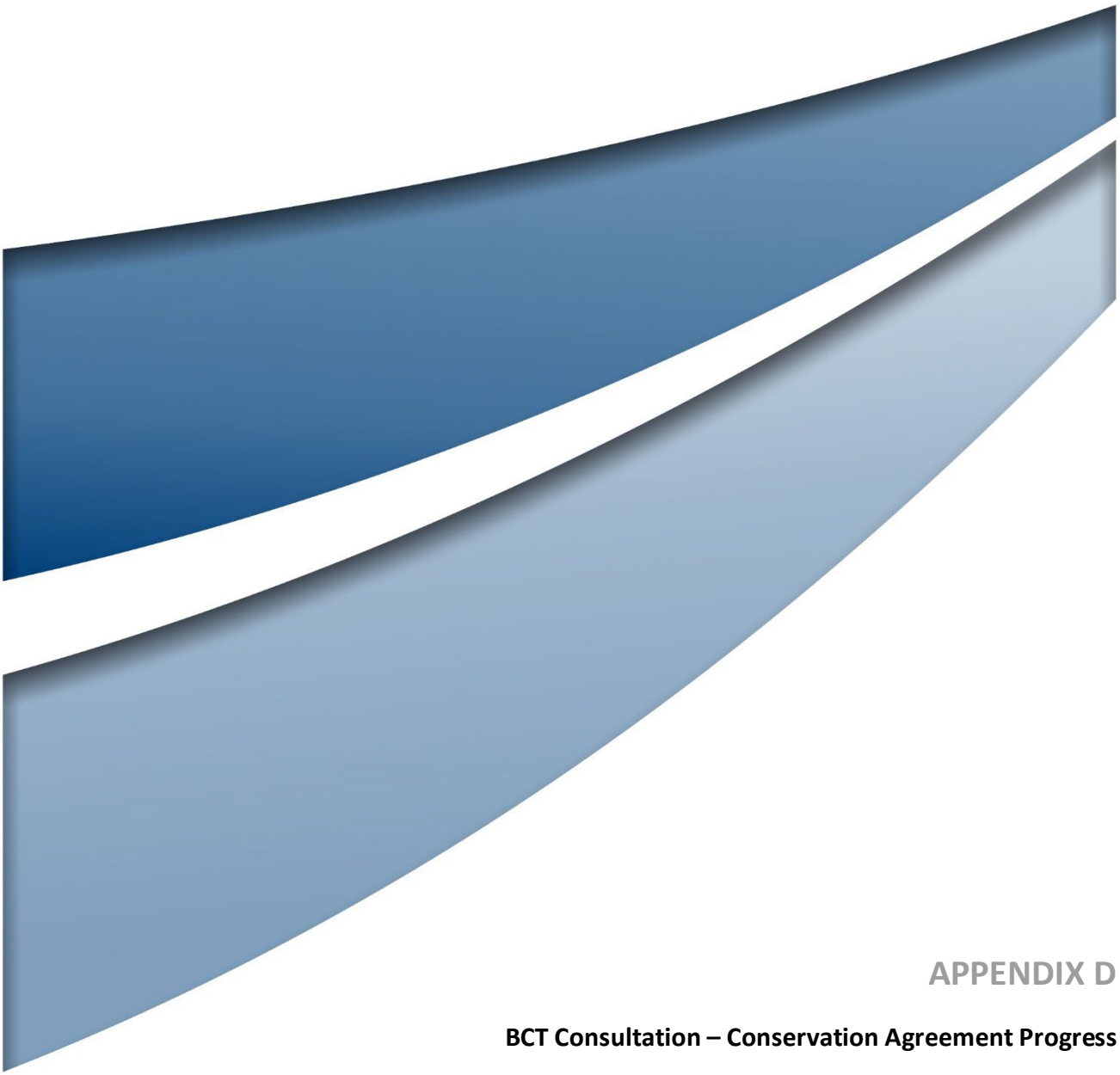
Please find attached a brief outline of vermin harvested during the period July-December 2022:

TOTALS:

- Fallow Deer - 16
- Feral Cats - 0
- Foxes - 1
- Wild pigs - 18

Regards,

Shaun Stothard



APPENDIX D

BCT Consultation – Conservation Agreement Progress

Amber Wilson

From: Amelia Paton <amelia.paton@bct.nsw.gov.au>
Sent: Wednesday, 25 January 2023 11:40 AM
To: Luke Robinson
Cc: BAR Ardglen Quarry; Leith Hawkins
Subject: RE: Draft Ardglen CA Review

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Luke,

Thank you for your time this morning to discuss the progress of the Ardglen Quarry CA Agreement.

The following points below outline the items discussed including their locations in the draft agreement and actions required.

1. **Attachment 1: Dictionary and Interpretation** – Darren Robson had raised whether the definition for 'Owner Associate' could be changed to include 'related entity' or something similar to capture the relationship between Buttai Gravel PTY LTD and Mingay Holdings. We have received advice from our legal team that yes, this may be changed to add either the term 'associated entity' or 'related body corporate'. Before this change is made in the CA template, BCT will need to confirm the legal relationship between Buttai and Mingay with you. Can you please provide the following:

    a. Confirmation if you are in agreeance that the definition of "Related Bodies Corporate" or "Associated Entities" would accurately capture the relationship between the parties, and if you would agree to define Owner Associate as: *"Any "Associated Entities" [or "Related Bodies Corporate"] to the Owner as defined in the Corporations Act 2001 (Cth), representative, servant, contractor, consultant, agent, lessee, licensee or invitee of the Owner.*

    b. Can you please provide documentation that demonstrates the legal relationship between the two entities that the BCT can keep on file?

2. **Part 4. Management Conditions: 2. Landholder Report** – The request was made to BCT as to whether the 14 day report submission time period could be extended to 60 days. Our legal team has advised that yes, the report submission period can be extended to 60 days. This will be added as a special condition in Item J of the Agreement and will override Item 2 here. The special condition wording is:

    "Despite any other provision of this Deed, the Owner must complete and submit a report to the NSW BCT for approval within 60 days after the end of each Reporting Period:

    (i) using the Annual Report Template;

    (ii) demonstrating satisfactory Completion of each Management Action required to be Completed within that Reporting Period by:

    (A) specifying the relevant Management Action that has been Completed; and

    (B) attaching Supporting Evidence.

    Note: Evidence will vary depending on the nature of the Management Action. For example, photographs may be appropriate to demonstrate Completion of a particular milestone, or, where the Management A ction requires works,

appropriate evidence may be receipts from the contractor demonstrating that the work has been carried out.

This condition ceases to apply if Mingay Property Holding Pty Ltd (ACN 644 067 121) is no longer the owner of the Land identified in Item E."

I have added the wording to the relevant section of the agreement for your review.

3. **Mapping** – Thank you for providing the surveyor feedback regarding the cadastre alignment. We acknowledge that the surveyor procedure is rigorous and likely to be more accurate than the online cadastre. Can you please confirm the following details:

    a. Have the Lot definition surveys been submitted to LRS and registered against the Title?

    b. If so, can you please forward confirmation from the surveyor, including the date of submission. This could be an email from LRS at the time of submitting surveys acknowledging the submission

    c. If the surveys haven't been submitted to LRS can you please either submit them or notify us as to why they haven't been submitted and we can discuss how we proceed.

4. **Mapping** – Can you please provide BCT with shapefiles that contain polygons for the CA boundary and also polygons of the Management Zones. This will allow us to undertake our checks to ensure there are no overlaps and to also confirm the area (ha).

5. **BCT Availability** – Northern Inland BCT staff will have limited availability for February 2023 as we are undertaking the NI Koala Tender fieldwork. We will recommence work on the Ardglen Quarry Agreement in March.

Please contact me with any questions or concerns.

Kind regards,
Amelia

Amelia Paton
Senior Regional Conservation Officer
NSW Biodiversity Conservation Trust
M 0455 453 335| **W** www.bct.nsw.gov.au | Who is the BCT?
7023 Gwydir Hwy, Inverell NSW 2360

The NSW Biodiversity Conservation Trust acknowledges the Traditional Custodians of Country throughout NSW and recognises their ongoing connection to land, waters and culture. We pay our respects to their Elders past, present and emerging and seek to genuinely and collaboratively engage with Aboriginal people in the delivery of our private land conservation programs.

From: Amelia Paton
Sent: Thursday, 15 December 2022 11:48 AM
To: Luke Robinson <Luke.Robinson@daracon.com.au>
Cc: BAR Ardglen Quarry <BAR@daracon.com.au>
Subject: HPE CM: RE: HPE CM: RE: Draft Ardglen CA Review

Hi Luke,

Unfortunately I have another meeting at 3pm today. Lets plan to meet after the 22 Jan 2023. I will send a tentative placeholder teams invitation, please let me know if you would prefer to change the date or time.

It has been our pleasure working with you and we look forward to finalising and executing the agreement next year.

I hope you have a great Christmas and relaxing holiday break.

Kind regards,
Amelia

Amelia Paton
Senior Regional Conservation Officer
NSW Biodiversity Conservation Trust
M 0455 453 335| **W** www.bct.nsw.gov.au | Who is the BCT?
7023 Gwydir Hwy, Inverell NSW 2360

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From: Luke Robinson <Luke.Robinson@daracon.com.au>
Sent: Thursday, 15 December 2022 11:31 AM
To: Amelia Paton <amelia.paton@bct.nsw.gov.au>
Cc: BAR Ardglen Quarry <BAR@daracon.com.au>
Subject: RE: HPE CM: RE: Draft Ardglen CA Review

Good morning Amelia,

I was wondering where you got to, but that's all good.

Unfortunately I'm unavailable at 4pm this afternoon as I have another commitment. I could maybe do 3pm today, but just let me know and we'll go from there?

I'm on leave from 29th December 2022 until the 22nd January 2023, so if we don't catch up this afternoon, I hope you have a great Xmas and fantastic New Year.

I also need to thank you for your ongoing assistance with the Ardglen CA, as you (and your team) have been very patient whilst also providing efficient and helpful guidance along the way.

Thanks again.

Regards Luke

Luke Robinson | Systems Manager - Construction Materials
20 Kullara Close | PO Box 401 Beresfield NSW 2322
p: 02 4974 9200 m: 0417 481 785
Luke.Robinson@daracon.com.au | www.daracon.com.au

From: Amelia Paton <amelia.paton@bct.nsw.gov.au>
Sent: Thursday, 15 December 2022 9:11 AM
To: Luke Robinson <Luke.Robinson@daracon.com.au>
Subject: RE: HPE CM: RE: Draft Ardglen CA Review

Hi Luke,

I apologise for my slow reply! I have been out in the field this week and didn't realise my reply was sitting in drafts.

If it suits you, I am available for a brief teams meeting today at 4pm. Otherwise we can catch up when you return from leave in January.

Cheers,
Amelia

Amelia Paton
Senior Regional Conservation Officer
NSW Biodiversity Conservation Trust
M 0455 453 335| **W** www.bct.nsw.gov.au | Who is the BCT?
7023 Gwydir Hwy, Inverell NSW 2360

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From: Luke Robinson <Luke.Robinson@daracon.com.au>
Sent: Wednesday, 7 December 2022 3:50 PM
To: Amelia Paton <amelia.paton@bct.nsw.gov.au>
Cc: BAR Ardglen Quarry <BAR@daracon.com.au>; John Cannon <John.Cannon@daracon.com.au>; Emily Clements <emily.clements@bct.nsw.gov.au>
Subject: RE: HPE CM: RE: Draft Ardglen CA Review

Good afternoon Amelia,

A few answers below in red.

I'm happy to talk if that makes it easier though?

Regards Luke

Luke Robinson | Systems Manager - Construction Materials
20 Kullara Close | PO Box 401 Beresfield NSW 2322
p: 02 4974 9200 m: 0417 481 785
Luke.Robinson@daracon.com.au | www.daracon.com.au

From: Amelia Paton <amelia.paton@bct.nsw.gov.au>
Sent: Wednesday, 7 December 2022 3:36 PM
To: Luke Robinson <Luke.Robinson@daracon.com.au>
Cc: BAR Ardglen Quarry <BAR@daracon.com.au>; John Cannon <John.Cannon@daracon.com.au>; Emily Clements <emily.clements@bct.nsw.gov.au>
Subject: RE: HPE CM: RE: Draft Ardglen CA Review

Hi Luke,

Thank you for submitting the your feedback. I commenced reviewing it this morning. Thank you

To help with planning the timeframes ahead, are you having a Christmas shutdown? For most of our staff, our Xmas shutdown will be from COB 23/12/22 with most returning 03/01/23.
The BCT has a Christmas shutdown from 25/12/22 – 6/1/2022. I will be on leave from Monday 19/12/22 until Monday 16/1/2023. I'm also taking leave with mine commencing 29/12/22 and returning 23/01/23.
I am in the field from Friday 9/12 – Wednesday 14/12 inclusive, however, I will aim to give you a progress update Friday 16/12 before I go on leave. Is there a time that suits you for a brief teams meeting? Unfortunately I'm already fully booked for Friday 16/12, but can maybe do late in the afternoon of Thursday 15/12 if that's suitable?

Kind regards,
Amelia

Amelia Paton
Senior Regional Conservation Officer
NSW Biodiversity Conservation Trust
M 0455 453 335| **W** www.bct.nsw.gov.au | Who is the BCT?
7023 Gwydir Hwy, Inverell NSW 2360

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From: Luke Robinson <Luke.Robinson@daracon.com.au>
Sent: Tuesday, 6 December 2022 1:56 PM
To: Amelia Paton <amelia.paton@bct.nsw.gov.au>
Cc: BAR Ardglen Quarry <BAR@daracon.com.au>; John Cannon <John.Cannon@daracon.com.au>; Emily Clements <emily.clements@bct.nsw.gov.au>
Subject: HPE CM: RE: Draft Ardglen CA Review

Good afternoon Amelia,

Thank you again for being so patient with this process, we've been completely swamped lately but I think we've finally managed to develop appropriate responses to the questions raised by Emily.

Please see attached the following:

- The updated CA offset agreement with more information included;
- A redacted document from Umwelt that describes the proposed 'monitoring methodology' as requested by Emily;
- A Dropbox link below (images are large files) including the revised images:

https://www.dropbox.com/t/b4KfFpwlsfg3DxJD

I hope this answers the questions raised by Emily, but please feel free to ring me if you have any further questions as some of the comments in the CA are becoming quite large a little bit difficult to follow….

Regards Luke

Luke Robinson | Systems Manager - Construction Materials
20 Kullara Close | PO Box 401 Beresfield NSW 2322
p: 02 4974 9200 m: 0417 481 785
Luke.Robinson@daracon.com.au | www.daracon.com.au

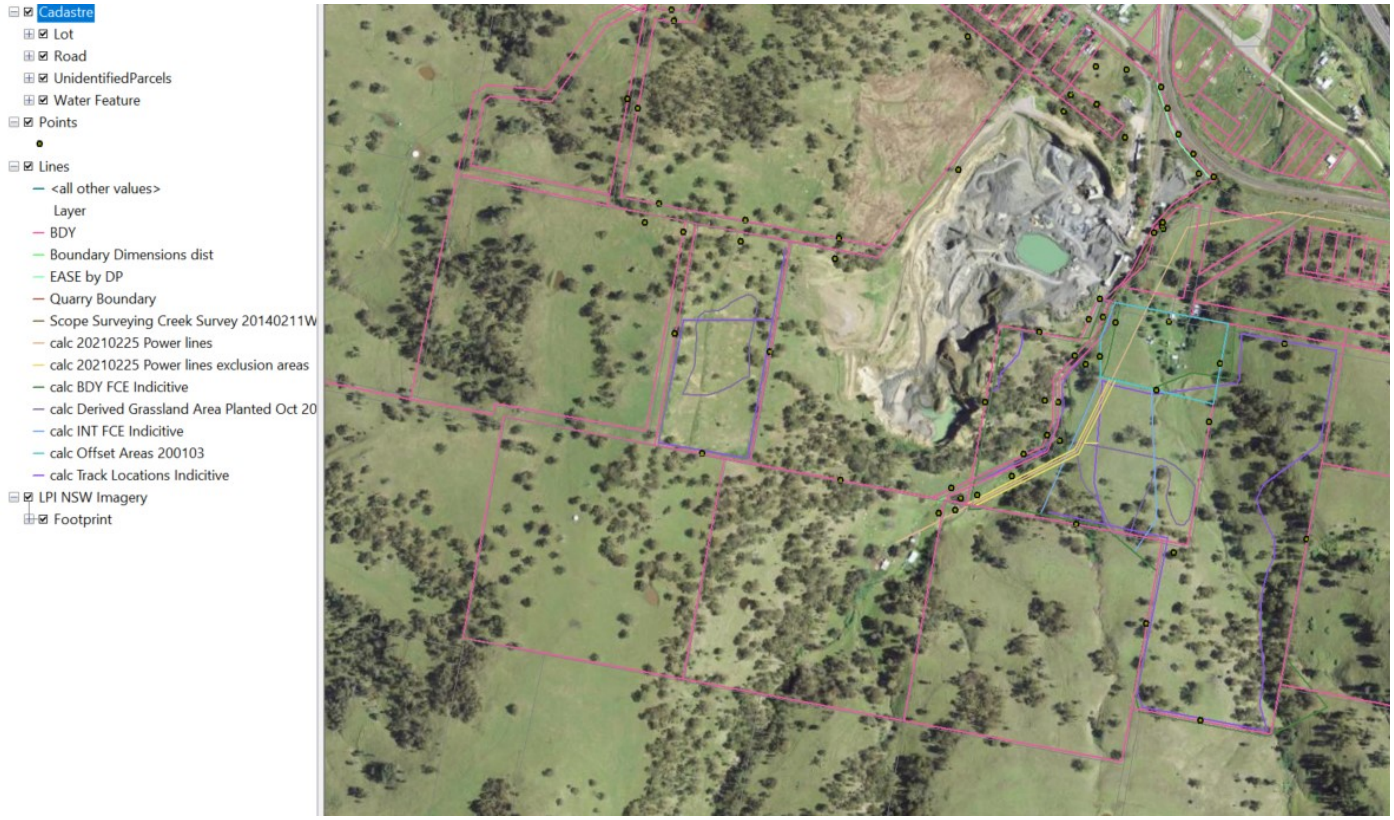
From: Emily Clements <emily.clements@bct.nsw.gov.au>
Sent: Thursday, 20 October 2022 10:27 AM
To: Luke Robinson <Luke.Robinson@daracon.com.au>
Cc: Amelia Paton <amelia.paton@bct.nsw.gov.au>; BAR Ardglen Quarry <BAR@daracon.com.au>
Subject: Re: Draft Ardglen CA Review

Hi Luke,

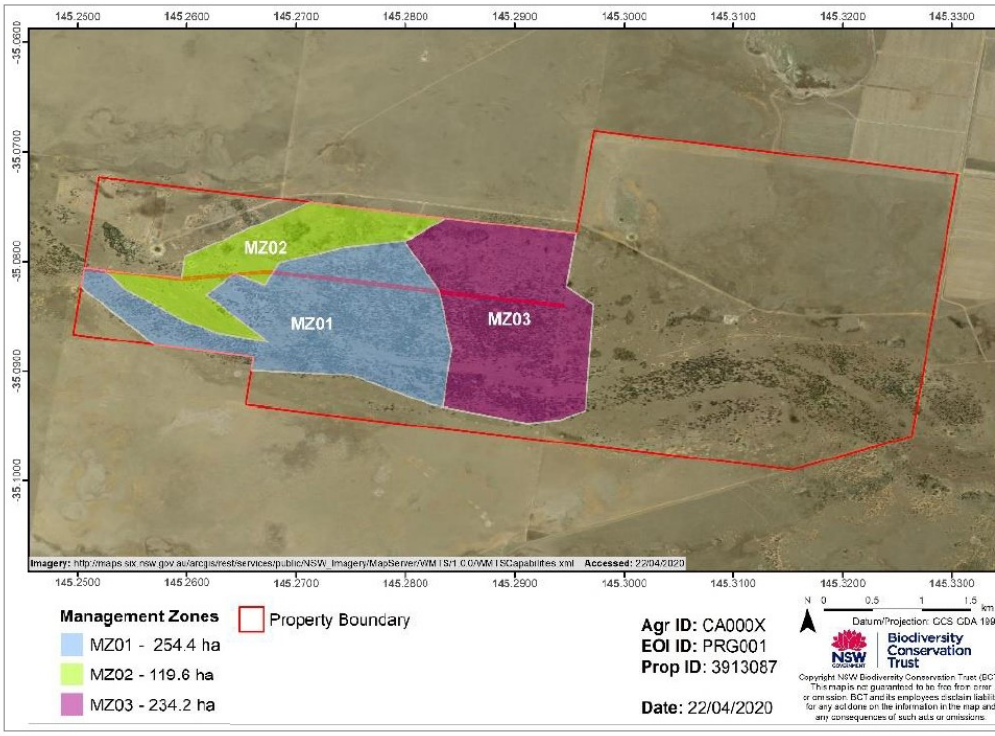
Absolutely no need to apologise, it's a busy time of year and there is lots happening for us all!

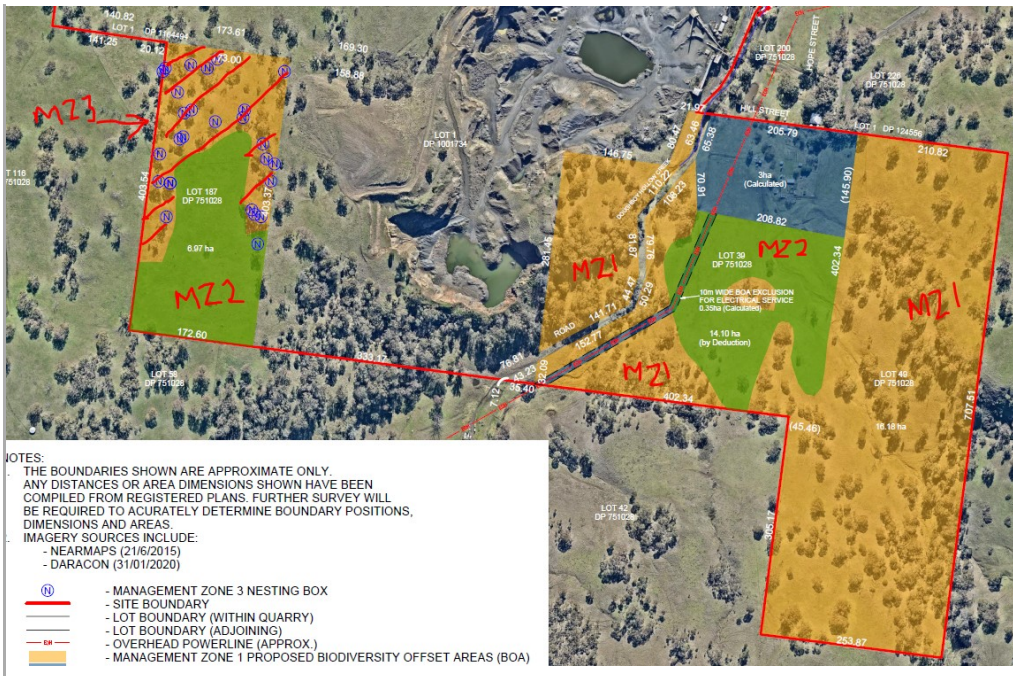
See below comments in relation to pdf maps you provided us. In addition to the maps, I was reviewing the shapefiles you provided, and noted that the boundaries did not align to the cadastre. Can you please confirm what projection was used to create these maps, as the misalignment may simply be because I am using something different?

Regarding the shapefiles, I'd like to run a check to ensure there are no overlaps between layers, and to also check the hectares. Do you happen to have a shapefile which contains the polygons of the CA itself, as well as management zones? The layers I have at the moment are all lines or points (see screenshot) which makes it a little harder to differentiate between zones.



Map	Feedback
BAR-DEV-004_1 (Conservation Area Boundary Map)	1. Due to its colour, at first glance the dam in the middle of the quarry appears Suggest changing the shading of the offset area to a slightly different yellow 2. 3. Scale bar appears to be missing. 4. 5. Please include date imagery accessed - I've been advised this is a standard B 6. 7. Legend states "Proposed Biodiversity Offset Areas (BOA)". Given this will be agreement, please update legend to "Conservation Agreement Area". 8. 9. As above, remove "proposed" from map title. Suggest updating wording to " Boundary Map". 10. 11. Rather than having two separate legend items for lots, suggest simplifying ar layer - "Lot". 12. 13. Right of Carriageway - add units of measure (presumably metres). Current m
BAR-DEV-006_1 (Tracks and Infrastructure Map)	1. Due to its colour, at first glance the dam in the middle of the quarry appears Suggest changing the shading of the offset area to a slightly different yellow 2. 3. Scale bar appears to be missing. 4. 5. Please include date imagery accessed. 6. 7. Given discussions last meeting around current fencing being relocated to alig actual CA boundary, please update map to reflect this. For example, add a pr where any current fence lines are to be removed (i.e. triangle on eastern bou removed layer. 8.

	9. Legend states "<u>Proposed</u> Biodiversity Offset Areas (BOA)". Given this will be agreement, please update legend to simply say "Conservation Agreement Ar 10. 11. As above, remove "proposed" from map title. Suggest updating wording to " Infrastructure Map" 12. 13. Rather than having two separate legend items for lots, suggest simplifying ar layer - "Lot"
BAR-DEV-007_1 (Management Zone Map)	1. 2. Scale bar appears to be missing. 3. 4. Please include date imagery was accessed. 5. 6. Lot/DP boundaries not displaying despite being in the legend. Please either r onto map. 7. 8. MZs should be reworked to reflect the Management Plan. Habitat Augmenta Revegetation can all be undertaken in MZ#2 according to the MP, all other m relevant across all zones. Suggest splitting into three MZs each represented b example below): a. Management Zone 1 - Low Intensity or Standard Management b. Management Zone 2 - Revegetation, Thinning and Habitat Augmenta c. Management Zone 3 - Habitat Augmentation 9. Note: If this is adopted, you will need to update the Habitat Augmentation m to say both MZ#2 and MZ#3 



5. Where 'N' points have been used to represent nest box locations, happy for t remove reference to management zone in legend.
6.
7. Remove "proposed" from map title. Suggest renaming to "CA0363 Managem

A couple of other points I thought I'd update you on:

- Amelia has recently taken on the Senior Conservation Assessment Officer role, which means she will largely be back working in the offset space. This also means she is going to take back on the lead for Ardglen for us (I'll continue to assist where needed).
- Since providing the draft CA feedback, I have been in touch with our agreements team regarding the reporting timeframes noted in the agreement. They are drafting, and providing to our legal team, a special condition to include in the agreement to allow an extension to that 14-day period. Unfortunately, this is not a quick process, it will likely be mid-late November before we will receive the final legal advice on it.
- You'll find attached a copy of the Site Values Report template for completion. We weren't sure if Mark had provided you with one previously, but it has recently been updated. If Mark has given you one already, and you have started to populate it, it's ok for you to continue using that version instead of this one.

If you'd be interested, we'd be more than happy to set up another meeting at some point if you'd like to discuss any of the feedback or have any queries in general.

Kind Regards,

Emily Clements
Senior Conservation Assessment Officer - Northern Inland
NSW Biodiversity Conservation Trust
M 0419 487 602| **W** www.bct.nsw.gov.au | Who is the BCT?
35-37 Abbott Street, Gunnedah NSW 2380

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From: Luke Robinson <Luke.Robinson@daracon.com.au>
Sent: Wednesday, 19 October 2022 1:50 PM
To: Emily Clements <emily.clements@bct.nsw.gov.au>
Cc: Amelia Paton <amelia.paton@bct.nsw.gov.au>; BAR Ardglen Quarry <BAR@daracon.com.au>
Subject: RE: Draft Ardglen CA Review

Good afternoon Emily,

Thank you for providing the draft CA with further BCT input. I do need to apologise, as I've not had the chance to fully review your comments as yet.

Therefore, if you've got any further comments on the maps/images included with our previous response, it'd be good to receive them so we can then review and respond to all BCT comments as a whole.

Thanks and regards.

Luke

Luke Robinson | Systems Manager - Construction Materials
20 Kullara Close | PO Box 401 Beresfield NSW 2322
p: 02 4974 9200 m: 0417 481 785
Luke.Robinson@daracon.com.au | www.daracon.com.au

From: Emily Clements <emily.clements@bct.nsw.gov.au>
Sent: Friday, 30 September 2022 3:29 PM
To: Luke Robinson <Luke.Robinson@daracon.com.au>
Cc: Amelia Paton <amelia.paton@bct.nsw.gov.au>
Subject: Draft Ardglen CA Review

Hi Luke,

Attached you'll find my review of the Draft Ardglen Offset CA. Please note I haven't reviewed the mapping yet but was keen to provide you with the draft agreement itself so you could progress with your own review of it.

I hope to provide you with the mapping feedback in the next week or two. In the meantime, please do not hesitate to contact me if you have any queries.

Thank you for your patience, and I hope you have a great long weekend.

Kind Regards,

Emily Clements
Senior Conservation Assessment Officer - Northern Inland
NSW Biodiversity Conservation Trust
M 0419 487 602| **W** www.bct.nsw.gov.au | Who is the BCT?
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Appendix 7 Waste Register

No waste generated during the reporting period

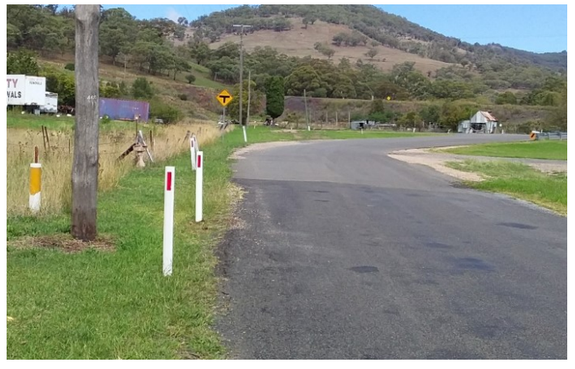
Appendix 8 Road Safety Audit

Table 1 – Ardglen Quarry Road Safety Audit (RSA) – Summary of responses March 2023

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
1	Intersection of Main Street and New England Highway Northbound and Southbound Delineation	The approach to the intersection of Main Street and New England Highway is missing delineation (i.e. RRPM's) and has faded line marking. This may increase the likelihood of readability issues for a driver. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and injury to occupants of a vehicle(s).	RMS Response – New England Highway (NEH) work will be addressed by works for Daracon	Mostly complete with essential delineation re-instated along New England Highway (NEH) by RMS prior to July 2019. Main Street Ardglen delineation installed on the 11th July 2019 by Daracon. All as shown in the images.	 	As of the 24th March 2023, we've completed the access road widening and construction work (as approved by LPSC) and plan to complete the NEH intersection scope imminently. This will be completed before we increase laden truck movements in accordance with the Approval.
2	New England Highway Southbound Delineation	The existing right turn bay into Main Street is missing right turn pavement arrows, which may lead to readability issues for approaching vehicles. The likelihood of this risk may increase at night and / or adverse weather conditions. This may confuse oncoming drivers for the purpose of lane and cause late lane change decisions. This may result in vehicle crashes and injury to occupants of a vehicle(s).	RMS Response – **RMS to install missing Right Turn Arrows**. RMS to arrange to be included in this year's AC linemarking program.	Completed by RMS prior to July 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
3	New England Highway Southbound Traffic signs	The advanced warning signage on approach to Main Street appears damaged, does not provide advanced warning to approaching vehicles, and has a reduced readability due to sightlines being obscured on the horizontal curve approach. This may lead to driver confusion and increase the likelihood of drivers slowing too early prior to the intersection and may result in vehicle crashes and serious injury to occupants of a vehicle(s).	RMS Response – **RMS to repair signs** from Routine Maintenance	Completed by RMS prior to July 2019.		N/A
4	Intersection of Main Street and New England Highway Northbound and Southbound Delineation and Road pavement	At the intersection New England Highway and Main Street there is a combination of damaged / deformed pavement, loose gravel in the mouth of the intersection and faded delineation. The faded delineation may cause drivers readability issues. The loose gravel and damaged pavement may increase the likelihood of vehicles being unable to gain the required traction when entering Ardglen Road from New England Highway. The likelihood of this risk may increase during adverse weather conditions. This may result in vehicle crashes and serious injury to occupants of a vehicle(s).	RMS Response – New England Highway (NEH) work will be addressed by works for Daracon.	Partially complete with essential delineation re-instated along New England Highway (NEH) by RMS prior to July 2019 as shown in Item (1) above. Loose gravel removed by Daracon on 3rd April 2019. Daracon continues to monitor for damage and /or further deterioration of the pavement in this area and repairs as required in accordance with the current maintenance arrangement with Liverpool Plains Shire Council (LPSC).		As of the 24th March 2023, we've completed the access road widening and construction work (as approved by LPSC) and plan to complete the NEH intersection scope imminently. This will be completed before we increase laden truck movements in accordance with the Approval.
5	Main Street South of the Intersection on the outside of the curve Northbound Road pavement	At the Main Street / rail site compound access and in front of the existing w-beam safety barrier there is loose gravel on the outside of the horizontal curve. This may lead to reduced skid resistance for an errant vehicle. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and serious injury to occupants of a vehicle(s).	As agreed with LPSC representative, the loose gravel on the outside of the curve will be removed by appropriate means by Daracon.	Daracon completed this on the 3rd April 2019 with street sweeper on site. Additional gravel removal on the 11th July 2019 before the line marking was installed		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
6	Main Street – South of the intersection of New England Highway Northbound and Southbound Roadside hazards	200m along Main Street from the intersection of New England highway, there is an existing culvert with steep embankments within the clear zone. The combination of narrow shoulder widths, steep batters, culvert headwalls within the clear zone, may limit a driver's manoeuvrability to avoid striking an object or have a reduced ability to gain control of their vehicle and strike objects within the clear zone. Narrow shoulders may also limit the available road width for wide vehicle loads and restrict vehicles in the opposing direction. This may increase the likelihood of drivers encroaching into the opposing travel lane and / or vehicles driving within the road shoulder / verge area to avoid a stationary object on the road. This may result in drivers striking the object or another object within the clear zone and lead to rapid deceleration of the vehicle. This may result in serious injury (not limited to) to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to install a temporary barrier (type F concrete or similar) to highlight the presence of the existing culvert and minimise the likelihood of interaction with the roadside hazard. Subject to the ongoing operation of the quarry, Daracon may choose to install a permanent barrier (guardrail or similar) at some time in the future.	Effectively complete with the self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks was imposed immediately. On the 11th July 2019, additional controls were installed to highlight the presence of the culvert. These additional controls were the extension of the line marking and installation of extra guideposts as shown in the image.		As of the 24th March 2023 and in consultation with LPSC, guardrail has been installed at this location (as approved by LPSC), which permanently resolves this issue.
7	Main Street – Rail site compound access Northbound Road alignment and cross section and delineation	Approximately 150m from the intersection of New England Highway along Main Street there is an access track to a rail site compound. At the access there is a lack of delineation on the horizontal curve. This may give the oncoming driver the impression that the Main Street continues through rather the traveling to the right, especially at night. This may cause a driver to make a late change in direction. The combination of loose gravel on the outside of the curve and the late change in direction may result in crashes with other vehicles and result in injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to install additional guide posts (or similar) to delineate the outside of the horizontal curve.	Completed on the 26th March 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
8	Main Street Northbound and Southbound Road pavement And Road alignment and cross section	The road carriageway width does not appear suitable for vehicles to pass (i.e. trucks passing other trucks and / or cars). The travel lane widths may limit a driver's manoeuvrability and increase the likelihood of readability issues to oncoming vehicles. Narrow travel lane may also limit the available road width for wide vehicle loads and restrict vehicles in the opposing direction. This may result in drivers striking oncoming objects or another object within the clear zone and lead to rapid deceleration of the vehicle. This may result in injury to occupants of a vehicle(s).	Please also refer to LPSC point #2 below. Although the AADT would be less than 300 vehicles per day including the quarry operating at 500,000T by road per year as proposed (approximately 60 outbound and 60 inbound truck movements), it was agreed with LPSC to install additional line marking only at the curves either end of Main St. The straight section of Main St will remain with no line marking. All existing line marking will also be renewed if not completed recently by LPSC. An additional control that has been implemented is the self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks.	Completed on the 11th July 2019.		N/A
9	Main Street Intersection with Ardglen Road Northbound and Southbound Traffic signs	On Main Street approach to Ardglen Road, the existing speed zone repeater signage appears faded. This may increase the likelihood of readability issues for drivers, and increase the likelihood of a driver failing to travel to the sign posted speed limit. The likelihood of this risk may increase at night and / or adverse weather conditions. This may lead to vehicle crashes and injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to install new speed limit signage as the existing sign is faded.	Completed on the 20th March 2019.		N/A
10	Main Street Approaching the Intersection with Ardglen Road Northbound and Southbound Roadside hazards	On Main Road approach to Ardglen Road, there is an existing power pole and fence posts within the clear zone. Errant vehicles at these locations may have a reduced ability to gain control of their vehicle and strike the power pole or fence post within the clear zone which may lead to rapid deceleration of the vehicle. This may be due to the combination of horizontal and / or vertical alignment of the road and / or drivers swerving to avoid striking an animal (i.e. animal carcass). The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and injury to occupants of a vehicle(s), not limited to.	As agreed with LPSC representative, Daracon proposes to install delineation in the form of additional guideposts adjacent to the roadway to highlight the presence of the existing power pole.	Completed on the 26th March 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
11	Main Street Approaching the Intersection with Ardglen Road Northbound and Southbound Pavement	Approximately 65m along Main Road from the intersection of Main Road and High Road, there is loose gravel on the outside of the horizontal curve. This may lead to reduced skid resistance for an errant vehicle. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and serious injury to occupants of a vehicle(s).	As agreed with LPSC representative, the loose gravel on the outside of the curve will be removed by appropriate means by Daracon.	Completed on the 3rd April 2019 with street sweeper on site. Additional gravel removal occurred on the 11th July 2019 before the line marking was installed.		N/A
12	Main Street Intersection with High Street Delineation	At the intersection of Main Street and High Street, the existing delineation is faded. This may lead to readability issues for a driver and increase the likelihood of a vehicle failing to give way at the intersection. The likelihood of this risk may increase at night and / or adverse weather conditions. This may lead to vehicle crashes and injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to refresh the existing line marking.	Completed on the 11th July 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
13	Main Street Intersection with High Street Westbound Traffic signs	Approaching the intersection of Main Street and High Street from the south eastern side traveling west there is a missing Stop sign. This may increase the likelihood of readability issues for drivers and lead to drivers failing to stop to oncoming vehicles. This may increase the likelihood of vehicle crashes, especially during adverse weather conditions. This could lead to crashes with other vehicles, thus may result in serious injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to reinstate the existing stop sign.	Completed on the 20th March 2019.		N/A
14	High Street Approach to St Stephen Street intersection Westbound Traffic signs	On the south eastern side of the intersection of High Street and St Stephen Street, the advanced warning of T-intersection signage is loose, which has caused the sign to point in the wrong direction. This may increase the likelihood of readability issues for drivers and lead to drivers failing to negotiate the intersection. This may increase the likelihood of vehicle crashes, especially during adverse weather conditions. This could lead to crashes with other vehicles, thus may result in serious injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to reinstate the existing T intersection sign.	Completed on the 26th March 2019.		N/A
15	High street Rail overpass bridge Eastbound and Westbound Road alignment and cross section	Traveling west along High Street towards the rail overpass bridge, the travel lanes appear to narrow and there is a kink in the alignment of the road. The narrow travel lane widths may limit a driver's manoeuvrability and increase the likelihood of readability issues to oncoming vehicles. Narrow travel lane may also limit the available road width for wide vehicle loads and restrict vehicles in the opposing direction. This may result in drivers striking oncoming vehicles or safety barriers and lead to rapid deceleration of the vehicle. This may result in serious injury (not limited to) to occupants of a vehicle(s).	As agreed with LPSC representative, all existing line marking will be renewed if not completed recently by LPSC. An additional control that has been implemented is the self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks. Appropriate delineation already exists along the guardrail.	Self-imposed 40 kph speed limit imposed immediately. The line marking was completed on the 11th July 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
16	High Street Approach to St Stephen Street Intersection Eastbound and Westbound Delineation	At the intersection of High Street and St Stephen Street, the existing delineated is faded. This may lead to readability issues for a driver and increase the likelihood of a vehicle failing to give way / stop at the intersection. The likelihood of this risk may increase at night and / or adverse weather conditions. This may lead to vehicle crashes and injury to occupants of a vehicle(s).	As agreed with LPSC representative, all existing line marking will be renewed by Daracon if not completed recently by LPSC.	Completed on the 11th July 2019.		N/A
17	St Stephen Street Northbound and Southbound Road alignment and cross section	The road carriageway width along St Stephens Street does not appear suitable for vehicles to pass (i.e. trucks passing other trucks and / or cars). The travel lane widths may limit a driver's manoeuvrability and increase the likelihood of readability issues to oncoming vehicles. Narrow travel lane may also limit the available road width for wide vehicle loads and restrict vehicles in the opposing direction. This may result in drivers striking oncoming vehicles or objects within the clear zone and lead to rapid deceleration of the vehicle. This may result in serious injury (not limited to) to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon will consult with the three residents along Warra and St Stephen Streets to discuss the potential installation of convex mirrors at strategic locations and will install as agreed. Daracon has also implemented a self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance as well as a mandatory "call up" protocol for St Stephens and Warra St's as detailed in the TTMP.	Complete with the self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks was imposed immediately. The call up protocol for St Stephens and Warra St's was also implemented immediately as detailed in the TTMP. The residents along Warra and St Stephens St were also consulted with and agreed that the installation of "convex mirrors" located in strategic locations would assist to mitigate the issues identified. The "convex mirrors" were installed on the 15th August 2019 as shown in the images.		As of the 24th March 2023 and in consultation with LPSC, the widening of the access road at this location is complete (as approved by LPSC), which permanently resolves this issue.

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
18	St Stephen Street Intersection with Warra Street Northbound and Southbound Road alignment and cross section And Road Pavement	Traveling along St Stephens Street towards Warra Street there is deteriorated / damaged pavement with excessive road cross fall, narrow lane widths and sight distance restrictions. The combination of all the above elements may limit a driver's manoeuvrability and increase the likelihood of readability issues to oncoming vehicles. Narrow travel lane may also limit the available road width for wide vehicle loads and restrict vehicles in the opposing direction. This may result in drivers striking oncoming objects or another object within the clear zone and lead to rapid deceleration of the vehicle. This may result in serious injury (not limited to) to occupants of a vehicle(s).	Refer to RSA CAR #17.	Refer to RSA CAR #17.		N/A
19	Warra Street Northbound and Southbound Road alignment and cross section	The road carriageway width along Warra Street does not appear suitable for vehicles to pass (i.e. trucks passing other trucks and / or cars). The travel lane widths may limit a driver's manoeuvrability and increase the likelihood of readability issues to oncoming vehicles. Narrow travel lane may also limit the available road width for wide vehicle loads and restrict vehicles in the opposing direction. This may result in drivers striking oncoming vehicles or objects within the clear zone and lead to rapid deceleration of the vehicle. This may result in serious injury (not limited to) to occupants of a vehicle(s).	Refer to RSA CAR #17.	Refer to RSA CAR #17.		N/A
20	Warra Street Near the quarry entrance Southbound Pavement And Road alignment And cross section	Near the entrance to the quarry and part of Warra Road the existing pavement is deteriorated and shoulder show evidence of erosion. This may lead to soft shoulders and may be unstable for heavy vehicle to use if divers need to move their vehicle to avoid oncoming traffic. This may result in injury to occupants of a vehicle(s), not limited to.	As agreed with LPSC representative, Daracon proposes to investigate and repair the shoulder as described in the RSA.	Completed 20th March 2019.		As of the 24th March 2023 and in consultation with LPSC, the widening of the access road at this location is complete (as approved by LPSC), which permanently resolves this issue.

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
21	Warra Street Northbound and Southbound Roadside hazards	Along Warra Street the auditors observed trees within clear zone as well as narrow carriageway. Errant vehicles at these locations may have a reduced ability to gain control of their vehicle and strike the trees within the clear zone which may lead to rapid deceleration of the vehicle. This may be due to the narrow carriageway width of the road and / or drivers swerving to avoid striking oncoming vehicles. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and injury to occupants of a vehicle(s), not limited to.	As agreed with LPSC representative, Daracon proposes to install delineation in the form of additional guideposts adjacent to the roadway to highlight the presence of the trees. Daracon has implemented a self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance as well as a mandatory "call up" protocol for St Stephens and Warra St's as detailed in the TTMP.	Guidepost installation completed on the 26th March 2019.		As of the 24th March 2023 and in consultation with LPSC, guardrail has been installed at this location (as approved by LPSC), which permanently resolves this issue.
22	Warra Street Northbound and Southbound Roadside hazards	Approximately 50m from the entrance of the quarry there is an existing culvert headwall with drop-off within the clear zone. Errant vehicles at these locations may have a reduced ability to gain control of their vehicle impact with the existing headwall and / or surrounding objects within the clear zone. This may be due to the narrow carriageway width of the road and / or drivers swerving to avoid striking oncoming vehicles. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and serious injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to install a temporary barrier (type F concrete or similar) to highlight the presence of the existing culvert and minimise the likelihood of interaction with the roadside hazard. Additionally, **LPSC have committed to investigating the option of extending the existing storm water pipe** to permit widening of the formation thus eliminating the roadside hazard.	The self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks was imposed immediately. The call up protocol for St Stephens and Warra St's was also implemented immediately as detailed in the TTMP. Temporary delineation was installed on the 1st April 2019 as shown in the image. These are considered appropriate short term rectification measures due to the fact that this location exists beyond the section of Warra St that requires private vehicular access and only quarry traffic utilises this section of road.		As of the 24th March 2023 and in consultation with LPSC, the widening of the culvert and installation of guardrail at this location is complete (as approved by LPSC), which permanently resolves this issue.

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
23	Warra Street Quarry entrance Northbound and Southbound Road alignment and cross section	At the site entry of the quarry, the entry appears narrow, lack of carriageway width for drivers to turn around as well as lack of restriction signage / no through road. This may lead to diver frustration and confusion which may contribute to diver error. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and serious injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon has implemented a self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance as well as a mandatory "call up" protocol for St Stephens and Warra St's as detailed in the TTMP.	The self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks was imposed immediately. The call up protocol for St Stephens and Warra St's was also implemented immediately as detailed in the TTMP. Additional "no entry" and "no through road" signage was installed on the 11th July 2019.	 	As of the 24th March 2023 and in consultation with LPSC, the widening of the access road at this location is complete (as approved by LPSC), which permanently resolves this issue.
24	Warra Street Northbound and Southbound Delineation	It was noted that along Warra Street there is a lack of delineation. This may increase the likelihood of readability issues for drivers. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to install delineation in the form of additional guideposts adjacent to the roadway.	Guidepost installation completed on the 11th July 2019.		As of the 24th March 2023 and in consultation with LPSC, the widening of the access road at this location is complete (as approved by LPSC), which permanently resolves this issue.

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
LPSC #1	Either side of the rail overpass bridge	The two 'T' intersections either side of the rail overpass bridge are not your normal 'T' intersections in that the approach roads to the top of the 'T' have right away, whereas the thru road normally has right of way. Whilst 'Give Way' and 'Stop Signs' along with line marking (that needs maintaining) exists, I think advance warning 'Give Way Sign Ahead' and 'Stop Sign Ahead' signs (W3-1B and W3-2B) should be considered to forewarn road users along High Street and Swinging Ridges Road as the thru road(s).	Daracon agree to install additional advance warning 'Give Way Sign Ahead' and 'Stop Sign Ahead' signs (W3-1B and W3-2B) to forewarn road users along High Street and Swinging Ridges Road as the thru road(s)	Completed on the 20th March 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
LPSC #2	Main Street	There is no centreline delineation along the Ardglen Road (it is being called Main Street in the RSA). High Street has centreline marking (albeit it is very faded and needs redoing). Given there are 2 curves along the Ardglen Road, the RSA should identify the lack of centreline marking along this road in greater detail.	Although the AADT would be less than 300 vehicles per day including the quarry operating at 500,000T by road per year as proposed (approximately 60 outbound and 60 inbound truck movements), it was agreed with LPSC to install additional line marking only at the curves either end of Main St. The straight section of Main St will remain with no line marking. All existing line marking will also be renewed if not completed recently by LPSC. An additional control that has been implemented is the self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks.	Completed on the 11th July 2019.		N/A
LPSC #3	Main Street	The advance 'T' junction warning sign on Ardglen Road on approach to High Street does not depict the road alignment on approach to the intersection. The approach to the intersection has a horizontal curve between the Advanced intersection Warning Sign and the intersection. The sign should be changed to a Curved Intersection (W2-14B) sign.	Daracon agrees to change the advance 'T' junction warning sign on Ardglen Road on approach to High Street to a Curved Intersection (W2-14B) sign.	Completed on the 3rd April 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
LPSC #4	Warra Street	There is a deficiency in Safe Intersection Sight Distance (SISD) at and for the second house along Warra Street on the right as you head towards the quarry. AUSTROADS stipulates the SISD for 50km/h is 90 metres. There would only be 40m at this location. The RSA does not identify this deficiency.	Refer to RSA CAR #17.	Refer to RSA CAR #17.		N/A
Other observation #1	Main Street	Approximately 370m along Main Street from the intersection of New England Highway, the pavement surface appears deformed / subsided (near the abandoned house).	Daracon continues to monitor for damage and /or further deterioration of the pavement in this area and repairs as required in accordance with the current maintenance arrangement with Liverpool Plains Shire Council (LPSC).	Ongoing		Ongoing for the duration of the quarry operations
Other observation #2	St Stephen Street and Main Street	There is a gap in the existing w-beam safety barrier for rail corridor access at the intersection of St Stephen Street and High Street. The auditors observed that the point of need for safety barrier may not protect an errant vehicle from the hazard at this location.	Ardglen Quarry has been operating as a hard rock quarry for over 100 years and Buttai Gravel (Daracon) has owned and operated Ardglen Quarry since 2005 after purchasing the quarry from the State Rail Authority. Sometime following Daracon's purchase of the quarry, ARTC commenced work on the construction of the rail overpass bridge which was completed sometime before 2009 (and whilst the quarry was still operating). With respect to the design and construction of the new rail overpass bridge, access road and associated structures, Daracon were not involved in the process and had no influence over the design parameters associated with the safety barriers associated with the new bridge and access roads. **However, Daracon and LPSC have recently renewed the line marking in this location which, combined with the additional signage and guideposts installed as well as the self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks, has significantly reduced the risk of an errant vehicle in this location.**	Completed on the 11th July 2019.	 Note – The dirt present on the road surface (as shown in the above image) was the result of LPSC unsealed road maintanence occurring along Swinging Ridges Rd and was in no way associated with truck movements to or from Ardglen Quarry.	N/A

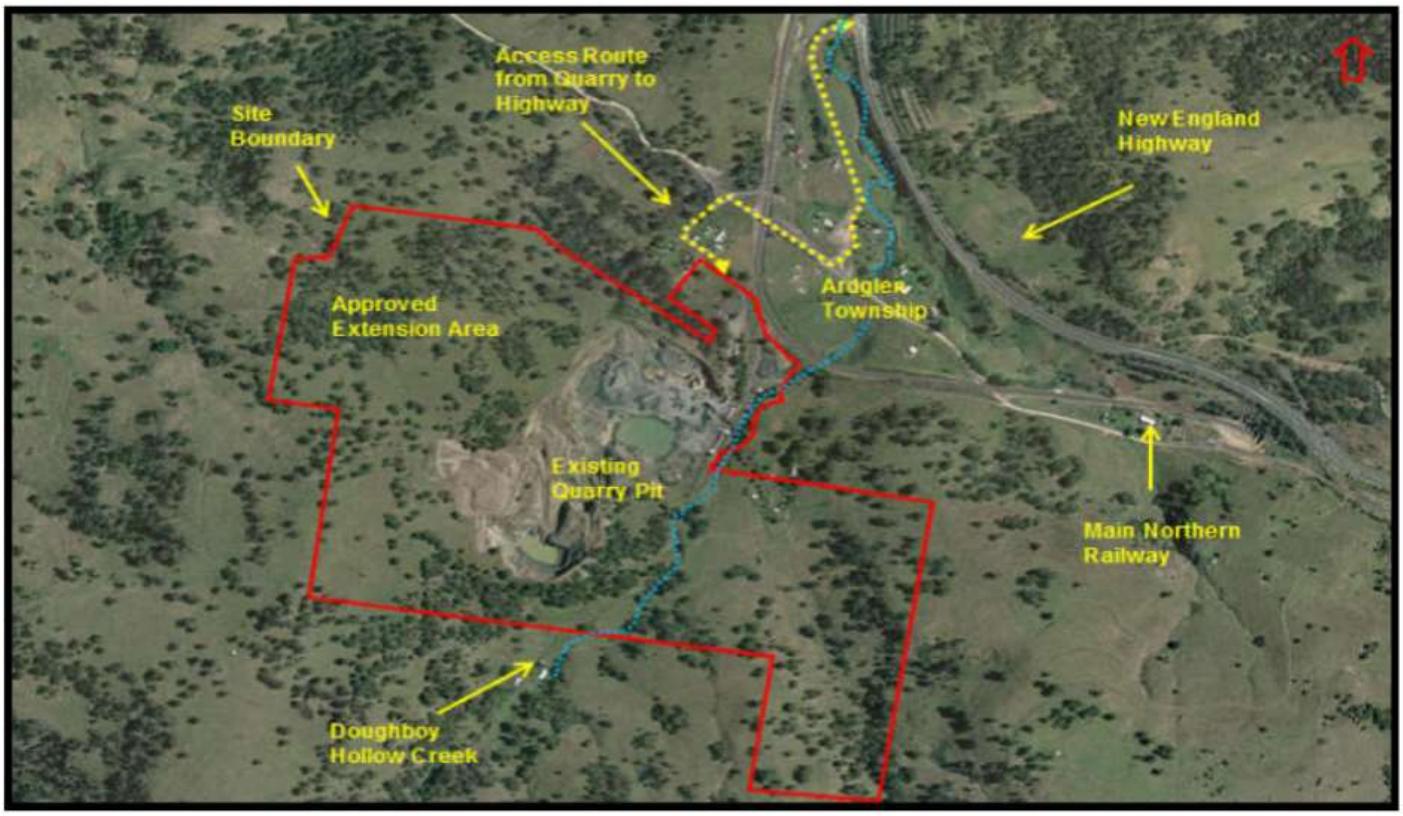
RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 24th March 2023
Other observation #3	Rail overpass bridge	The audit makes no provision for allowing safe pedestrian access over High Street rail overpass bridge (complaint received August 2018). Provide a response action to address this issue.	Ardglen Quarry has been operating as a hard rock quarry for over 100 years. Buttai Gravel (Daracon) has owned and operated Ardglen Quarry since 2005, after purchasing the quarry from the State Rail Authority. Sometime following Daracon's purchase of the quarry, ARTC commenced work on the construction of the rail overpass bridge which was completed sometime before 2009 (and whilst the quarry was still operating). With respect to the design and construction of the new rail overpass bridge, Daracon were not involved in the process and had no influence over the design parameters associated with pedestrian movements at that location. Daracon are therefore unable to comment on the design parameters used as part of the rail bridge construction. **Although pedestrian activity through the township of Ardglen is irregular and limited, Daracon is however able to inform ALL truck drivers of the need to be vigilant to the increased presence of pedestrians and vehicles associated with the school bus drop offs, collections and also pedestrians utilising the rail bridge. Daracon are also willing to liaise with the local residents to understand and appropriately manage pedestrian movements across the bridge as required.** The Code of Conduct (CoC) and Traffic and Transport Management Plan (TTMP) were updated, resubmitted and approved by DPE during 2022.	5th August 2019		N/A

Appendix 9 2022 Daracon newsletter

Ardglen Quarry Community Newsletter – March 2022

Ardglen quarry has been operating as a hard rock quarry for over 100 years and Buttai Gravel (a Division of Daracon Group) purchased the quarry from the State Rail Authority in 2005. Following the purchase of the quarry, Buttai Gravel operated the quarry continuously until 2012 when it was temporarily closed and put into 'care and maintenance'.

As previously advised, Ardglen quarry was temporarily re-opened to provide construction materials for the Scone Bypass Project (SBP) between August 2018 and January 2020. All materials exported to the SBP were sourced from stockpiles crushed prior to the 2012 closure and located within the 'Existing Quarry Pit'. The image below shows the current layout of the quarry including the 'Approved Extension Area', which has not yet been utilised.



A modification to the Ardglen quarry consent was submitted to the NSW Department of Planning, Industry and Environment (DPIE) in 2018 which, following substantial consultation with the relevant stakeholders, was approved by the DPIE in March 2021. Following the approval of the consent modification, Buttai Gravel continue to progress with the planning actions to facilitate the efficient operation of the site and expect to commence work in the 'Approved Extension Area' sometime in the near future.

In the interim, there may be a need to service a few small-scale local projects with the existing stockpiled material if required. In the event that the recommencement of quarrying is imminent, or transportation of existing material was likely to occur, we'll keep the local community and relevant stakeholders informed of the proposed operations and expected timeframes.

Buttai Gravel continues to undertake tree planting on site with more than 800 plants and shrubs installed over the last three years. Despite the severe drought conditions and feral animal impact that occurred during 2019 and 2020, we've achieved a good survival rate to date. We also continue to monitor and maintain the planted areas regularly to ensure suitable progress of all rehabilitated areas.

Additional tree planting also occurred during April and October 2021 at a number of locations on site within the biodiversity offset areas.

The images below, taken during the latter part of 2021 demonstrate the progress of the tree planting that's occurred on site over the last three years.

Buttai Gravel continues to consult with the community via the Ardglen quarry Community Consultative Committee (CCC) which is facilitated by an independent facilitator and comprises representatives from Crown Lands, Council and five local community representatives. The CCC meet at least twice per year, with meeting notes drafted, agreed and posted on the Daracon website listed below.

If you would like more information regarding Ardglen quarry, please contact Luke Robinson or the CCC independent facilitator, Michael Silver on the numbers listed below.

Contact information

Website address – **https://daracon.com.au/**

Daracon contact - **Luke Robinson on 0417 481 785**

Ardglen quarry CCC independent facilitator – **Michael Silver on 0427 723 747**

Ardglen quarry CCC email address - **ardglenquarryccc@gmail.com**