Dixon Quarry Group
Old Northern Road Quarry, Maroota

Annual Review
2025 - 2026

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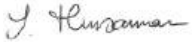
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Name of Authorised reporting officer	Hunsamon Churcher
Title of Authorised reporting officer	Environmental Officer / Advisor
Signature of Authorised reporting officer	
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Abbreviations

796/00/HE	Development Consent 796/00/HE for the Old Northern Road quarry,
Annual Review	This document (also formerly known as 'Annual Environmental Management Report')
DA250-09-01	Development Consent DA250-09-01 for the Old Northern Road Quarry
DA165-7-2005	Development Consent DA165-7-2005 for the Haerses Road Quarry
Dixon Sand	Dixon Sand Pty Ltd
DRG	Division of Resources and Geoscience of the Department (now Resources Regulator, NSW Resources, Department of Primary Industries and Regional Development)
DPHI	Department of Planning, Housing and Infrastructure
DPIRD	Department of Primary Industries and Regional Development
EIS	Environmental Impact Statement
EPA	NSW Environment Protection Authority
EP&A Act	NSW *Environment Planning and Assessment Act* 1979
EPL3916	Environment Protection Licence 3916 for the Old Northern Road quarry
HRBOA	Biodiversity Offset Area, located at Haerses Road Quarry (for Old Northern Road DA250-09-01)
IEA	Independent Environmental Audit
MEDM	Maximum Extraction Depth Map
MTSGS	Maroota Tertiary Sands Groundwater Source
NVC	Native Vegetation Corridor, located at Old Northern Road Quarry
PIRMP	Pollution Incident Response Management Plan
PM2.5	Particulate matter <2.5µm
PM10	Particulate matter <10µm
SCBGS	Sydney Central Basin Groundwater Source
TEOM	Tapered Element Oscillating Microbalance
TSP	Total suspended particulates
WAL	Water Access License

1. Statement of Compliance

Table 1: Statement of Compliance

All Conditions of the relevant approval(s) were complied with?		
Old Northern Road Quarry	DA250-09-01	No
	EPL3916	No
	WAL 24341	Yes

Table 2: Non-compliances

Relevant Approvals	Condition #	Details of Non-compliance	Compliance Status	Section addressed in Annual Review
DA 250-09-01	Cond.13(a) of Sch.2	Cessation of submission of quarry production data to DRG using the standard form as this is no longer a requirement for DRG. Production data continued to be reported in Annual Review. DPHI acknowledgement received	Non-compliant	Section 3.2
DA 250-09-01	Cond.12 of Sch.5	Submission of Annual Review later than end of March 2024. DPHI approved an alternative date.	Non-compliant	Table 36, Section 11.1

Compliance Status Key		
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-compliances	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)

2. Introduction

2.1 Project Background

Dixon Sand Pty Ltd (Dixon Sand) operates two sand quarries on the Old Northern Road (Lots 29 DP752025, Lot 1 DP1288211, and Lots 1 and 2 DP547255) and at Haerses Road (Lot 170 DP 664766, Lot 170 DP 664767, Lots A and B DP 407341, Lots 176 and 177 DP 752039 and Lot 216 DP 752039) in Maroota, New South Wales. The quarry sites are located approximately 40 kilometres north of Parramatta. The locations of the quarries are shown in Figure 1.

Extraction commenced on Lot 29 DP752025 and Lot 1 DP1288211 (formerly Lot 196 DP752025) at Old Northern Road Quarry in the early 1980s, with Dixon Sand undertaking extraction from 1992 to December 1998. The continued approval for extraction on Lots 29 and 1 was granted by the Land and Environment Court NSW on 7 July 2000 with subsequent multiple Modification applications being lodged. Current extraction operations occur on Lot 1 DP1288211 and Lots 1 and 2 DP547255, with materials being processed at the central processing plant, stockpiled and sold to the market on Lot 1 DP1288211.

Extraction commenced at the Haerses Road quarry in 2006 with current extraction operations in Stages 1 and 2, and Cells 1A, 1B, 2A, 2B, 3A and 3B. Sand is being transferred to the Old Northern Road Quarry for processing, product blending and sales. Products are also permitted to be sold directly to the market from Haerses Road Quarry.

Environmental Monitoring locations for Old Northern Road Quarry are shown in Figure 2.

2.2 Scope of this document

The objective of this Annual Review is to report on the overall environmental performance, management of the operations and compliance of Old Northern Road Quarry with the consent conditions issued by the Secretary of NSW Department of Planning, Housing and Infrastructure (DPHI). The reporting period is from 01 July 2025 to 30 June 2026, based on the date of the original quarry development consent 796/00/HE. Reporting for the rehabilitation assessment and ecological monitoring extends outside the specified period due to seasonal timing requirement for the surveys.

Development consent DA250-09-01 (Modification 5) is applicable to this Annual Review.

The following consent conditions outline the requirement of the Annual Review:

Schedule 5 of Condition 12 of DA250-09-01 (Modification 5) states:

By the end of March each year, or other timing as may be agreed by the Secretary, the Applicant must submit a review to the Department reviewing the environmental performance of the development to the satisfaction of the Secretary. This review must:

(a) describe the development (including any progressive rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;

(b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the:

- *relevant statutory requirements, limits or performance measures/criteria;*

- *requirements of any plan or program required under this consent;*
- *monitoring results of previous years; and*
- *relevant predictions in the documents listed in condition 2(a) of Schedule 2;*

(c) evaluate and report on:

- *the effectiveness of the air quality and noise management systems; and*
- *compliance with the performance measures, criteria and operating conditions in this consent.*

(d) identify any non-compliance over the past calendar year, and describe what actions were (or are being) taken to ensure compliance;

(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;

(g) escribe what measures will be implemented over the current calendar year to improve the performance of the development.

The Applicant must ensure that copies of the Annual Review are submitted to Council and are available to the Community Consultative Committee (see condition 8 of Schedule 5) and any interested person upon request.

Dixon Sand requested approval from the DPHI for the submission deadline of the Annual Review to be adjusted to reflect the financial year reporting. Approval was granted by the DPHI on 9 February 2018 to submit the Annual Review by the end of September each year.

This Annual Review will report on the environmental performance in relation to the requirements of DA250-09-01 (Modification 5), Environment Protection License (EPL) # 3916 (dated 9 June 2026) and Water Access License (WAL) 24341. The Annual Review has been prepared in accordance with *Post-approval requirements for State Significant mining developments – Annual Review Guideline* (DP&E, October 2015).

2.3 Old Northern Road Quarry Approvals

Development consents for the quarry on Lots 29 and 196 (now Lot 1 DP1288211) and extension into Lots 1 and 2 were issued by the Land and Environment Court on 7 July 2000 (796/00/HE) and 24 May 2004 (DA250-09-01), respectively. Consent No. 796/00/HE allowed for sand extraction, processing, and rehabilitation within Lots 29 and 196. This consent lapsed on 22 March 2010. Continued extraction on Lots 29 & 196 is permitted in DA250-09-01, which now forms a single integrated consent for all activities within Lots 1, 2, 29 and 196. Extraction of Lot 29 has concluded with the area currently being utilised for sediment basins and haul road, with native vegetation rehabilitation commencing in the dedicated Native Vegetation Corridor.

Continued use of the central processing plant on Lot 196, transport of product from the site, water management, and rehabilitation operations are approved under DA250-09-01.

Five modifications to DA250-09-01 have been lodged and approved. Modification 5 is current and was approved on 14 November 2018. A summary of the development consents and modifications is provided in Table 3.

Table 3: Summary of Old Northern Road Quarry Development Consents and Modifications

Development Consents	Status	Date of Determination	Comments
Old Northern Road Quarry			
796/00/HE	Approved and superseded by DA250-09-01	7 July 2000	Approval for sand extraction, processing and rehabilitation of Lot 29 DP and Lot 196 (now Lot 1 DP1288211), Old Northern Road.
DA250-09-01	Approved and superseded by Modification 1	2 January 2003	Continual of sand extraction on Lot 29 and Lot 196 (now Lot 1 DP1288211), and the extension of extraction operations into Lots 1 and 2 DP547255.
DA250-09-01 Modification 1	Approved and superseded by Modification 2	14 February 2006	Haerses Road sand to be transported and processed at the main Processing Plant on Lot 196 (now Lot 1 DP1288211) at the Old Northern Road
DA250-09-01 Modification 2	Approved and superseded by Modification 3	20 August 2008	Increased truck movements from 120 to 180 per day
DA250-09-01 Modification 3	Approved and superseded by Modification 4	30 August 2012	Amended DA250-09-01 to include extraction on Lots 29 and 196 (now Lot 1 DP1288211) Permit the extraction of Lot 196 (now Lot 1 DP1288211) to a level not within 2 metres of the wet weather high groundwater table Surrender of DA796/00/HE issued by the Land and Environment Court
DA250-09-01 Modification 4	Approved and superseded by Modification 5	6 July 2015	Application to include additional extraction areas on Lots 1 and 2 DP 547255 for extraction
DA250-09-01 Modification 5	Approved and current	17 November 2017	Application to extend the life of the quarry to 24 May 2042. Revision and update of the consent conditions in line with modern development consent format

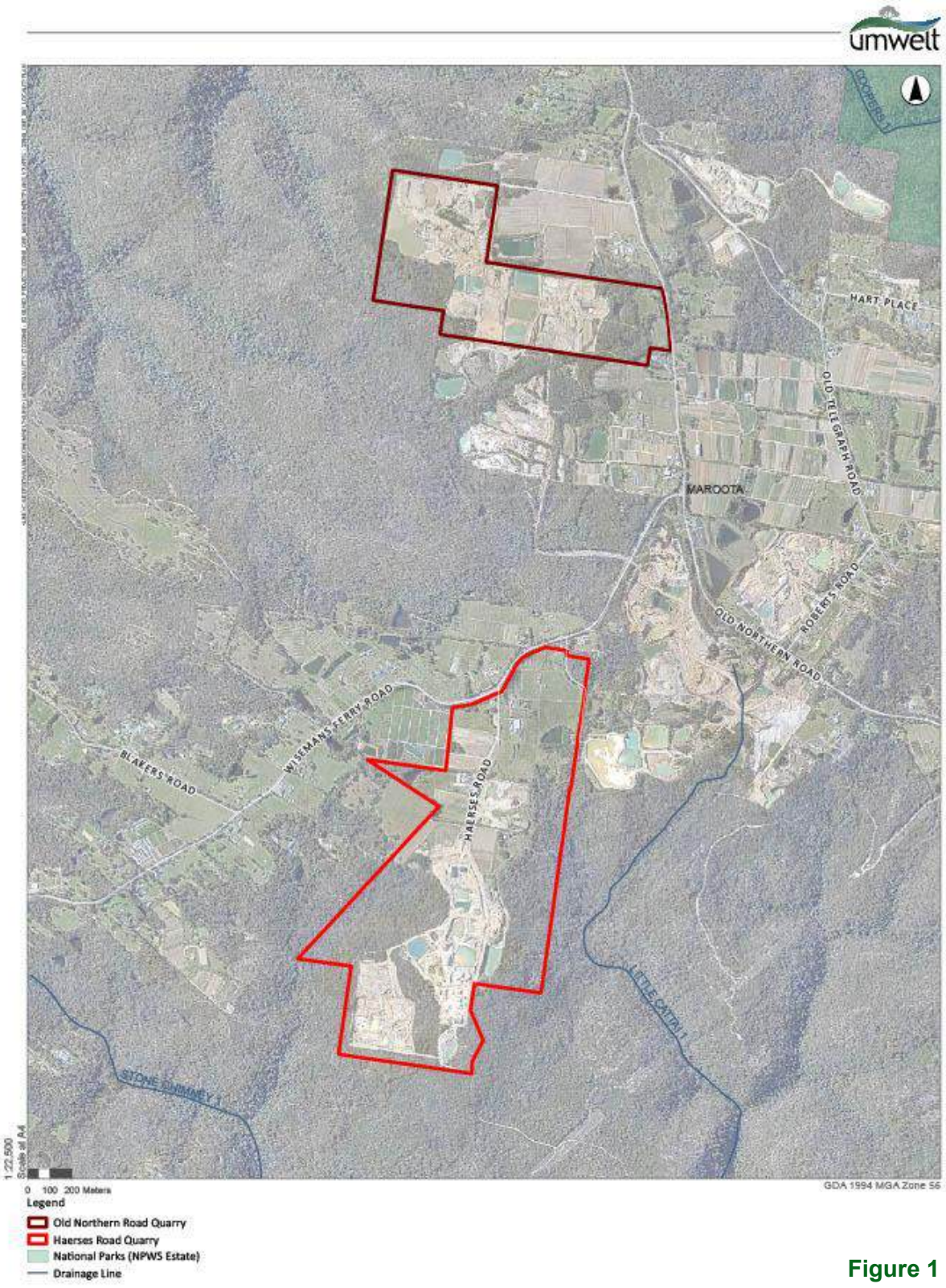


Figure 1

Locality Plan

Image Source: Nearmap (02-10-2025) **Data source:** NSW LPI (2026); NSW DSFI (202); NPWS Estate (2026)

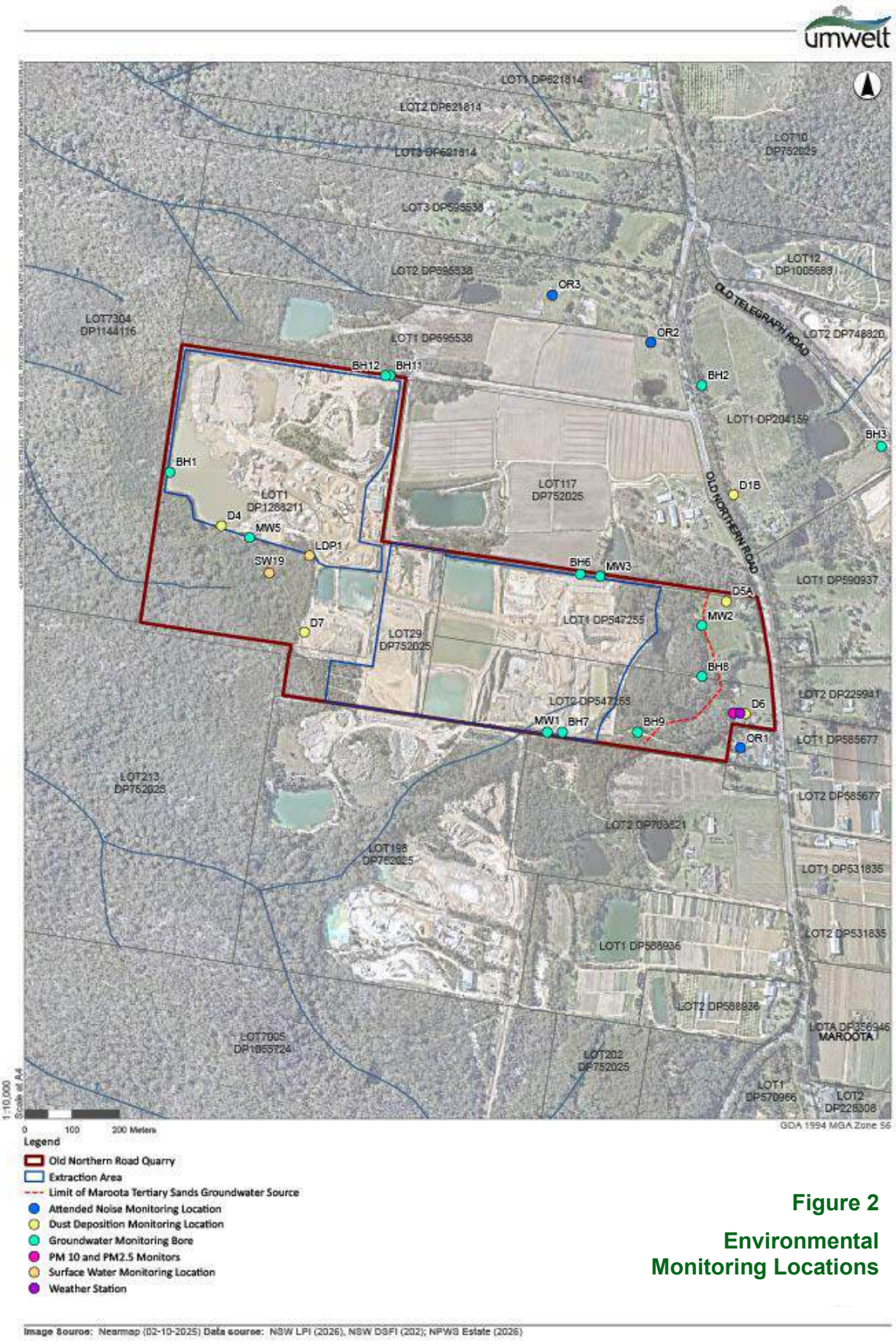


Figure 2

Environmental Monitoring Locations

Image Source: Nearmap (02-10-2025) Data source: NSW LPI (2026), NSW DSFI (202); NPWS Estate (2026)

3. Operations Summary

3.1 Production and Vehicle Movements

All bulk sand truck movements from the Haerses Road site since commencement of extraction in November 2006 have delivered raw product to the Old Northern Road site for processing. Direct sale of products from Haerses Road Quarry commenced in 2015 under a separate development consent DA165-7-2005.

A total of **232,224** tonnes of sand and sandstone products have been produced and sold from the Old Northern Road Quarry during the 2025 – 2026 reporting period. A total of **136,884** tonnes of materials have been extracted from Haerses Road and transferred to Old Northern Road for processing and product blending.

Table 4 provides a summary of the annual production quantities, transfers and truck movements for Old Northern Road Quarry during the reporting period.

Table 4: Production Data, Transfers & Truck Movements at Old Northern Road Quarry.

Month	17,280.97	Total Transfers from Haerses Rd to ONR (t)	Maximum Daily Truck Movements at ONR	Maximum No. Trucks 5:45 - 7:00 am at ONR
Jul 2025	17,280.97	19,142	136	16
Aug 2025	15,070.46	13,600	144	26
Sep 2025	21,634.05	13,804	144	24
Oct 2025	27,351.15	11,288	166	20
Nov 2025	26,521.61	10,268	172	28
Dec 2025	18,528.84	5,508	156	24
Jan 2026	16,872.76	9,724	154	22
Feb 2026	21,079.36	12,920	172	24
Mar 2026	21,082.93	10,030	170	20
Apr 2026	16,046.26	9,520	102	12
May 2026	14,020.49	11,424	106	12
Jun 2026	16,735.16	9,656	116	18
Totals / Maximum	**232,224**	**136,884**	**172**	**28**
Annual Limit	**495,000**	**190,000**		
		Daily Max Criteria	**180**	**40**

3.2 Submission of Quarry Production Data to DRG

Condition 13 of Schedule 2 of DA 250-09-01 requires Dixon Sand to submit calendar year annual production data to the DRG (now Resources Regulator within NSW Resources, Department of Primary Industries and Regional Development, (DPIRD)) using the standard form and include a copy of this data in the Annual Review.

The DPIRD Minerals Return form require reporting of extractive materials for the financial year, and not for the calendar year as specified in the abovementioned consent condition.

Historically, the Minerals Return form for each financial year were submitted to DPIRD (formerly DRG) within the specified deadlines.

On 16 July 2026, Dixon Sand received correspondence from the DPIRD advising that the submission of the Extractive Minerals Return form is no longer a requirement. Dixon Sand then notified the DPHI Compliance Team of its intention to continue reporting the production data in the Annual Reviews, as detailed in Table 4.

4. Actions Required from Previous Annual Review

The proposed recommendations contained in the previous 2024 - 2025 Annual Review have been actioned by Dixon Sand and are summarised in Table 5.

Table 5: Summary of Recommendations and Actions

Recommendation from the 2024 – 2025 Annual Review	Actions
Air Quality Monitoring	
• The air quality monitoring program and Air Quality Management Plan will be revised in accordance with the outcome of the ongoing consultation with the EPA.	• Actioned – the air quality monitoring program and Air Quality Management Plan were revised following EPL variation (dated 9 April 2026 and 10 June 2026). DPHI approved the revised Air Quality Management Plan on 31 July 2026.
Vegetation Clearing and Extraction	
• Vegetation clearing will be undertaken in accordance with the pre-clearing procedures.	• No vegetation clearing undertaken during this reporting period.
Rehabilitation and Bush regeneration	
Old Northern Road Quarry Native Vegetation Corridor Rehabilitation Area	
• Continue to monitor and manage competitive native species and trees by culling to optimise growth of native species including the planted and translocated threatened species.	• Actioned – ongoing routine weed management and monitoring undertaken in the NVC area
• Continue with routine weed control (particularly perennial grass such as *Cynodon dactylon* – Couch grass) and monitoring of regenerating native species,	• Actioned - routine weed control (particularly perennial grass such as *Cynodon dactylon* – Couch grass) and monitoring of regenerating native species undertaken
• Supplementary planting on the southern boundary to prevent weed encroachment due to blown in seeds from adjacent land	• Deemed not required as weed density on adjacent neighbouring property significantly decreased during this period
• Re-marking of the planted Melaleuca deanei	• Partially actioned. More specimens will be marked when located within the thick section of the rehabilitated bushland
Old Northern Road Quarry Lots 1 and 2	
• Continue management of *Lantana camera* and review techniques recommended in the Ecological Monitoring Report (South East Environmental, 2025)	• Actioned – ongoing management of *Lantana camera* and review of techniques
• Continue management of other weeds including exotic grasses	• Actioned – management of exotic grasses and scanning of any new weed species undertaken

Recommendation from the 2024 – 2025 Annual Review	Actions
• Supplementary planting or similar treatment in identified areas as required.	• Actioned - supplementary planting undertaken in targeted area – 130 shrubs and trees species were planted in June 2026
Old Northern Road Quarry other areas	
• Continue with routine weed management along the southern boundary of Cons Hill (Lot 196) and carry out direct seeding or supplementary planting of remnant canopy species and competitive native grasses (such as *Imperata cylindrica*) to revegetate compacted areas, exposed areas and edge areas as required.	• Actioned – ongoing weed management undertaken. Multiple campaigns of supplementary planting undertaken in this area.
Front Gate Embankment	
• Ongoing maintenance of exotic grassed utilising brush cut, manual removal and spot spraying before setting seed methodology	• Actioned – management of exotic grasses in Spring 2025 and monitoring of *Cortaderia selloana* (Pampas Grass)
Haerses Road Biodiversity Offset Area (HRBOA)	
• Continue with management of invasive grass and annual species along the western border of the HRBOA	• Actioned - continued weed management at the designated location, particularly throughout the creek lines and upper boundary of the site.

5. Environmental Performance

5.1 Air Quality

5.1.1 Dust Sources and Mitigation Measures

The objectives, criteria limits, procedures, response, reporting and responsibilities of air quality management are contained in the Air Quality Management Plan.

The following potential sources of dust generated from Old Northern Road Quarry and mitigation measures have been identified in Table 6.

Table 6: Potential sources of dust and mitigation measures.

Potential Dust Sources	Mitigation Measures
• topsoil stripping. • ripping with a bulldozer; • extraction with an excavator and truck; • crushers and screens at the processing plant; • wind erosion from stockpiles; • loading sand products into trucks; • vehicle movement and haulage on site; • product transportation along unsealed haul roads; and • occasional haul road grading.	• minimising the area of disturbance by only clearing areas immediately prior to extraction; • progressive rehabilitation; • maintaining dust suppression equipment to all processing plant; • maintaining a manual sprinkler system including fine sprays on the conveyors of the dry processing plant, overhead sprinklers and a conical jet stockpile sprinkler; • stabilising topsoil stockpiles by planting with a cover crop of non-invasive cereal or legumes; • using a water cart to suppress dust on unsealed roads, during dry conditions on days of operation; • limiting vehicle speed to 20 km/hr on internal unsealed access tracks; • ensuring all loads leaving the site are covered; and • regularly maintaining mobile and fixed equipment to minimise exhaust emissions.

5.1.2 Compliance Limits

Development Consent

Condition 8 of Schedule 3, DA250-09-01 requires Dixon Sand to operate a continuous air quality monitoring system to minimise the impacts at sensitive receivers such as the Maroota Public School. The following air quality criteria are to be complied with:

- dust deposition - 4g/m²/month (annual average) or 2g/m²/month increase;
- total suspended particulate matter (TSP) – 90µg/ m³ (annual mean); and
- particulate matter <10µm (PM10):
    - 50 µg/m³ (average for 24-hour period)
    - 30 µg/m³ (annual mean).

Since the previous 2024 – 2025 Annual Review, the NSW Environment Protection Authority (EPA) issued two EPL variations.

EPL Variation (dated 17 April 2026)

The first EPL variation was issued on 17 April 2026 and contain a number of changes specifically dust monitoring and reporting following ongoing discussions on the suitability of certain dust deposition gauge locations. The EPL introduced the requirement to operate a $PM_{2.5}$ air quality monitoring station for a period of 12 months alongside the existing PM_{10} air quality monitoring station. Two dust deposition gauges were permitted to relocate to alternative locations. Specific $PM_{2.5}$ EPL trigger levels and operational requirements were defined. The monthly criteria for dust deposition was removed and only annual average dust reporting is required. The EPL also specifies the requirement to maintain of a dust diary and submission of the annual performance report summarising all dust monitoring results from both licensed and non-licensed points for the preceding 12 months. The Pollution Studies and Reduction Program was removed from the EPL.

EPL Variation (dated 10 June 2026)

The second EPL variation was issued on 10 June 2026 following EPA's changes to the non-compliance reporting protocol. The EPL removed the requirement to submit the Annual Return and replaced this with the requirement to submit any non-compliance within 21 days of becoming aware of the non-compliance.

The EPL now specifies both $PM_{2.5}$ and PM_{10} trigger values which stipulate specific dust mitigation measures on site:

- PM_{10}: 42 µg/m³ (average for rolling 24-hour period for wind directions between 270° and 315°), or
- $PM_{2.5}$: 20 µg/m³ (average for rolling 24-hour period for wind directions between 270° and 315°)

Table 7 lists the relevant $PM_{2.5}$, PM_{10} and Total suspended particulates (TSP) criteria as required by the Development Consent and Environment Protection Licence.

Table 7: PM2.5, PM10 and TSP Criteria.

Source	Condition	Criteria / Trigger Value	Comments
Old Northern Road			
DA250-09-01	Sch. 3, Cond. 7	30 µg/m^3	Annual PM_{10} average – long term impact assessment
		50 µg/m^3	24-hour PM_{10} average – short term impact assessment
EPL3916	O3.3	37 µg/m^3	Trigger value for PM_{10} automatic alarm
EPL3916	O3.5	16 µg/m^3	Trigger value for $PM_{2.5}$ automatic alarm
EPL3916	O3.6	4 g/m2/month (max total)	Dust Deposition criterion
EPL3916	M2.4	42 µg/m^3 (PM10) or 20 µg/m^3 (PM2.5) with prevailing wind direction from 270º - 315º	Criteria for enacting management plan strategies to notify the EPA, reduce dust emissions immediately and cease operations specific extraction pits, in response to the triggers. Recommencement of quarry operation permitted when certain conditions are met.
DA250-09-01	Sch. 3, Cond. 7	90 µg/m^3	Annual average criteria for TSP

5.1.3 Results

Climatic Data

Monthly climatic measurements were recorded by the weather station located adjacent to the Maroota Public School, in accordance with:

- Condition M4.1 of the EPL 3916,

These results are shown in Table 8.

Table 8: Monthly Total Rainfall and Averaged Temperatures.

Month	Jul 2025	Aug 2025	Sep 2025	Oct 2025	Nov 2025	Dec 2025	Jan 2026	Feb 2026	Mar 2026	Apr 2026	May 2026	Jun 2026
Ave Temp (ºC)	11.7	12.0	16.4	19.5	20.4	21.5	21.7	22.2	20.6	17.6	15.6	13.5
Total Rainfall (mm)	94.0	180.0	43.2	15.0	28.0	51.2	175.8	124.6	156.0	6.6	143.0	20.6

Data presented in Table 8 shows that the highest monthly rainfall of 180.0mm was recorded in August 2025 and the lowest monthly rainfall of 6.6mm was recorded in April 2026. The total annual rainfall recorded during this reporting period is 1,038mm which is higher than last year (2024 – 2025) which recorded 809.2mm. In comparison, historical rainfall recorded 872mm (2023 - 2024), 915.4mm (2022 – 2023), 1527mm (2021 - 2022) and 1090.4mm (2020 - 2021).

From the recorded monthly temperature data, February 2025 experienced the highest average temperature at 22.2°C whilst July 2025 experienced the lowest average temperature at 11.7°C.

Fluctuations in temperatures and rainfalls are generally influenced largely by the El-Nino and La-Nina climatic cycle.

Dust Deposition

Five dust deposition gauges are located on the Old Northern Road Quarry. Table 9 lists the locations of the dust gauges. Following consultation with the EPA, dust gauges D1A and D5 were deemed to be located in the area being influenced by non-quarry related dust.

Following EPL variation (15 April 2026), D1A and D5 were relocated to the new locations at D1B and D5A, respectively. Refer to Figure 2 for the locations of the new dust deposition gauges.

Table 9: Site location of dust deposition gauges

Dust Gauge I.D.	Location Reference	Status
D01A	Quarry Access Road, near the Old Northern Road	Decommissioned on 27/05/2026
D04	Rehabilitation Area	Active monitoring
D01B	Gouskos, 4579 ONR	Active monitoring – commissioned on 27/05/2026
D05	Bundwall, Lot 1	Decommissioned on 27/05/2026
D05A	Ramm, 1680 WFR	Active monitoring – commissioned on 27/05/2026
D06	Maroota Public School	Active monitoring
D07	Mulloc Heap	Active monitoring

Dust deposition results were collected and analysed monthly by a NATA accredited laboratory. Table 10 presents the monthly dust deposition results from 25 June 2025 – 27 May 2026. Table 11 contains the calculated rolling annual averages for the dust deposition gauges.

The monthly laboratory results for dust deposition for this reporting period are presented in Appendix A.

Table 10: Dust Deposition Results: 25 June 2025 – 27 May 2026.

Dust Gauge Location	25/06/25 - 23/07/25	23/07/25 - 20/08/25	20/08/25 - 17/09/25	17/09/25 - 15/10/25	15/10/25 - 12/11/25	12/11/25 - 10/12/22	10/12/25 - 07/01/26	07/01/26 - 04/02/26	04/02/26 - 04/03/26	04/03/26 - 01/04/26	01/04/26 - 29/04/26	29/04/29 - 27/05/26
DA1A Front Gate	2.6	6.3	1.3	3.3	1.5	3.6	2.1	1.1	2.1	3.0	2.7	0.6
D4 Rehab	0.1	0.4	0.4	0.2	1.2	3.0	1.2	0.8	0.9	0.5	0.3	0.2
D5 Bundwall	1.0	2.5	1.5	3.6	4.6	44.2	8.7	1.0	1.3	0.9	0.7	1.8
D6 School	0.5	43.7	0.7	12.2	2.3	3.0	2.2	2.9	2.1	1.9	2.6	0.5
D7 Mulloc Heap	1.5	0.3	0.2	0.5	0.5	1.5	0.7	0.5	1.7	0.8	0.2	0.2

Table 11: Calculated Rolling Annual Averages of Dust Deposition: 25 June 2025 – 27 May 2026.

Dust Gauge Location	25/06/25 - 23/07/25	23/07/25 - 20/08/25	20/08/25 - 17/09/25	17/09/25 - 15/10/25	15/10/25 - 12/11/25	12/11/25 - 10/12/22	10/12/25 - 07/01/26	07/01/26 - 04/02/26	04/02/26 - 04/03/26	04/03/26 - 01/04/26	01/04/26 - 29/04/26	29/04/29 - 27/05/26
DA1A Front Gate	4.3	4.6	4.6	4.6	4.6	4.7	4.2	4.1	3.8	3.9	4.0	2.5
D4 Rehab	0.5	0.6	0.6	0.5	0.5	0.8	0.8	0.7	0.7	0.7	0.7	0.7
D5 Bundwall	2.9	2.1	2.0	1.8	1.8	5.3	5.8	5.7	5.6	5.6	5.6	5.6
D6 School	1.8	4.8	4.8	5.6	5.6	5.7	5.7	5.7	5.7	5.7	5.8	5.8
D7 Mulloc Heap	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.9	0.8	0.7

Charts 1 to 4 illustrate the annual average dust deposition results for the reporting periods of 2022 – 2023, 2023 – 2024, 2024 – 2025 and 2025 – 2026 respectively.

PM_{10}, $PM_{2.5}$ and TSP

PM_{10}

In accordance with Condition 8 of Schedule 3, DA250-09-01, the concentration of particulates with an aerodynamic diameter less than ten microns (PM_{10}) is monitored via the continuous dust monitor (TEOM) near Maroota Public School. The TEOM records data for the whole 360º angles, of which the 270º - 315º quadrat (westerly to north-westerly) indicate potential dust contributions from the Old Northern Road Quarry. Chart 8 illustrates the PM_{10} results for this reporting period, in comparison with relevant consent criteria. Charts 5 to 7 show the PM_{10} results for the previous reporting periods of 2022 – 2023, 2023 – 2024 and 2024 – 2025 respectively.

The annual average PM10 result for this reporting period is 16.6 μg/m³.

During the reporting period, the following PM10 criteria has been complied with:

- Annual average PM10 criteria of 30 μg/m³.

During the reporting period, the following PM10 criteria have been exceeded:

- EPL 24-hour average PM10 criteria of 42 μg/m³, and
- NEPM 24-hour maximum PM10 criteria of 50 μg/m³

$PM_{2.5}$

In accordance with Condition O3.5 of EPL3916 (version 15 April 2026 and newer), Dixon Sand is required to install and operate a continuous dust monitoring device within 2 months of the licence variation being issued. Installation of the PM2.5 monitor is currently pending EPA's approval of the proposed monitor type and specification. Once installed and monitoring has commenced, the PM2.5 results will be reported in the Annual Review.

The following PM2.5 trigger alarms and criteria have been specified by the EPL:

- EPL PM2.5 trigger alarm value of 16 μg/m³,
- Rolling 24-hour average PM2.5 criteria of 20 μg/m³ which stipulates site-specific management actions,

TSP

Charts 9 to 12 display TSP results during the 2022 – 2023, 2023 – 2024, 2024 – 2025 and 2025 – 2026 respectively.

No TSP exceedance occurred during this reporting period. The following TSP criteria has been complied with:

- Annual average TSP criteria of 90 μg/m³

The annual average TSP result for this reporting period is 41.4 μg/m³.

A copy of the full reports containing PM10, TSP and meteorological data provided by CBased Environmental Pty Ltd are contained in Appendix B.

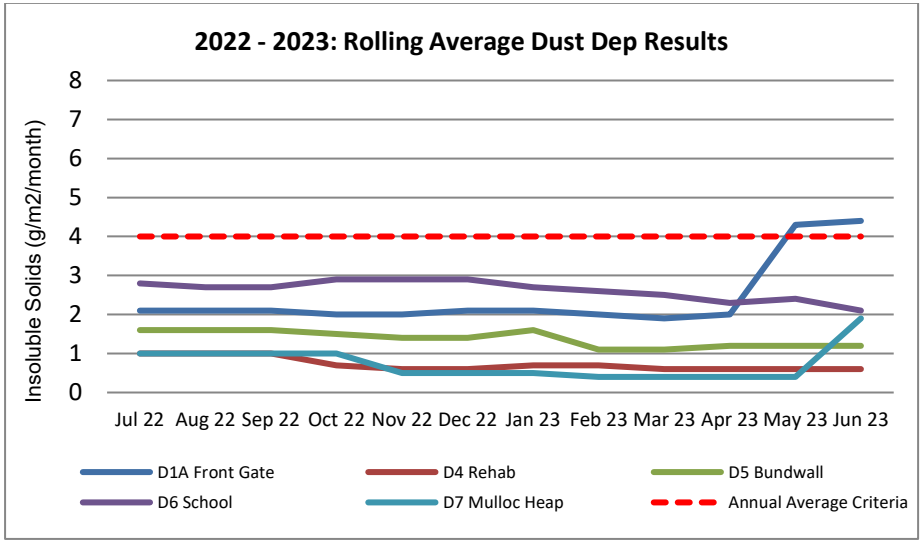


Chart 1: 2022 - 2023 Rolling Average of Dust Deposition Results

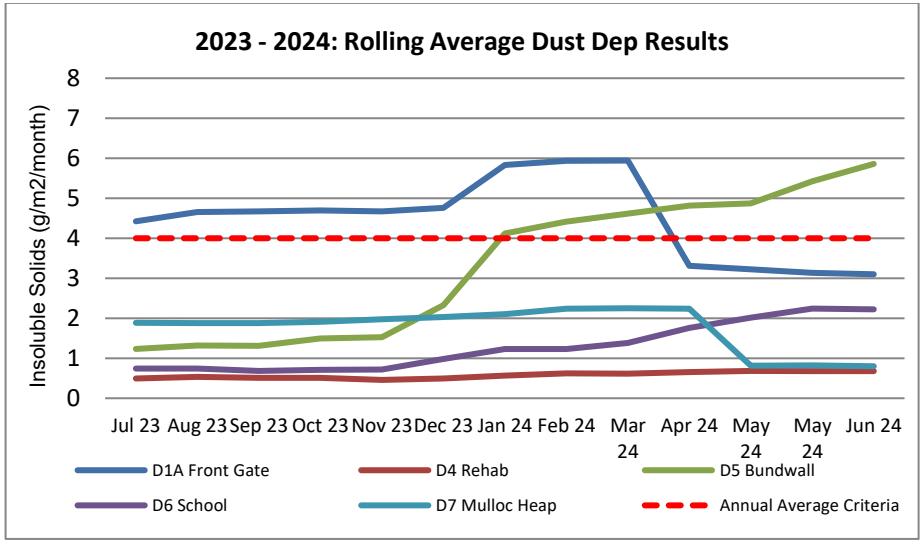


Chart 2: 2023 - 2024 Rolling Average of Dust Deposition Results

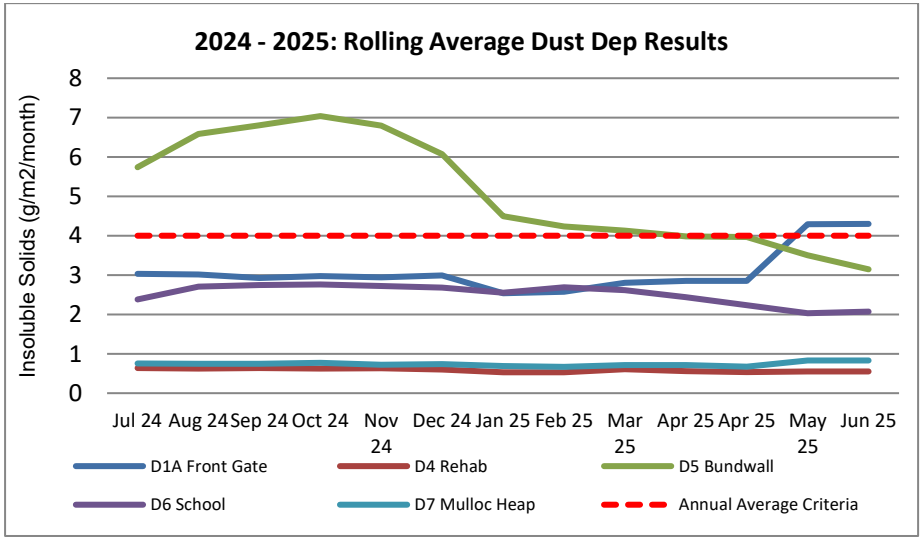


Chart 3: 2024 - 2025 Rolling Average of Dust Deposition Results

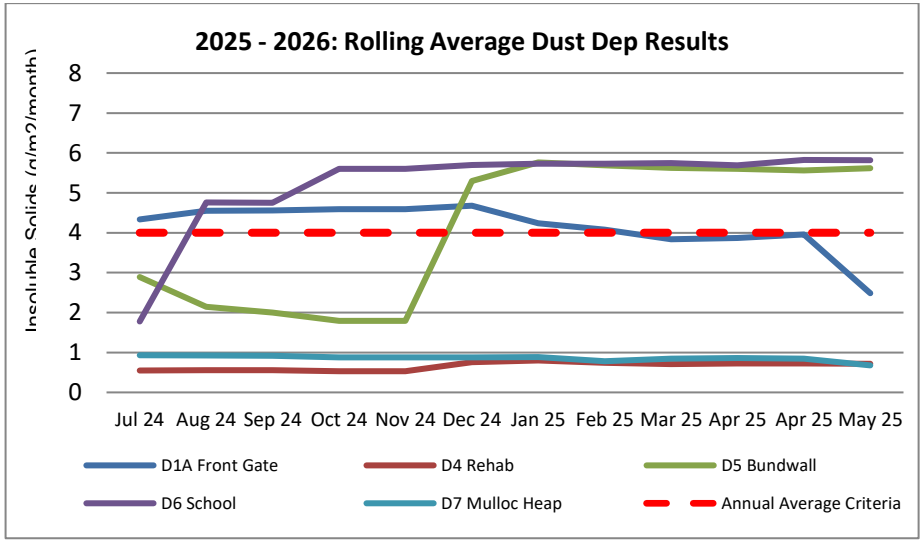


Chart 4: 2025 - 2026 Rolling Average of Dust Deposition Results

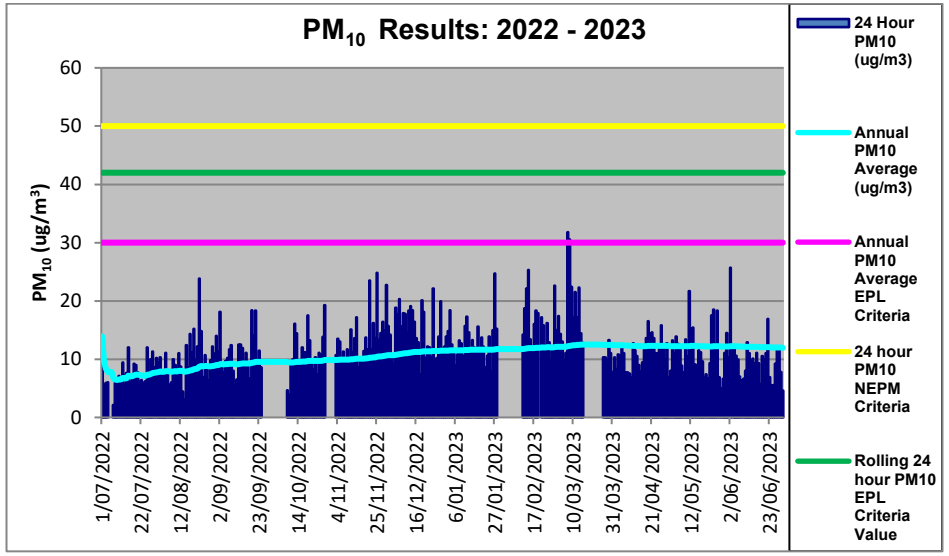


Chart 5: 2022 - 2023 PM10 Results and Criteria

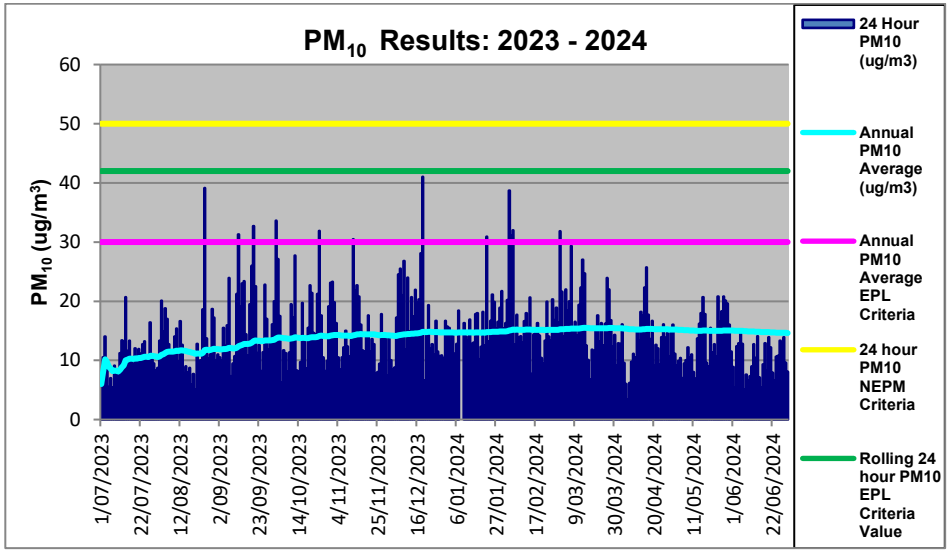


Chart 6: 2023 – 2024 PM10 Results and Criteria

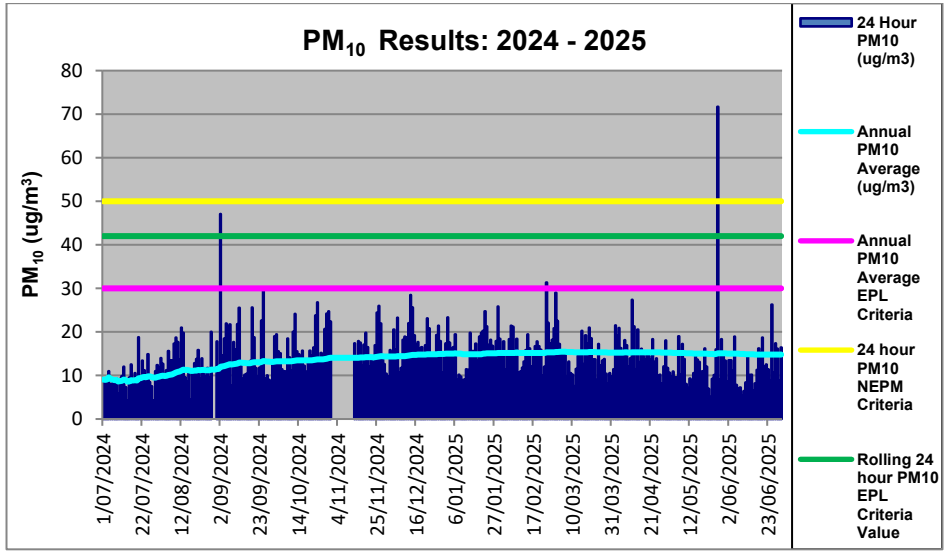


Chart 7: 2024 - 2025 PM10 Results and Criteria

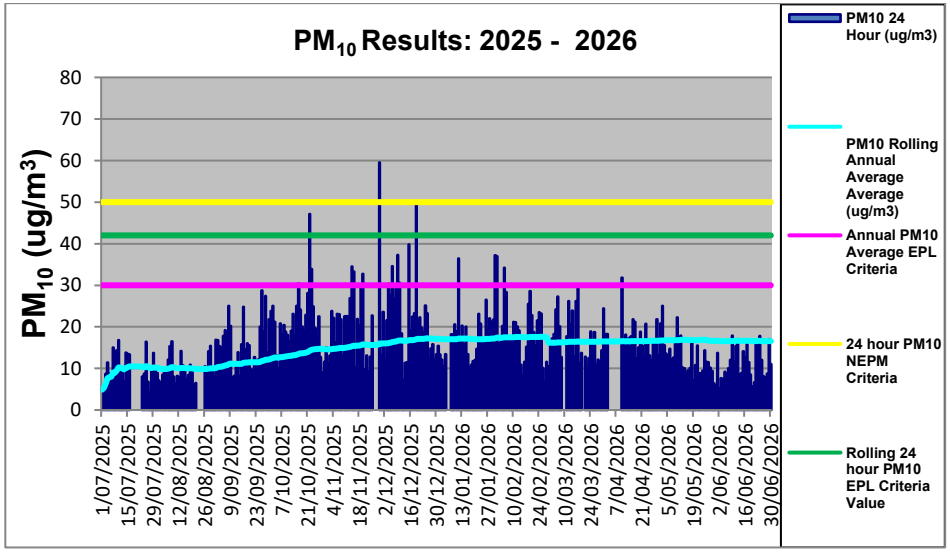


Chart 8: 2025 - 2026 PM10 Results and Criteria

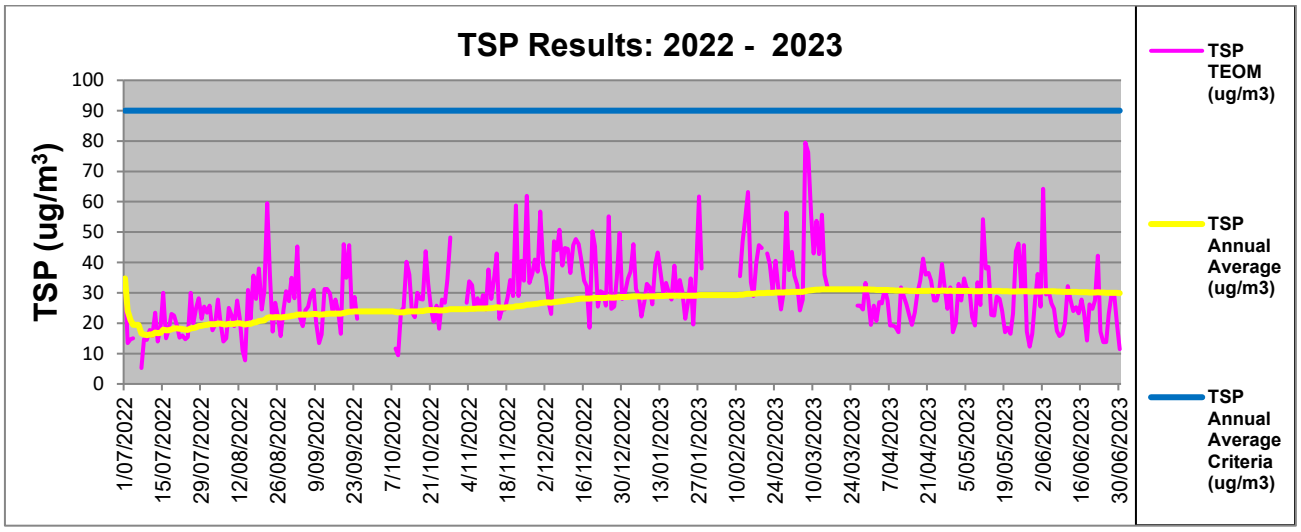


Chart 9: 2022 - 2023 TSP Results and Criteria

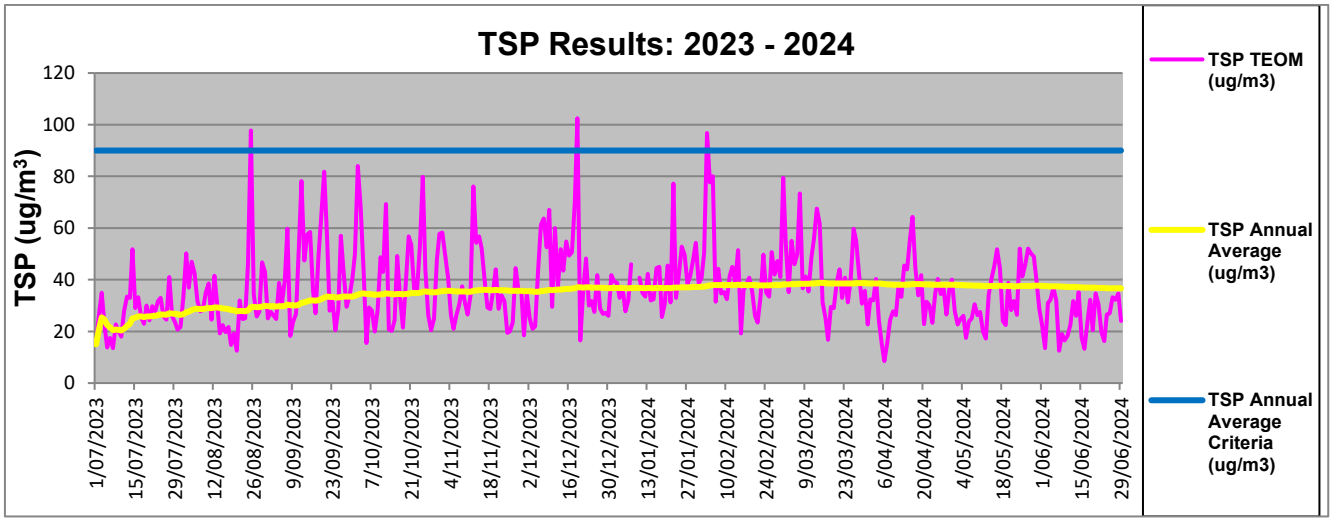


Chart 10: 2023 - 2024 TSP Results and Criteria

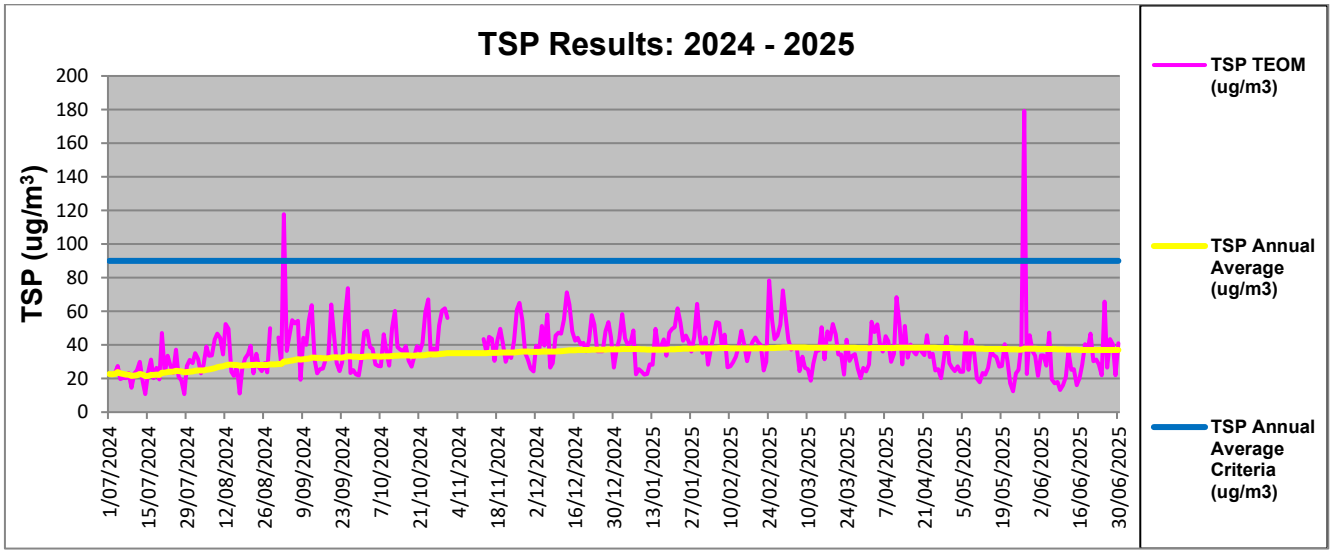


Chart 11: 2024 - 2025 TSP Results and Criteria

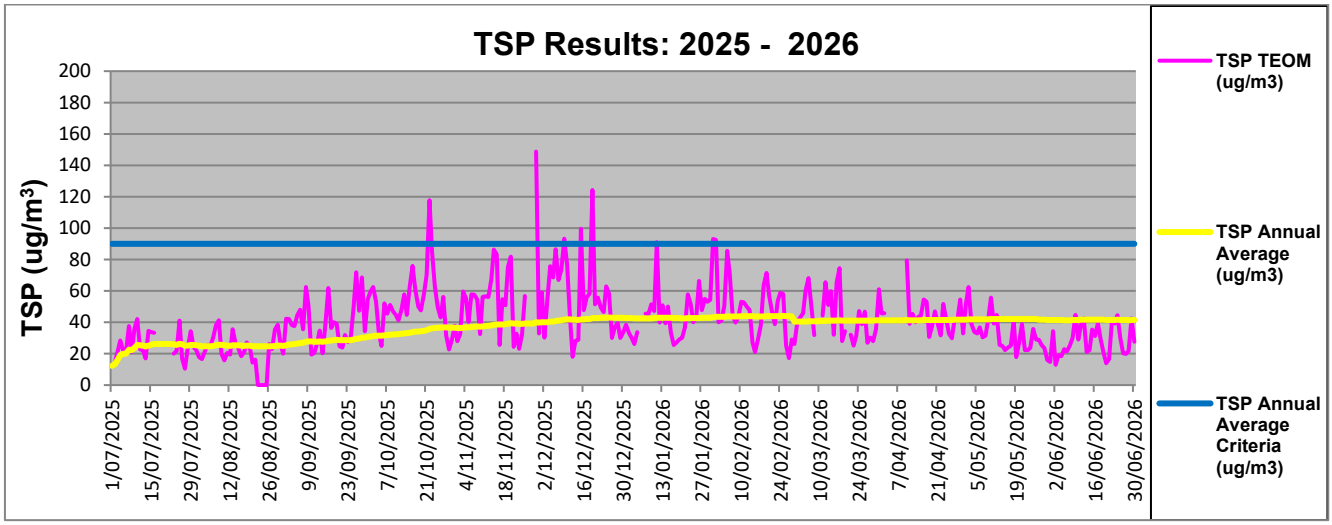


Chart 12: 2025 - 2026 TSP Results and Criteria

5.1.4 Analysis

Dust Deposition

Reporting Period 2025 - 2026

Five dust deposition gauges monitor potential dust impacts from the Old Northern Road quarry.

D1A – Front Gate

Monthly dust deposition results at D1A were exceeded over one monitoring period.

Rolling annual exceedances at D1A were exceeded for eight monitoring periods.

D4 – Rehab Area

All monthly and rolling annual average dust deposition results at D4 were in compliant during the reporting period.

D5 – Bund wall

Monthly dust deposition results at D5 were exceeded over three monitoring periods.

The rolling annual average dust deposition results were exceeded over seven monitoring periods.

D6 - School

The monthly dust deposition result at D6 was exceeded during two monitoring period.

The rolling annual average dust deposition results were exceeded over eleven monitoring periods.

D7 – Mulloc Heap

All monthly and rolling annual average dust deposition results at D7 were in compliant during the reporting period.

The EIS prepared for the extension of the quarry on Old Northern Road Lots 1 and 2 (ERM, 2001) predicted dust deposition at the nearest receptors to be between 2.2 and 2.9g/m²/month. The majority of the monthly dust deposition results at Old Northern Road quarry for the reporting period were within the EIS predicted range of dust levels, except for the following:

- D1A (Front Gate) returned four monthly results higher than the predicted range at 6.3 g/m2/month (23 July – 20 August 2025), 3.3 g/m2/month (17 September – 15 October 2025), 3.6 g/m2/month (12 November – 10 December 2025) and 3.0 g/m2/month (4 March – 4 April 2026). The elevated monthly dust deposition results were attributed to a combination adjacent farming activities and forecasted dust storm.
- D4 (Rehab) returned one monthly result higher than the predicted range at 3.0g/m2/month (12 November – 10 December 2025). The higher monthly dust level may be attributed to adjacent quarry operation however, the result still complies with the monthly dust criteria.
- D5 (Bund Wall) returned four monthly results higher than the predicted range at 3.6 g/m2/month (17 September – 15 October 2025), 4.6 g/m2/month (15 October – 12 November 2025), 44.2 g/m2/month (10 12 November – 10 December 2025) and 8.7 g/m2/month (10 December 2025 – 7 January 2026). The elevated monthly dust deposition results which were attributed mainly to adjacent farming activities.
- D6 (School) returned three elevated monthly results at 43.7 g/m2/month (23 July – 20 August 2025), 12.2 g/m2/month (17 September – 15 October 2025) and 3.0 g/m2/month (12 November – 10 December 2025). The elevated monthly dust deposition results were attributed to a number of causes. In July – August, preparation works of the adjacent area were undertaken for the annual Maroota Public School Muster event. During September-October period, bushfire mitigation works which involved clearing and mulching fallen trees were undertaken adjacent to the school. During November-December period, dusty conditions were recorded in the area which also impacted other dust gauges.
- D7 (Mulloc heap) returned monthly dust levels below the predicted range for the entire reporting period.

Historical Data

It can be seen from Charts 1 to 4 that the majority of dust deposition results were compliant over the 2022 – 2023 reporting period. However, during the 2023 - 2024 reporting period, the rolling annual dust deposition results at D1A and D5 exceeded the criteria. The rolling annual dust deposition results at D5 were exceeded during the 2024 – 2025 reporting period. D1A, D5 and D6 recorded rolling annual dust deposition exceedances during the 2025 – 2026 reporting period.

Historically, the rolling annual averages for D04 (Rehab) and D07 (Mulloc Heap) have been consistently compliant over the last four reporting periods.

D01A (front gate) is located on the boundary of the Quarry Access Road and neighbouring farmland. During the 2022-2023 reporting period, all monthly and annual average results were generally in compliant, except the anomaly monthly reading of 33.6 g/m2/month in May 2023 which was attributed to adjacent farming activities resulting in vast area of exposed ground. This high monthly reading led to ongoing annual average dust deposition exceedances throughout the 2023 – 2024 reporting period which returned below the criteria from April 2024. The rolling annual average dust deposition at D1A rose above the criteria during the May 2025 monitoring month due to the forecasted dust storm moving across the Greater Sydney region. During this 2025 – 2026 reporting period, one monthly dust deposition exceedance was recorded at D01A which was attributed to adjacent farming activities. Despite only one

monthly exceedance, the rolling annual average continued to exceed the criteria over 8 monitoring periods due to elevated monthly results from the previous reporting period.

D5 is located at the toe of the northern bund on Lot 1. The rolling annual averages at D5 were compliant during the 2022 – 2023 and first half of the 2023 – 2024 reporting periods. The rolling annual average dust deposition at D5 exceeded the criteria from January 2024 through to March 2025 which were attributed to Bundwall maintenance works and the neighbouring farming activity occurring in the immediate area of the dust gauge. Monthly results were exceeded during the November 2025, December 2025 and January 2026 due to neighbouring farming activities. These 3 consecutive monthly dust exceedances resulted in the rolling annual average exceedance for the second half of the 2025 – 2026 reporting period.

D6 is located north of the Maroota Public School and next to the PM10 monitor. Historically, the rolling annual average dust deposition at D6 have been compliant over the previous 3 reporting periods. Elevated monthly dust deposition results during July – August is typical and have been observed during this 2025 – 2026 and the previous reporting periods due to property maintenance and preparation works required leading up to the annual Maroota Muster event. Coupled with another elevated monthly result during this reporting period due to vegetation maintenance works, the rolling annual average dust deposition results at D6 have exceeded the criteria for the majority of the 2025 – 2026 reporting period.

Both monthly and rolling annual average results at D4 (Rehab) and D7 (Mulloc Heap) were all in compliant during this reporting period.

PM10

Reporting Period 2025 - 2026

The EIS predicted a 6th highest PM_{10} 24-hour average of 42 μg/m³ and a PM_{10} annual average of 7 μg/m³ (maximum values for 7 discrete receptors modelled). The air quality statement of evidence presented in the Land and Environment Court of NSW for Lots 1 and 2 (ERM, 2003) predicted that the highest 24-hour PM_{10} ground level concentration would be 37 μg/m³ at receptor 3. Consent DA250-09-01 and the Environment Protection Licence subsequently set a maximum rolling 24-hour average of 42 μg/m³ for the site.

The 24-hour average PM_{10} levels (dark blue columns on Chart 8) remained below the 24-hour EPL management level of 42 μg/m³ (green line on Chart 8) and the 24-hour NEPM short term criteria level of 50 μg/m³ (yellow line on Chart 8) for the whole duration of this reporting period, except on three days. The 24-hour average PM_{10} level of 47.1 μg/m³ exceeded the 24-hour EPL management level of 42 μg/m³ on 22 October 2025 due to the forecasted gusty winds moving across a number of states including NSW and Sydney region. The 24-hour average PM_{10} level of 59.5 μg/m³ exceeded both the 24-hour EPL management level of 42 μg/m³ and the 24-hour NEPM short term criteria level of 50 μg/m³ on 29 November 2025 due to a number of causes including a grass fire and bushfire at two properties adjacent to the Quarry, in conjunction with dusty conditions from farming activities. The 24-hour average PM_{10} level of 49.7 μg/m³ exceeded the 24-hour EPL management level of 42 μg/m³ on19 December 2025 due to insect interference with PM10 monitor during the extreme hot temperatures. These three exceedances are a result of extra-ordinary events as defined by Note d, Table 3, Condition 7, Schedule 3 of DA 250-09-01 which therefore do not constitute non-compliances.

Despite the elevated 24-hour average PM10 recorded on three days, the rolling annual average PM_{10} values (light blue line on Chart 8) remained below the EPA long term criteria of 30$\mu g/m^3$ (pink line on Chart 8) for this reporting period.

Table 12: PM10 – EPL and NEPM Management Criteria Exceedance

Event No.	Exceedance Date	24-hour average PM10	Exceeded criteria	Comment
1	22 October 2025	47.1 µg/m³	24 hour average PM10 EPL limit of 42 µg/m³	This exceedance is attributed to the forecasted gusty winds moving across several states including NSW and Sydney region on 22 October 2025. This is considered an extra-ordinary event therefore does not constitute a non-compliance.
2	29 November 2025	59.5 µg/m³	NEPM 24 hour average PM10 criteria of 50 µg/m³ and 24 hour average PM10 EPL limit of 42 µg/m	This exceedance is attributed to the grass fire and bushfire burning on two properties adjacent to the Quarry, and potentially contributed by the neighbouring farming activities Grassfire and Bushfire are considered extra-ordinary events therefore do not constitute a non-compliance.
3	19 December 2025	49.7 µg/m³	24 hour average PM10 EPL limit of 42 µg/m³	This exceedance is attributed to PM10 monitor being interfered by insect swarms during high temperatures. This is considered an extra-ordinary event therefore does not constitute a non-compliance.

Historical Data

It can be seen from Charts 5 to 8 that all the annual average PM10 results recorded at the TEOM comply with the annual average PM10 criteria of 30$\mu g/m^3$ over the four years of annual review reporting.

A number of 24-hour average PM10 exceedances were recorded over the last four reporting periods with causes attributed to activities not related to quarry operations. There were no 24-hour average PM10 exceedances during the 2022-2023 and 2023-2024 reporting periods. One 24-hour average PM10 NEPM criteria exceedance was recorded during the previous 2024-2025 reporting period which was due to forecasted extreme weather events, and therefore not considered a non-compliance. One 24-hour average PM10 NEPM criteria exceedance was recorded during this 2025-2026 reporting period which was due to grassfire and bushfire occurring in the adjacent property, along with potential dust being generated from neighbouring farming activities.

The annual PM_{10} average for the 2025 – 2026 reporting period is 16.6 μg/m³, which is lower than the EPA criterion of 30μg/m³ but double of the predicted value of 7 μg/m³ in the EIS. This annual average is comparable to the recorded historical values of 14.8 μg/m³ (2024-2025), 14.6 μg/m³ (2023-2024), 12.0 μg/m³ (2022-2023), 12.7 μg/m³ (2021-2022), 13.7 μg/m³ (2020-2021) and much lower than the 21.3 μg/m³ (2019-2020). The cause of the previous higher annual average of recorded 21.3 μg/m³ (2019-2020) is attributed to higher frequency of extraordinary events such bushfire, hazard reduction burns and hot and gusty weather conditions.

Total Suspended Particles

Reporting Period 2025 – 2026

The Total Suspended Particles (TSP) results are reported in Charts 9 to 12 inclusive. The annual average TSP for this reporting period is 41.4 which is lower than the annual average TSP criteria of 90 μg/m³ set out by the consent and EPL. Elevated TSP values were a reflection of high PM10 values.

Historical Data

Reporting of TSP commenced in December 2017. Historical annual average TSP values were 38.3 μg/m³ (2017-2018), 40.0 μg/m³ (2018-2019), 53.4 μg/m³ (2019-2020), 34.3 μg/m³ (2020-2021), 31.8 μg/m³ (2021-2022), 29.9 μg/m³ (2022-2023), 36.6 (2023-2024) and 37.0 μg/m³ (2024-2025). The higher annual average TSP value recorded in 2019-2020 were attributed to cumulative effects of poor air quality associated with bushfires in the local, and regional and inter-state areas.

5.1.5 Changes to Environmental Procedures

Following the issue of the EPL variation on 15 April 2026, Dust gauges D1A and D5 were decommissioned on 27 May 2026 and relocated to their new locations. D1A has been relocated south-east to D1B at private property 4579 Old Northern Road). D5 has been relocated to east D5A on the northern boundary of Lot 1 DP547255.

Dust deposition monitoring at D1B and D5A commenced on 27 May 2026, and results will be reported in the next 2026 – 2027 Annual Review.

The Air Quality Management Plan was updated following the outcome of the EPL variation and dust gauge relocation.

The installation of PM2.5 monitor, as stipulated by the EPL variation (15 April 2026), is pending EPA's approval on the proposed dust monitor specification. Once approval is received, Dixon Sand will install the PM2.5 monitor next to the existing PM10 monitor and weather station which are located north of the Maroota Public School.

5.2 Noise Management

5.2.1 Noise Sources and Mitigation Measures

The objectives, criteria limits, procedures, response, reporting and responsibilities of noise management are contained in the Noise Management Plan.

The following potential sources of noise and mitigation measures at the Old Northern Road have been identified in Table 13.

Table 13: Potential sources of Noise and mitigation measures.

Potential Noise Sources	Mitigation Measures
• Extraction by bulldozers and excavators; • Moving of materials and stockpiling by dump trucks and excavators; • Truck haulage including bogie trucks, truck and dogs; • Wet/dry processing of sand; and • Ancillary activities including maintenance undertaken in the workshop • Construction/ maintenance of bund walls • Water transfers using pumps	• Construction of noise bunds in strategic locations as stipulated in the EIS/EAs and consent conditions; • Compliance with approved hours of operation; • Regular maintenance of road surfaces, vehicles and equipment to reduce noise emissions; and • Enforcement of speed limits for trucks and limited use of exhaust brakes in residential and school areas. • Enforcement of a 20km/h speed limit on quarry access road and haul roads. • Switch off plant when not in use and use of automatic idle shutdown.

The Noise Management Plan for Old Northern Road quarry requires attended noise monitoring to be undertaken bi-annually.

5.2.2 Compliance Limits

Noise Criteria

The Old Northern Road noise criteria are listed in Table 14. The approved hours of operation are contained in Table 15. Noise monitoring for the quarry is based on these criteria.

Table 14: Old Northern Road Noise Criteria.

Consent Condition	Conditions
DA250-09-01, Condition 3 of Schedule 3 and	The Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 2 at any residence on privately-owned land or at the Maroota Public School. *Table 2: Noise criteria dB(A)* **Receiver** / **Averaging Period** / **Shoulder (6.00 am to 7.00 am)** / **Day (7.00 am to 6.00 pm)** Any residence on privately owned land / $L_{Aeq\ (15\ minute)}$ / 37 / 44 Any classroom at Maroota Public School / $L_{Aeq\ (1\ hour)}$ / - / 45 Noise generated by the development is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy. Appendix 6 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria. However, the noise criteria in Table 2 do not apply if the Applicant has an agreement with the relevant landowner to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement. *Note: Should an agreement with a landowner be terminated for any reason, the Applicant must comply with the noise criteria in Table 2.*

Table 15: Old Northern Road Approved Hours of Operation.

<table>
<tr><th>Consent Condition</th><th>Condition</th></tr>
<tr><td>DA250-09-01, Condition 1 of Schedule 3</td><td>The Applicant must comply with the operating hours set out in Table 1.
Table 1: Operating hours
<table>
<tr><th>Activity</th><th>Permissible Hours</th></tr>
<tr><td>Quarrying operations (excluding truck arrival, loading and dispatch)</td><td>7.00 am to 6.00 pm Monday to Saturday</td></tr>
<tr><td></td><td>At no time on Sundays or public holidays</td></tr>
<tr><td>Truck arrival (unladen)</td><td>5.45 am to 6.00 pm Monday to Saturday</td></tr>
<tr><td></td><td>At no time on Sundays or public holidays</td></tr>
<tr><td>Truck loading
Truck dispatch
Truck arrival (laden)</td><td>6.00 am to 6.00 pm Monday to Saturday</td></tr>
<tr><td></td><td>At no time on Sundays or public holidays</td></tr>
<tr><td>Bund construction or rehabilitation works within 250 m of Maroota Public School</td><td>7.00 am to 6.00 pm Monday to Friday during school holiday periods unless otherwise approved in writing by the EPA</td></tr>
<tr><td>Maintenance</td><td>May be conducted at any time, provided that these activities are not audible at any privately-owned residence</td></tr>
</table></td></tr>
<tr><td>DA250-09-01, Condition 2 of Schedule 3</td><td>The following activities may be carried out outside the hours specified in condition 1 above:
(a) delivery or dispatch of materials as requested by the NSW Police Force or other public authorities; and
(b) emergency work to avoid the loss of lives, property or to prevent environmental harm.
In such circumstances, the Applicant must notify the Secretary and affected residents prior to undertaking the activities, or as soon as is practical thereafter.</td></tr>
</table>

5.2.3 Results

Attended noise monitoring were undertaken in December 2025 and June 2026. Attended noise monitoring was conducted at receivers (where permission to enter the property was granted) and at-source, in accordance with the requirements of the Noise Management Plan. In instances where ambient noise such as road traffic, birds, insects and tree breezes was found to be the dominant noise sources, noise levels were obtained at alternative locations closer to the quarry. Predicted noise levels are then extrapolated from the near-distance location to the sensitive receiver locations.

Quarry operations in December 2025 fell into four categories for main sources of noise during the monitoring period which were:

- sand processing and truck loading (main plant, front end loaders and trucks),
- extraction of bulk sandstone by cutting, sawing and log popping,
- stockpile management with articulated dump trucks, and
- watercart (moxie)

Quarry operations in June 2026 fell into two categories for main sources of noise during the monitoring period which were:

- sand processing and truck loading (main plant, front end loaders and trucks),

- extraction of bulk sandstone by cutting, sawing and log popping.

Results for predicted noise impacts for Old Northern Road quarry undertaken in December 2025 and June 2026 are contained in Tables 16 and 17 respectively.

The full noise monitoring reports for December 2025 and June 2026 are contained in Appendix D.

Table 16: Extrapolated noise levels for Old Northern Road Quarry, December 2025.

Receiver	Noise Criteria (dBA)		Extrapolated Day noise level (dBA)
	Shoulder	Day	
OR1	-	45	44
OR2	37	44	44
OR3			41
R2			33
R3			39
R4/R5			43

Table 17: Predicted Noise Impacts for Old Northern Road Quarry, June 2026.

Receiver	Noise Criteria (dBA)		Extrapolated noise level (dBA)
	Shoulder	Day	
OR1	-	45	33
OR2	37	44	35
OR3			35
R2			34
R3			34
R4/R5			37

5.2.4 Analysis

Old Northern Road - Attended Noise Monitoring – December 2025

Attended noise monitoring and modelling results indicate that the Quarry was compliant with the noise criteria for shoulder and daytime operations at all receivers under the meteorological conditions at the time.

Old Northern Road - Attended Noise Monitoring – June 2025

Results of attended monitoring and extrapolated noise levels demonstrate the following:

Results of attended monitoring and extrapolated noise levels demonstrate the observed operations during the day period were compliant with the noise limit at each receiver under the meteorological conditions at the time.

5.2.5 Noise Exceedance and Non-Compliance

No noise exceedance or non-compliance have been recorded during this monitoring period.

5.2.6 Discrepancies between Predicted and Actual Noise Impacts

Table 18 compares the predicted noise levels contained in the EIS (ERM, 2001) during non-adverse weather with quarry operations in Strip 2 and 3 on Lots 1 and 2. The extrapolated noise levels from December 2025 and June 2026 assessment at the receivers are also presented here for comparison.

Modelled noise impacts contained in the EIS (ERM, 2001) show that a maximum external level of LAeq 36 dB(A) has been calculated for the Maroota Public School (the school) and assuming that internal noise levels are 10 dB less than external noise levels (with windows opened), the predicted internal noise level is approximately 26 dB(A).

Extrapolated December 2025 and June 2026 noise monitoring results at the school (external) yielded noise levels of 44 dB(A) and 33, respectively. Extrapolated noise monitoring results for residences on Old Northern Road yielded levels between 33 and 44 dB(A) for the biannual monitoring events.

There are minor discrepancies between the predicted and actual noise impacts experienced at the school and residences, with extrapolated noise levels in December 2024 and June 2025 being lower than the noise criteria in all cases, during shoulder and daytime periods.

Dixon Sand is currently operating and extracting materials in Strip 3-4-5 east of Strip 2 which was the location used to model predicted impacts in the EIS (ERM, 2001). The noise bund located at the 250m buffer to the school has been partially constructed. Despite the quarry operation moving closer towards the school and Old Northern Road residences, the reduced scale of the quarry operation together with the attenuation from the noise bund have contributed to the achievement of noise compliance.

Table 18: Comparison of predicted and actual noise impacts, December 2025 and June 2026.

Receptor	EIS (ERM, 2001) Predicted Daytime Noise Levels LAeq (dB(A))	Daytime Noise Criteria LAeq (dB(A))	December 2025 Daytime Noise Levels	June 2026 Daytime Noise Levels	Compliance with Daytime Noise Criteria
R1	43	**44**	N/M	N/M	N/M
R2	40	**44**	33	34	Yes
R3	37	**44**	39	34	Yes
R4	35	**44**	43	37	Yes
R5	34	**44**	43	37	Yes
R6 (OR3)	N/A	**44**	41	35	Yes
OR2			44	35	
School Building 1 (OR1)	36 (external) ~26 (internal)	**45**	44	33	Yes
School Building 2	35 (external) ~25 (internal)				

Note: N/A – R6 residential building constructed after the EIS (ERM, 2001)

N/M – R1 noise levels not measured due to existing Noise Agreement between Accurso and Dixon Sand.

5.2.7 Noise Trend

As quarry operations progress eastwards on Lots 1 and 2 towards Maroota Public School and other identified private residences, noise levels are expected to increase as a result of reduced proximity between machinery and noise receivers.

Charts 13 to 18 illustrate the long-term trend in noise monitoring levels for Maroota Public School and residences on Old Northern Road. Noise monitoring was undertaken during the period 2003 to 2007 however data has been omitted from this trending analysis due to the monitoring locations differing from the locations identified in the current Noise Management Plan.

It can be seen from Chart 13 that quarry noise level fluctuations occurred at Maroota Public School over the eighteen-year period, with a general increasing trend with daytime noise level peaking in December 2019 at L_{Aeq15} 45 dB(A) and June 2021 at L_{Aeq15} 46 dB(A). Since 2021, noise levels measured at the school have been compliant, remaining below the noise criteria of 45 dB(A). Extrapolated noise monitoring results at the school in December 2025 and June 2026 are L_{Aeq15} of 44 dB(A) and L_{Aeq15} of 33 dB(A), respectively.

Chart 14 provides long-term data for receiver OR2 at 4624 Old Northern Road. Fluctuations in daytime and shoulder noise levels can be observed with reduced daytime noise levels recorded between December 2011 to May 2014, possibly a consequence of reduced quarry activities on Lots 29 and 196. From December 2014 to June 2021, a general increasing daytime noise levels trend can be observed, with noise levels ranging from LAeq15min 34.1 to 45 dB(A). A declining trend in daytime noise levels was observed between June 2021 and December 2024, possibly due to scaling down of operations at Old Northern Road Quarry where certain operations have moved across to Haerses Road Quarry. Between December 2024 and June 2026 saw increasing daytime noise levels which may be attributed to quarry operations moving eastwards in Strip3 and 4 of Lots 1 and 2.

Charts 16 and 17 display an increasing trend in quarry noise levels at receivers R2 and R3 from December 2018 to December 2020 (R2) and December 2021 (R3), peaking at LAeq15 44 dB(A). From December 2023, a decreasing trend in quarry noise levels can be observed which may be attributed to the partially constructed noise bund on Lots 1 and 2 acting as noise attenuation.

Chart 15 shows long term trend at receiver OR3 (R6) ranging between LAeq15 35 and 46 dB(A).

Chart 18 shows long term trend at receiver R4/5 with an increasing trend in noise levels from December 2018, peaking at LAeq15 45 dB(A) in June 2021. Between December 2021 and June 2026, a fluctuating trend in daytime noise levels can be observed, all compliant to noise criteria. The causes of fluctuating noise levels may be a combination of scaled down quarry operation during which resulted in lower quarry noise. The progression of quarry operation towards the east on Lots 1 and 2 have decreased the distance between quarry operations and Receivers 4/5. The partially constructed noise bund will have attenuated and lower quarry noise experienced at the receivers.

Since 2021, there is a declining and fluctuating trend in noise impacts at the majority of the residence and Maroota Public school, with occasional higher results recorded which are compliant.

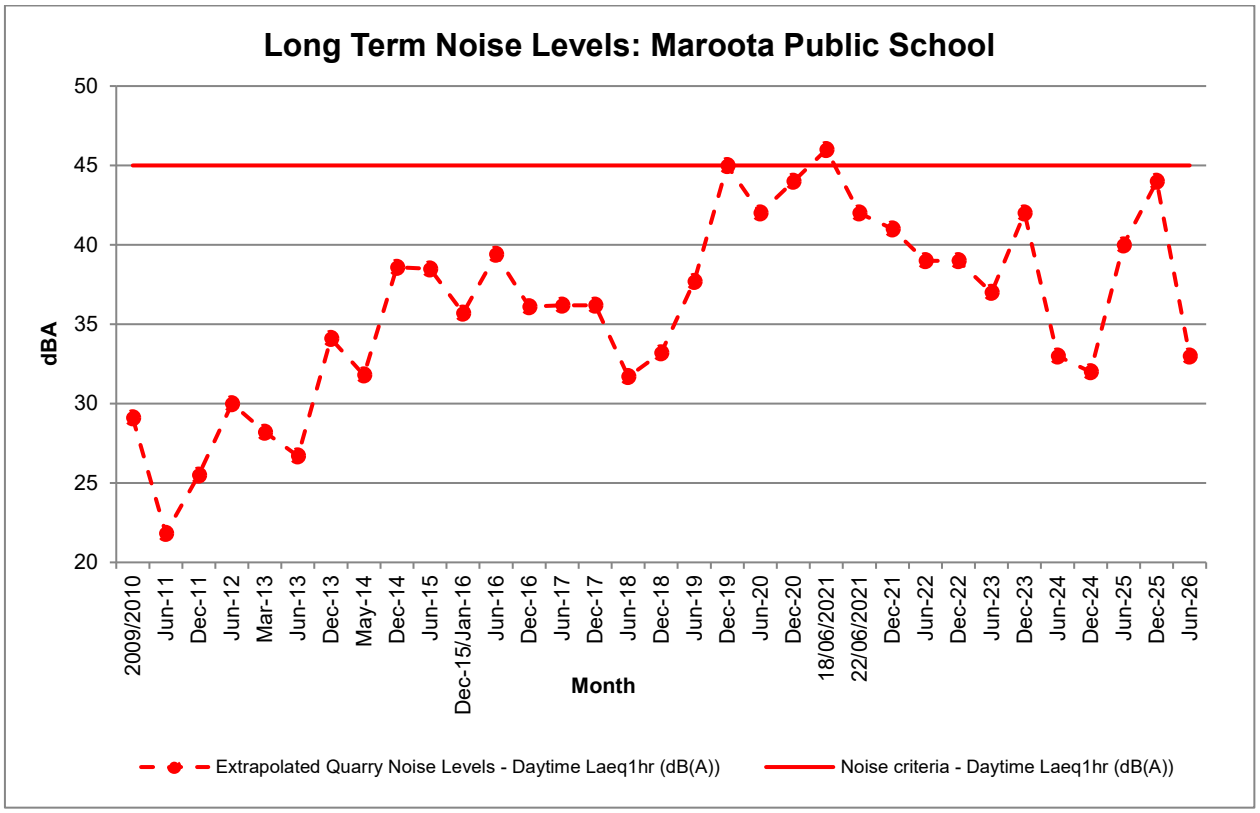


Chart 13: Long term noise trend – Maroota Public School

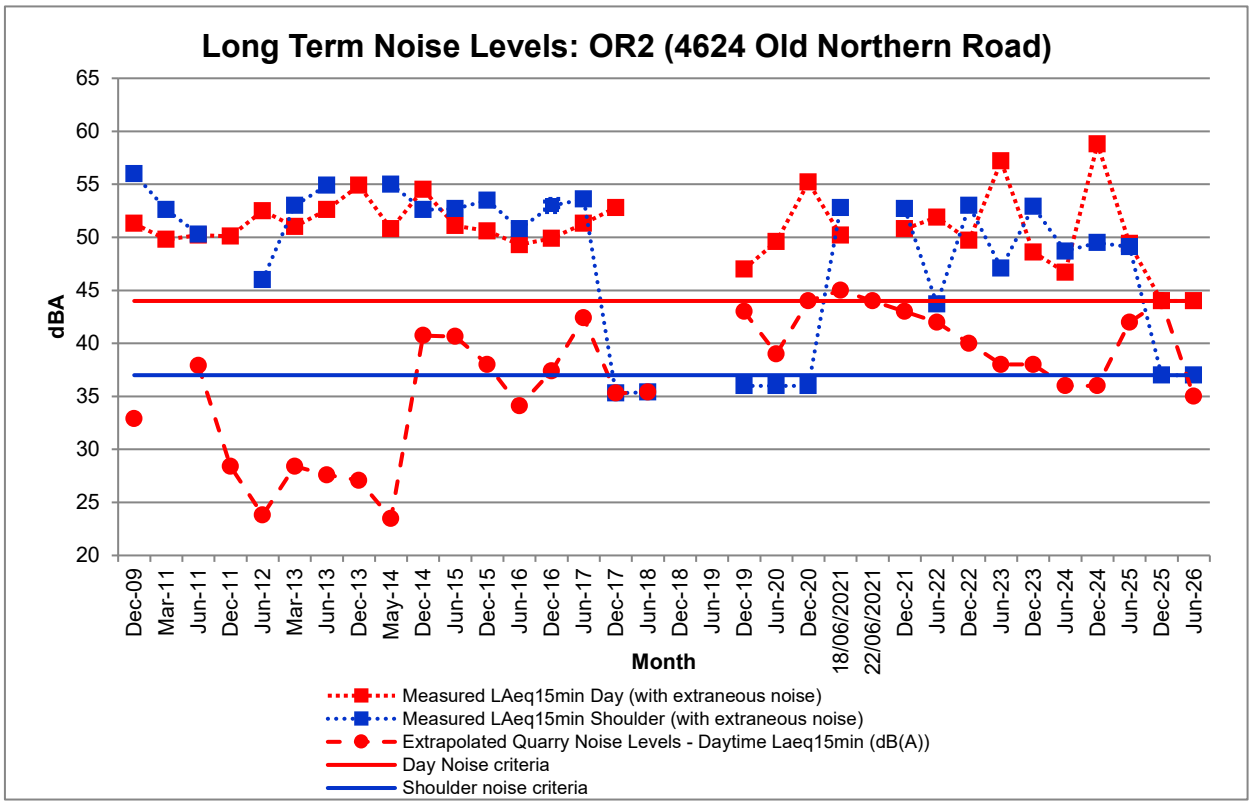


Chart 14: Long term noise trend – OR2 (No. 4624 Old Northern Road)

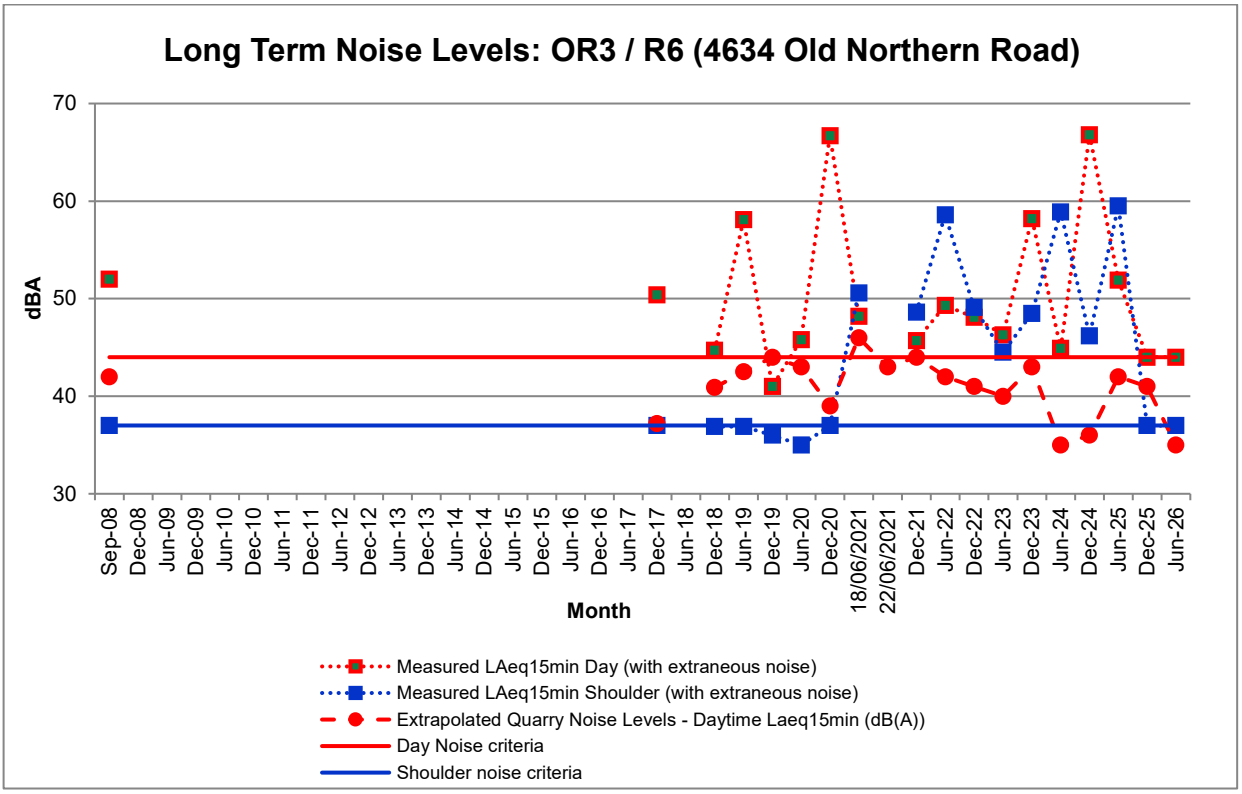


Chart 15: Long term noise trend – OR3/R6 (No. 4634 Old Northern Road)

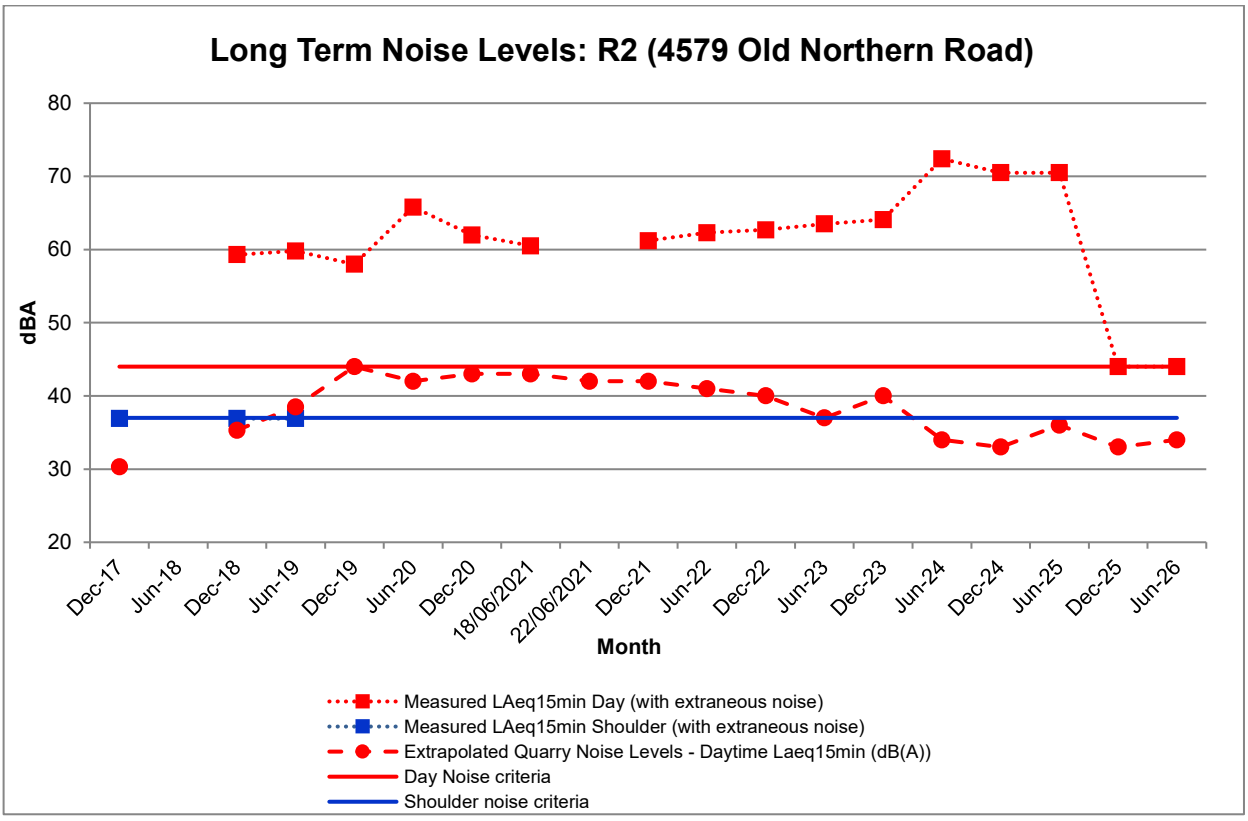


Chart 16: Long term noise trend – R2 (No. 4579 Old Northern Road)

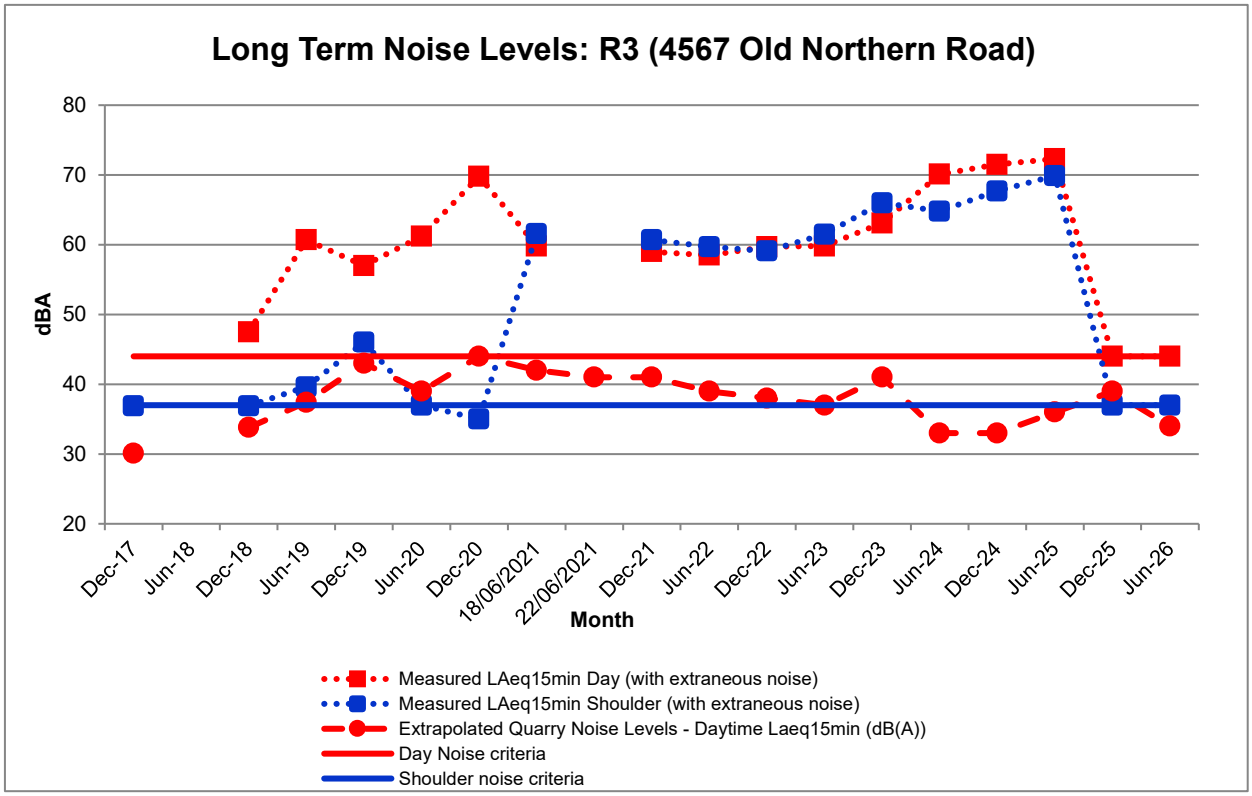


Chart 17: Long term noise trend – R3 (No. 4567 Old Northern Road)

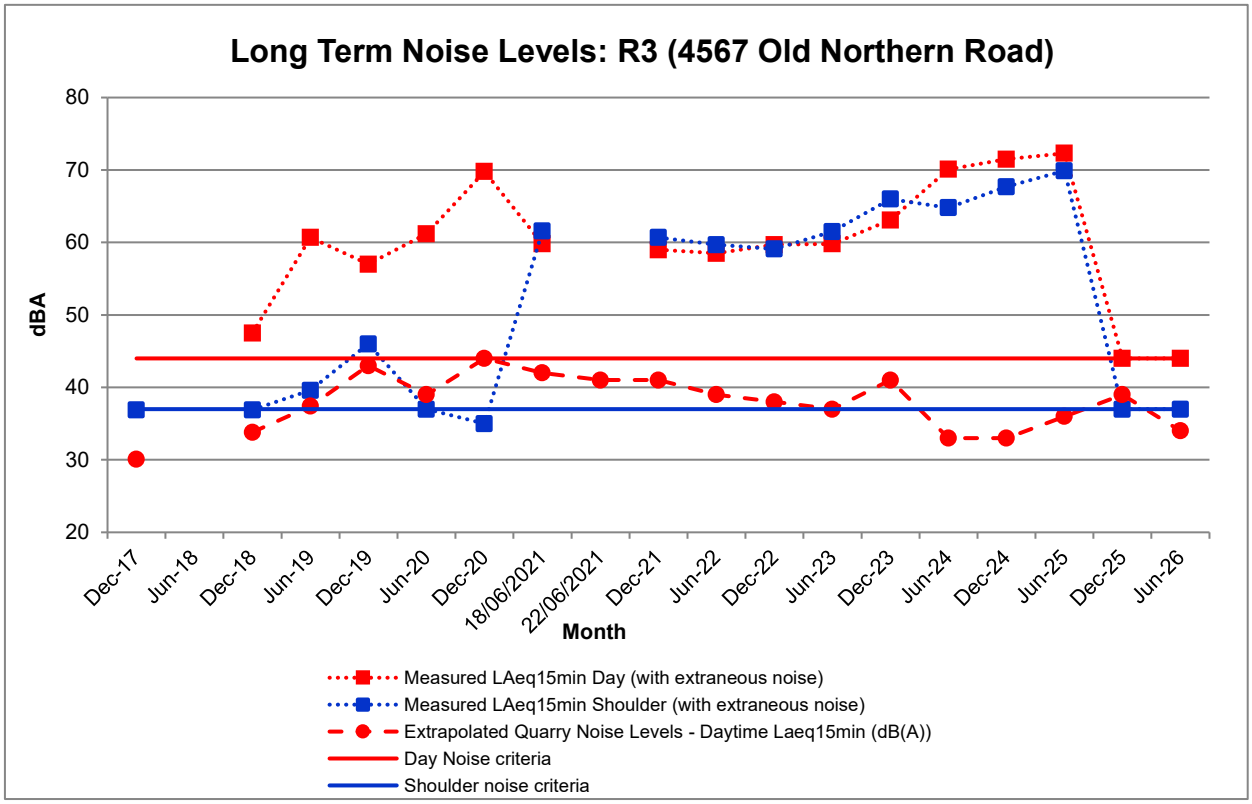


Chart 18: Long term noise trend – R4/R5 (No. 4634 Old Northern Road)

5.2.8 Changes to Environmental Procedures

There are no proposed changes to the noise procedures as a result of noise compliance during this reporting period.

Dixon Sand is required to construct a noise bund within the 250m buffer to the Maroota Public School prior to commencing extraction in Strip 4 on Lots 1 and 2. Any construction or maintenance of noise bund walls are to be carried out in accordance with the strategies outlined in the Old Northern Road Noise Management Plan. The construction of the 250m school buffer noise bund commenced and construction was undertaken during school holidays. It is anticipated that the remaining section of the noise bund will be constructed and completed during the next reporting period.

Continue to undertake attended noise monitoring in accordance with the Noise Management Plan.

5.3 Traffic and Transport

5.3.1 Ongoing Management Measures

Vehicle Movements

Vehicle movement records have been sent to Council on a monthly basis and Section 94 Contribution payments made. There were no exceedances of permitted vehicle movements during the reporting period.

Monthly Inspections

Observations of road conditions and maintenance requirements are inclusive in the monthly site inspection checklists. An example of the monthly site inspection checklist is attached in Appendix E.

Community Liaison

Liaison between Dixon Sand and the representative of Maroota Public School is conducted on a regular basis during the Community Consultative Committee meetings which are held bi-annually. Details of the CCC meetings and community engagement and contributions are discussed further in Section 8.

5.3.2 Traffic Related Complaints

One traffic related complaint was received for Old Northern Road Quarry during the 2025 – 2026 reporting period.

Please note that Dixon Sand has no jurisdiction over haulage trucks outside the quarry premise as these are not contracted or owned by Dixon Sand. The enforcement of truck noise compliance rests with TfNSW and the EPA. Dixon Sand is restricted by its legal jurisdiction in prohibiting the use of the trucks' safety features such as engine braking. Dixon Sand however is committed to assisting in the education campaign through induction, traffic management policies and inter-pit agreement.

A copy of the complaints register containing the complaints summary during the reporting period is attached in Appendix K.

Table 19: Traffic Complaints, recommended action(s) and outcome

Old Northern Road Quarry **Complaint No.1**	
Date complaint received	10 September 2025
Issue	• The Complainant claimed the truck was speeding and driving all over the road in an erratic manner • Photograph of the truck (with trailer registration) was supplied by the Complainant.
Recommendation Action(s)	• Dixon Management to investigate the supplied photo and identify the location of the incident • Dixon Management to contact the truck company and inform them of the complaint • Dixon Management to enforce the relevant procedure.
Outcome	• The location of the incident was identified to be outside of Maroota area in Glenorie. As this is outside of the local Maroota area, the truck company is responsible for implementing their internal company complaint protocol, investigation and disciplinary action.

	• Dixon's Management contacted the truck company and informed them of the specifics of the complaint. • No further action required. • Complaint closed out on 11 September 2025.

5.3.3 Compliance

Assessment of compliance against the relevant conditions is summarised in Table 20.

Table 20: Road and Traffic Compliance.

DA250-09-01 (Mod 5)	Condition	Compliance	Comments
Condition 5(b) of Schedule 2	continue to receive and process extractive material from Haerses Road Sand Quarry, and dispatch quarry products from the site, until 14 February 2046.	Yes	Material transported from Haerses Road to Old Northern Road during this reporting period.
Condition 7 of Schedule 2	Truck movements at the site (i.e. one-way trip, either arrival or dispatch), including truck movements between the site and the Haerses Road Sand Quarry, must not exceed: (a) 180 per day; and (b) 40 between 5.45 am and 7.00 am.	Yes	Maximum recorded daily truck movements were **172 in and out bound.** Maximum number of morning trucks was **28 in and out bound**
Condition 12 of Schedule 2	The Applicant must pay Council an annual financial contribution toward the maintenance of local roads used for haulage of quarry products. The contribution must be determined in accordance with The Hills Shire Council Contributions Plan No. 6 Extractive Industries, or any subsequent relevant contributions plan adopted by Council.	Yes	Refer to Appendix I for S.94 summary table
Condition 1 of Schedule 3	The Applicant must comply with the operating hours set out in Table 1.	Yes	Refer to truck records

Table 1: Operating hours

Activity	Permissible Hours
Quarrying operations (excluding truck arrival, loading and dispatch)	7.00 am to 6.00 pm Monday to Saturday
	At no time on Sundays or public holidays
Truck arrival (unladen)	5.45 am to 6.00 pm Monday to Saturday
	At no time on Sundays or public holidays
Truck loading Truck dispatch Truck arrival (laden)	6.00 am to 6.00 pm Monday to Saturday
	At no time on Sundays or public holidays
Bund construction or rehabilitation works within 250 m of Maroota Public School	7.00 am to 6.00 pm Monday to Friday during school holiday periods unless otherwise approved in writing by the EPA
Maintenance	May be conducted at any time, provided that these activities are not audible at any privately-owned residence

DA250-09-01 (Mod 5)	Condition	Compliance	Comments
Condition 2 of Schedule 3	The following activities may be carried out outside the hours specified in condition 1 above: (a) delivery or dispatch of materials as requested by the NSW Police Force or other public authorities; and (b) emergency work to avoid the loss of lives, property or to prevent environmental harm.	Yes	Condition not triggered
Condition 21 of Schedule 3	The Applicant must keep accurate records of all laden truck movements to and from the site (including time of arrival and dispatch) and publish a summary of records on its website every 6 months.	Yes	Refer to Summary Truck Record on Dixon Sand's website: https://dixonquarrygroup.com.au/environment-%26-epl
Condition 22 of Schedule 3	The Applicant must: (a) advise its drivers and its clients not to arrive at the site prior to 5:45 am on any day; (b) ensure that all laden trucks have their loads covered when arriving at or leaving the site; (c) ensure that all laden trucks are cleaned of material that may fall from vehicles, before leaving the site; and (d) use its best endeavours to ensure that appropriate signage is displayed on all trucks used to transport product from the development so they can be easily identified by road users.	Yes	Requirements outlined in the Traffic Management Plan

DA250-09-01 (Mod 5)	Condition	Compliance	Comments
Condition 2 of Schedule 3	The Applicant must prepare a Traffic Management Plan for the development to the satisfaction of the Secretary. This plan must: (a) be prepared in consultation with the RMS and Council; (b) be submitted to the Secretary for approval within 3 months of the approval of Modification 5, unless otherwise agreed by the Secretary; (c) describe the processes in place to control the arrival and dispatch of trucks; (d) include a Drivers' Code of Conduct that details the safe and quiet driving practices that must be used by drivers travelling to and from the site, particularly in the vicinity of the Maroota Public School; (e) describe the measures to be put in place to ensure compliance with the Drivers' Code of Conduct; (f) include specific measures to minimise the impact of heavy vehicles, including restrictions on routes and times (particularly in relation to peak hours, holiday periods and times immediately before and after school hours, i.e. 8.30 am – 9.00 am and 3.00 pm – 3.30 pm); and (g) propose measures to minimise the transmission of dust and tracking of material onto the surface of the public road from vehicles leaving the quarry. The Applicant must implement the approved Traffic Management Plan as approved by the Secretary.	Yes	Refer to the Traffic Management Plan

5.3.4 Analysis

The production and truck movement data outlined above is evidence that Dixon Sand has operated in compliance with the consent conditions during the 2025 – 2026 reporting period. In addition, the Quarry received one traffic related complaint during this reporting period.

5.3.5 Findings and Effectiveness of Traffic Management

Current traffic management and mitigation measures are being implemented through Old Northern Road Quarry Traffic Management Plan (TMP). The mitigation measures listed in Table 5.1 in the TMP are categorised into three main categories: (1) truck movement measures, (2) site operational control measures and (3) transport related consultation measures.

During the period of this Annual Review, the adopted mitigation measures have been effective in managing traffic on the quarry premise. Restrictions on number of truck movements to and from site during morning and daytime period have been complied with. All haulage truck operators have been inducted onto site and a record maintained.

During induction, the haulage truck operators were provided with a copy of the following documents:

- Site Traffic Management Plan - outlining specific requirements the responsibilities and requirements,
- Quarry Premise Map - showing traffic flow directions,
- Maroota Local Traffic Management Policy - outlining the inter-pit agreement between the three signatories of local quarries,
- Local Traffic Non-Compliance Policy – outlining the procedures to be implemented in the case of a verified truck related complaint, and
- Site Induction Declaration – declaration to be made and signed by haulage truck operators confirming induction requirements.

The implemented mitigation measures and educational campaign increases awareness and emphasises the importance of traffic related compliance. This has proven to be effective as there is a decreasing trend in the number of traffic related complaints over the last five reporting years, as discussed in later Section 8.3.

5.3.6 Additional Management Controls

No additional management controls identified.

5.3.7 Changes to Environmental Procedures

No changes to the environmental procedures are proposed or deemed necessary for road and traffic management.

5.4 Waste Management

5.4.1 Waste Generation, Disposal and Recycling

Dixon Sand manages a number of waste streams at the Old Northern Road Quarry.

During the reporting period, waste oil and grease were removed from the quarry by a licensed contractor for processing and disposal. Scrap metals were transported by a licensed waste transporter and recycled at a licensed metal recycling facility.

Glass, paper, cardboard and plastic (general solid waste – non-putrescible) were recycled via Council's fortnightly scheduled bin collection service. Food waste and other general solid waste (putrescible) were disposed of and collected via Council's weekly scheduled bin collection. Other bulky waste associated with the workshop activities was disposed of in skip bins and transported offsite by a licensed waste transporter. Used printer ink cartridges and batteries were dropped off at the designated collection points at Officeworks. Coffee pods were returned to the manufacturer to be composted and package recycled.

Waste tyres were collected by a licensed tyre transporters and sent to a licensed facility for recycling.

No building or putrescible wastes have been disposed of at the site.

The amount of waste transported off site from the Old Northern Road Quarry to be recycled, processed and disposed of during the monitoring period is contained in Table 21. The waste tracking register is contained in Appendix F.

Table 21: Old Northern Road – Total waste generated on site, July 2025 to June 2026.

Waste Type	Disposal / Recycling / Processing	Amount of Waste Generated
General Solid Waste - Putrescible	The Hills Shire Council Waste Contractor weekly bin collection (3 x 240L Red bin)	Approx. 37 m^3
General Solid Waste - Recyclables	The Hills Shire Council Waste Contractor fortnightly bin collection (2 x 240L Yellow bin)	Approx. 12 m^3
Scrap Metals	Recycled by Westland Metals and Tungsten & Mining Scrap	72.41 tonnes
Non-putrescible waste from workshop	Skip Bins provided and picked up by Asquith Mini Skips	19 m3
Hydrocarbon waste	Collected and transported by Grease Eater	3,600 litres
Liquid Waste (waste oil)	Collected and transported by ABC Waste Oil Collection	8,200 litres
Waste Tyres	Picked up by Marathon Tyres and recycled at licensed facility	5.9 tonnes
Ink Cartridge	Drop off at Post Office or Officeworks collection point	<0.1 m^3
Batteries	Drop off at Post Office or Officeworks collection point	<0.1 m^3
Coffee Pods	Returned to supplier for composting and package recycling	< 0.1 m3
Sewerage waste	Treated by onsite envirocycle unit	As per specification

5.4.2 Waste Importation

DA 250-09-01 does not permit any importation of waste onto the quarry premise.

5.4.3 Changes to Environmental Procedures

No changes to the waste management procedure are proposed for the next 2025 - 2026 reporting period.

Continued efforts to minimise waste generation and maximise recycling and reuse of materials are to be undertaken such as labelling of bins for effective waste segregation, waste reduction posters and toolbox talks to raise awareness.

6. Water Management

6.1 Monitoring and Compliance Limits

DA250-09-01 Modification 4 required Dixon Sand to install and monitor two additional monitoring bores. Installation and commencement of monitoring of these two additional bores (BH8 and BH9) occurred in September 2015.

As part of the expansion of the groundwater model submitted for the Development Consent Modification 6, a cluster of two additional monitoring bores (BH11 and BH12) were installed on the northern boundary of Lot 1 DP1288211. Groundwater monitoring at these new bores commenced in February 2026 and March 2026, respectively.

6.1.1 Groundwater Levels and Criteria / Trigger Levels

Groundwater levels for the Old Northern Road Quarry have been measured on a monthly basis. The groundwater monitoring system comprised initially of five boreholes in 2003. Five additional boreholes were installed and monitored monthly since June 2011. Borehole MW4 has been decommissioned as the area is now under extraction. Boreholes BH8 and BH9 have been installed on Lot 2 to satisfy Condition 3.25 of Schedule 2, DA250-09-01 (Modification 4). Borehole BH2 was damaged in December 2019 due to vehicle strike and therefore monitoring has been suspended until the monitoring well is rectified. Recently, BH11 and BH12 were installed in February 2026 and March 2026 respectively, in order to expand the groundwater monitoring network study for the DA250-09-01 Modification 6 currently under assessment.

At present, thirteen monitoring bores form the groundwater monitoring network for the Old Northern Road Quarry.

Borehole locations are listed in Table 22.

Table 22: Boreholes for groundwater monitoring at the Old Northern Road quarry.

Monitoring Bore	Location Reference	Aim of Monitoring
MW1	Quarry Lot 2, southern boundary	Localised perched aquifer
MW2	Quarry Lot 1, west of existing house	Localised perched aquifer
MW3	DS2, northern boundary of Quarry Lot 1	Localised perched aquifer
MW5	Quarry Lot 196, south of main dam	Localised perched aquifer
BH1	Western boundary of Quarry Lot 196	Sydney Basin Central Groundwater Source
BH2	Located in Lot 1, DP204159	Sydney Basin Central Groundwater Source
BH3	Located in Lot 1, DP204159	Sydney Basin Central Groundwater Source
BH6	Northern boundary of Quarry on Lot 1	Sydney Basin Central Groundwater Source
BH7	Southern boundary of Quarry on Lot 2	Sydney Basin Central Groundwater Source
BH8	Within the 100m buffer to MTSGS on Lot 2	Localised perched aquifer

BH9	Within the 100m buffer to MTSGS on Lot 2	Sydney Basin Central Groundwater Source
BH11	Northern boundary of Lot 1 DP1288211, west of the Quarry Front Gate	Localised perched aquifer
BH12	Northern boundary of Lot 1 DP1288211, west of the Quarry Front Gate	Sydney Basin Central Groundwater Source

The baseline groundwater level statistics with the 20th and 80th percentile results are listed in Table 23.

Table 23: Baseline Groundwater Level Statistics and Trigger Values (2003 – 2020)

Monitoring Bore	Minimum	20th Percentile	50th Percentile	80th Percentile	Maximum
MW1	173.1	176.0	177.5	178.3	180.0
MW2	191.2	194.3	199.0	200.3	202.1
MW3	173.6	175.1	177.4	178.4	180.3
MW5	158.4	162.1	162.6	162.9	164.0
BH1	106.1	106.2	106.2	107.1	107.5
BH2	162.1	165.0	165.0	166.7	167.9
BH3	158.1	160.5	161.0	161.7	162.1
BH6	161.7	164.1	164.7	165.5	166.2
BH7	157.0	160.0	160.4	161.2	162.1
BH8	189.2	189.5	189.8	189.9	190.3
BH9	157.8	161.3	163.0	163.8	164.4

6.1.2 Groundwater Quality and Criteria / Trigger Levels

The Soil and Water Management Plan require groundwater quality sampling to be undertaken on a 6-monthly basis. Groundwater quality sampling was undertaken in December 2025 and May 2026. Groundwater samples were obtained and sampled by a NATA qualified laboratory for analysis of pH, electrical conductivity and total dissolved solids. Initial groundwater sampling was undertaken for BH11 and BH12 after commissioning. Table 24 contains that baseline groundwater quality statistics and trigger values.

Table 24: Baseline Groundwater Quality Statistics and Trigger Values (2010 – 2020)

Monitoring Bore	pH			Electrical Conductivity (µS/c)		
	20th Percentile	50th Percentile	80th Percentile	20th Percentile	50th Percentile	80th Percentile
MW1	4.0	4.1	4.6	206	249	271
MW2	3.7	3.9	4.5	239	560	618
MW3	5.2	5.6	6.1	129	141	160
MW5	4.4	5.1	5.4	135	151	213
BH1	6.0	6.1	6.6	161	185	214
BH2	4.9	5.7	7.1	262	293	325
BH3	5.9	6.0	6.9	176	186	269
BH6	5.2	5.5	5.8	120	127	156
BH7	4.4	4.8	5.8	242	252	258
BH8	3.9	4.0	4.1	267	278	291
BH9	5.4	5.5	5.6	262	269	275
BH11	Early stage of monitoring - Insufficient dataset to determine parameters					
BH12	Early stage of monitoring - Insufficient dataset to determine parameters					

6.1.3 Surface Water Monitoring and Discharge Event

Condition M2.3 of EPL 3916 requires Dixon Sand to monitor (by sampling and obtaining results by analysis) the concentration of the pollutants utilising the specified methodology, units of measure and sampling frequency outlined in Table 25. Water discharged at the main storage dam weir must meet these criteria outlined in the EPL 3916. Water sampling at the EPA licensed discharge point is to be obtained and analysed against the criteria in Condition L2.4 of EPL 3916 prior to being discharged from the main water storage dam, as listed Table 26.

Table 25: EPL 3916 Surface water sampling requirement at LDP01.

Pollutant	Units of Measure	Frequency	Sampling Method
pH	pH	Daily during any discharge	Grab sample
Total Suspended Solids	Milligrams per litre	Daily during any discharge	Grab sample
Turbidity	Nephelometric turbidity units	Daily during any discharge	Grab sample

Table 26: EPL 3916 Surface water discharge criteria.

Pollutant	Units of Measure	100th Percentile concentration limit
pH	pH	4.5 – 6.5
Total Suspended Solids	milligrams per litre	50

6.2 Extraction Limits

Old Northern Road Extraction Limits

Extraction limits for the Old Northern Road quarry are defined by DA250-09-01 and listed in Table 27 below.

Table 27: Old Northern Road Quarry Extraction limits

DA250-09-01 Conditions	Extraction limit
Condition 17 of Schedule 2	Extraction below a depth of 15.24 m below original ground level is restricted to Lot 196 DP 752025 within the hatched area shown in the figure in Appendix 2 and to a depth not greater than 127.5 m AHD.
Condition 18 of Schedule 2	Extraction on Lot 29 DP 752025 is limited to a depth not greater than 15.24 m below original ground level.
Condition 19 of Schedule 2	Extraction on Lots 1 and 2 DP 547255, with the exception of the MTSGS buffer zone, is limited to a depth not greater than 170 m AHD in the east, gradually reducing to 153 m AHD in the west, and as shown conceptually in the figure in Appendix 4.
Condition 20 of Schedule 2	The Applicant must ensure that no extraction occurs with 2 m of the highest recorded wet weather groundwater level within the MTSGS buffer zone.
Condition 21 of Schedule 2	The Applicant must: (a) establish the highest recorded wet weather groundwater level within the MTSGS buffer zone based on all available (and at least 12 months) site specific groundwater monitoring data; (b) engage a suitably qualified and experienced expert to establish the maximum depths to which extraction can be undertaken within the MTSGS buffer zone to comply with condition 20 above; and (c) submit a Maximum Extraction Depth Map (contour map or similar) for the development, which demonstrates compliance with conditions 17 to 20 above (inclusive), to the Secretary for approval within 3 months of the approval of Modification 5.
Condition 22 of Schedule 2	The Applicant must comply with the extraction depths specified in the Maximum Extraction Depth Map to the satisfaction of the Secretary.

Notwithstanding Condition 17 of Schedule 2 of DA250-09-01, Licence 627635 was granted by Department of Planning, Industry and Environment (Crown Lands) and commenced on 4th June 2021 permitting Dixon Sand to undertake extraction of the area hatched on Lot 196 (Appendix 2 of DA 250-09-01) beyond the depth of 15.24 m below original ground level.

6.3 Results

6.3.1 Groundwater Levels

Chart 19 depicts the long term recorded groundwater levels, with monitoring commencing in June 2003. Charts 20 to 32 (inclusive) illustrate the groundwater levels and trigger levels for all monitoring bores for this reporting period. No trigger levels have been established for BH11 and BH12 as these two bores have only been commissioned in February and March 2023.

6.3.2 Groundwater Quality

Chart 33 displays the long-term pH results for all monitoring bores from June 2010 to June 2026. Charts 34 to 46 (inclusive) show the pH results and trigger values for each bore for this reporting period.

Chart 47 presents the long-term electrical conductivity results for all monitoring bores from June 2010 to June 2026. Charts 48 to 60 (inclusive) show the electrical conductivity results and trigger values for each bore for this reporting period.

No trigger levels have been established for BH11 and BH12 as these two bores have only been commissioned in February and March 2023.

6.3.3 Surface Water Monitoring

Charts 61 to 64 (inclusive) illustrate the pH, electrical conductivity, turbidity and total suspended solids of the water samples obtained from the surface monitoring location SW19.

6.3.4 Water Discharge Events

No scheduled water discharge at LDP01 occurred during this reporting period.

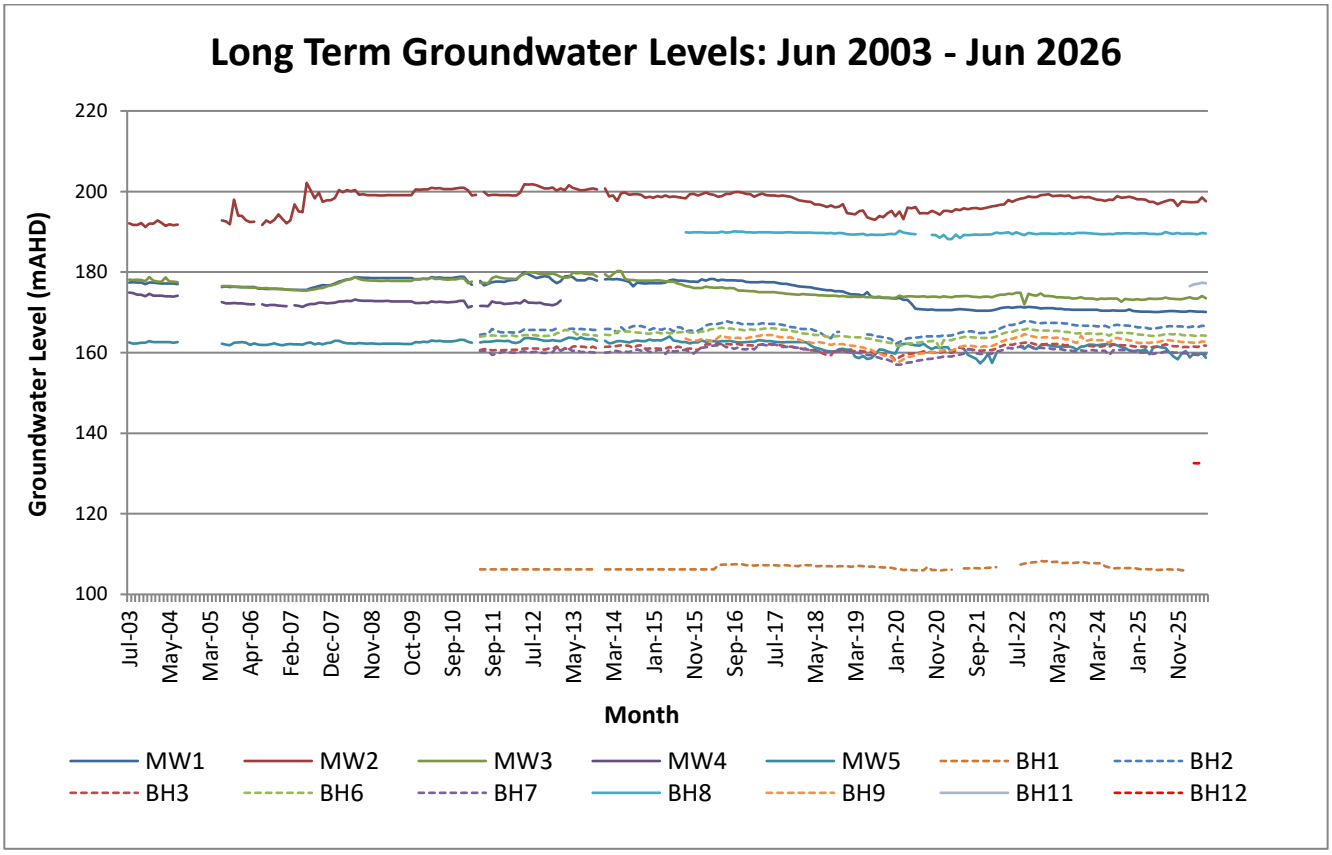


Chart 19: Long Term Groundwater Levels – all Boreholes

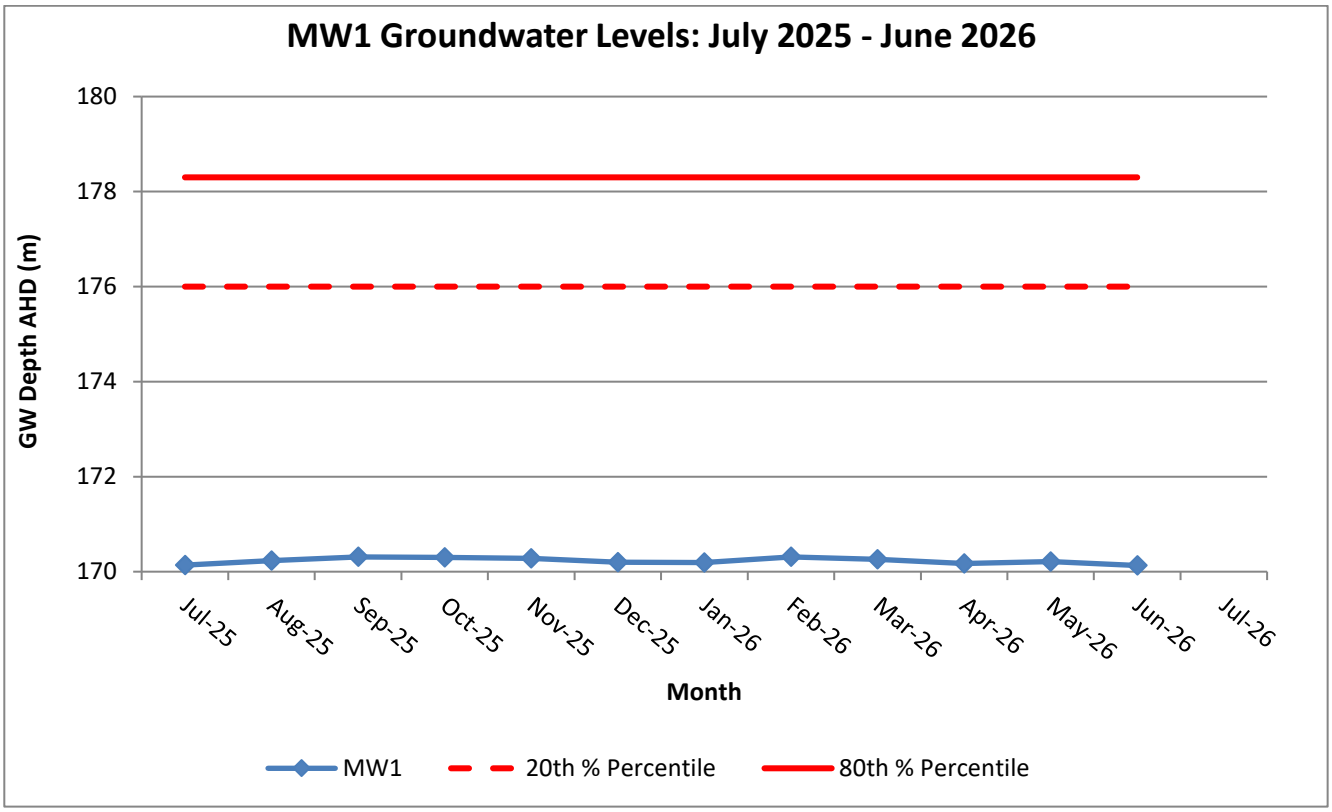


Chart 20: MW1 Groundwater Levels for July 2025 – June 2026

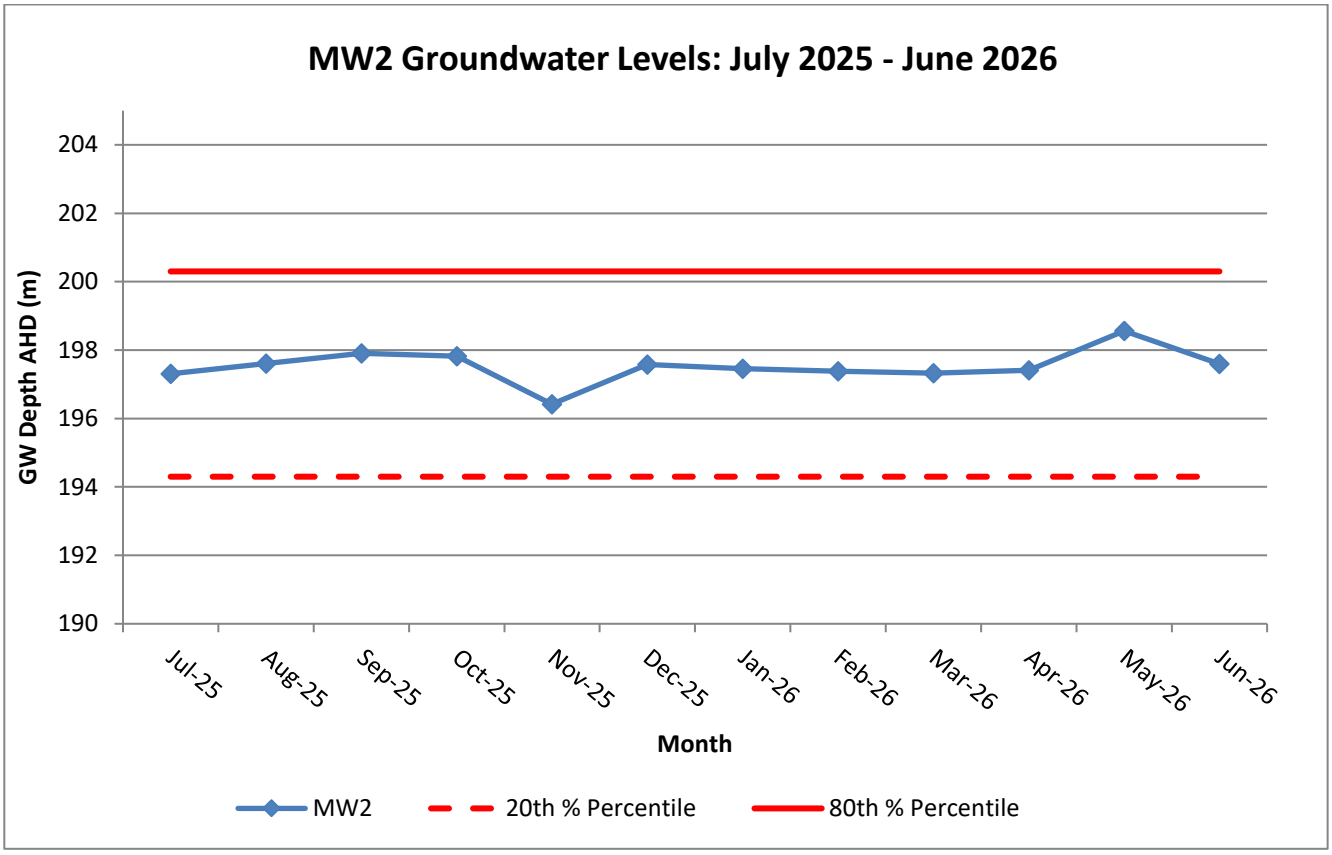


Chart 21: MW2 Groundwater Levels for July 2025 – June 2026

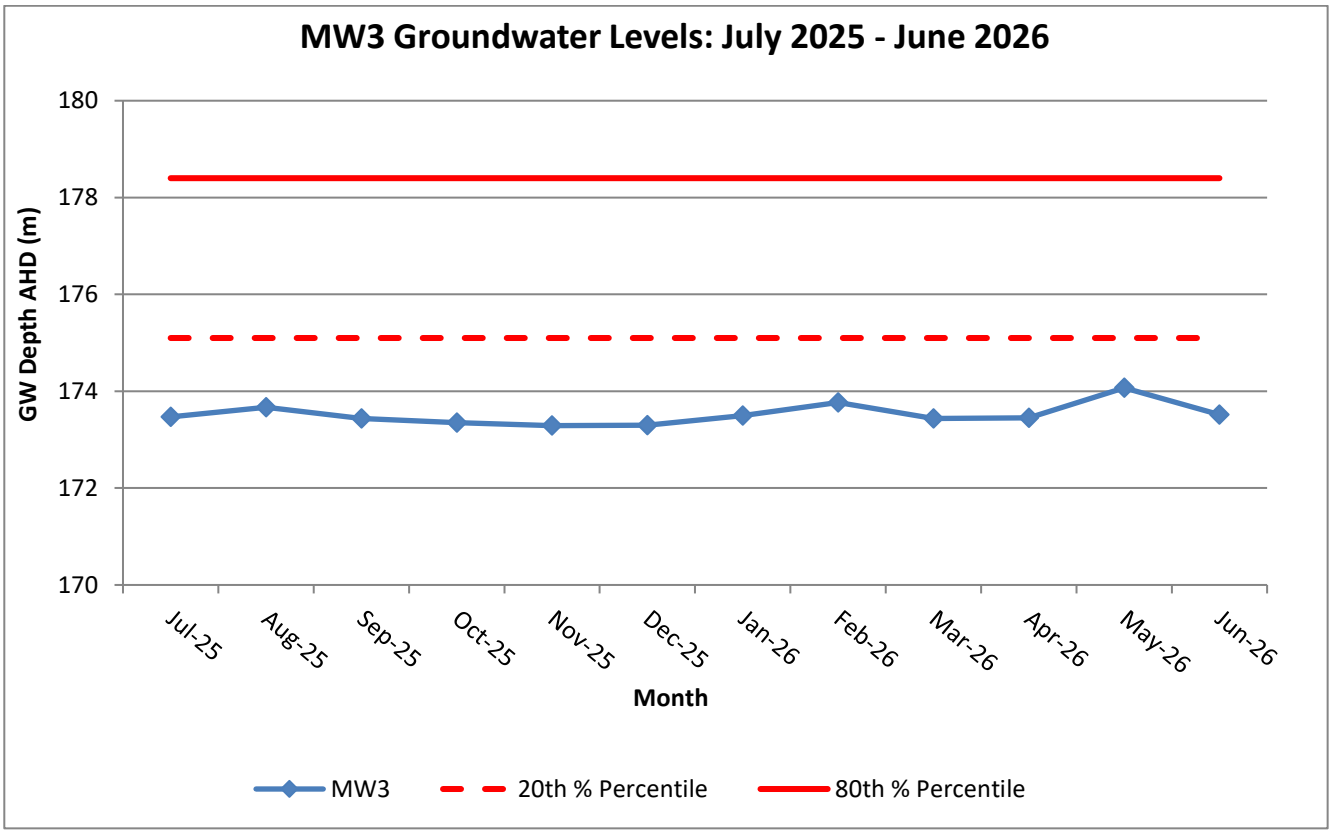


Chart 22: MW3 Groundwater Levels for July 2025 – June 2026

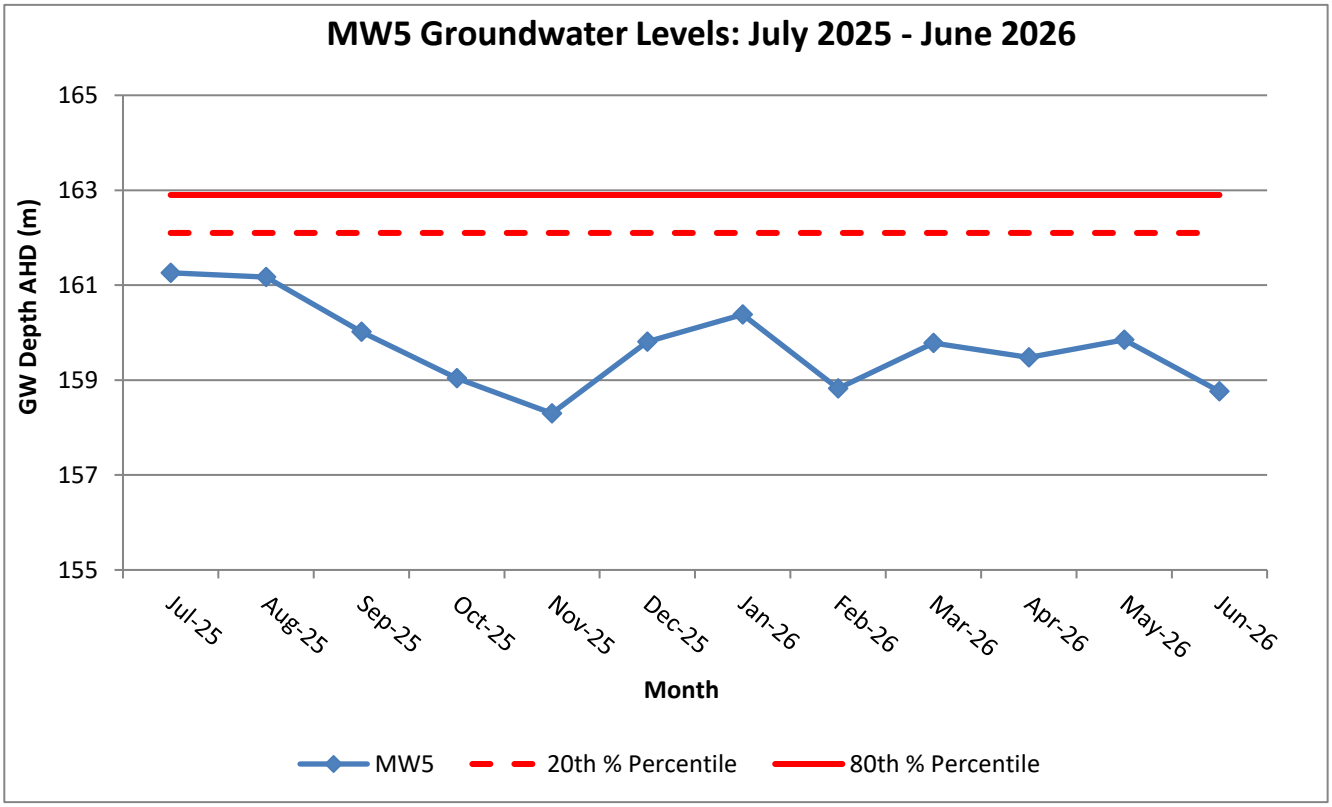


Chart 23: MW5 Groundwater Levels for July 2025 – June 2026

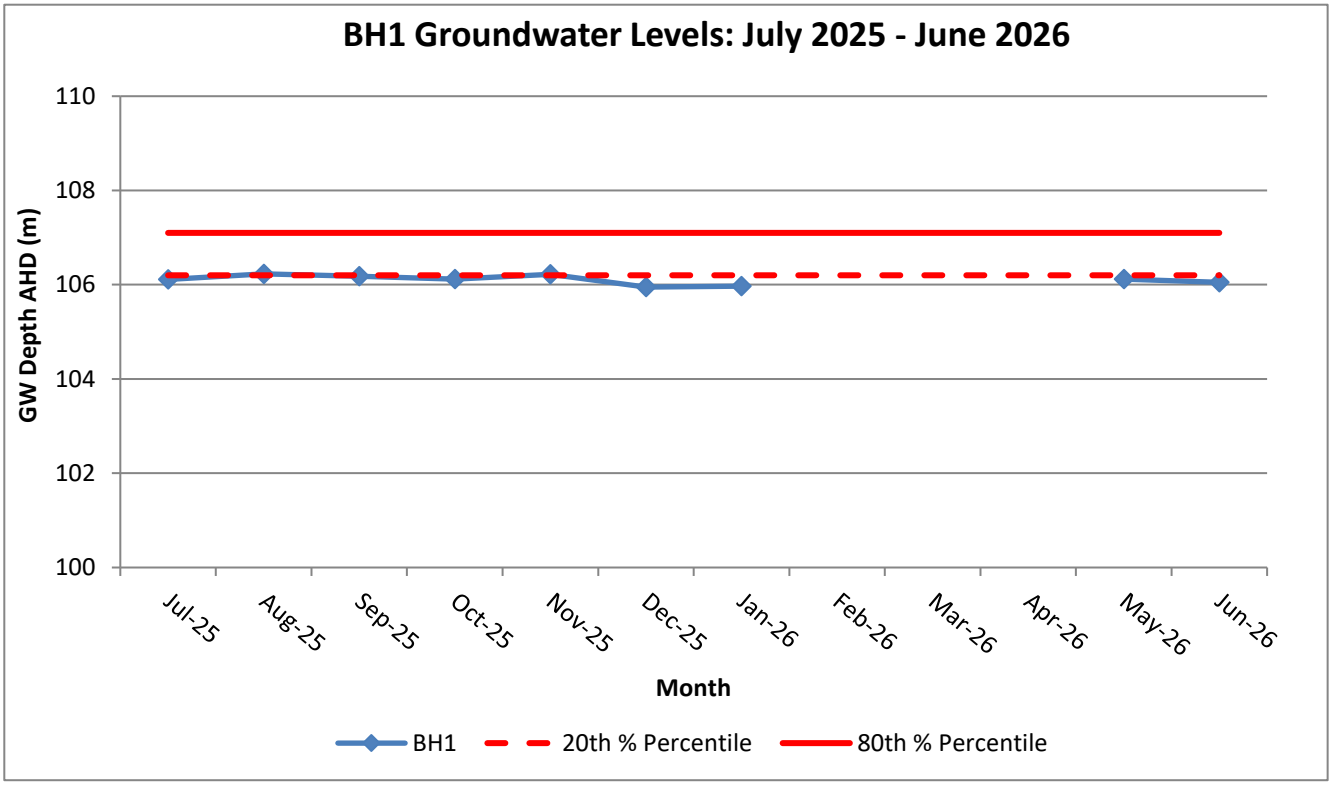


Chart 24: BH1 Groundwater Levels for July 2025 – June 2026

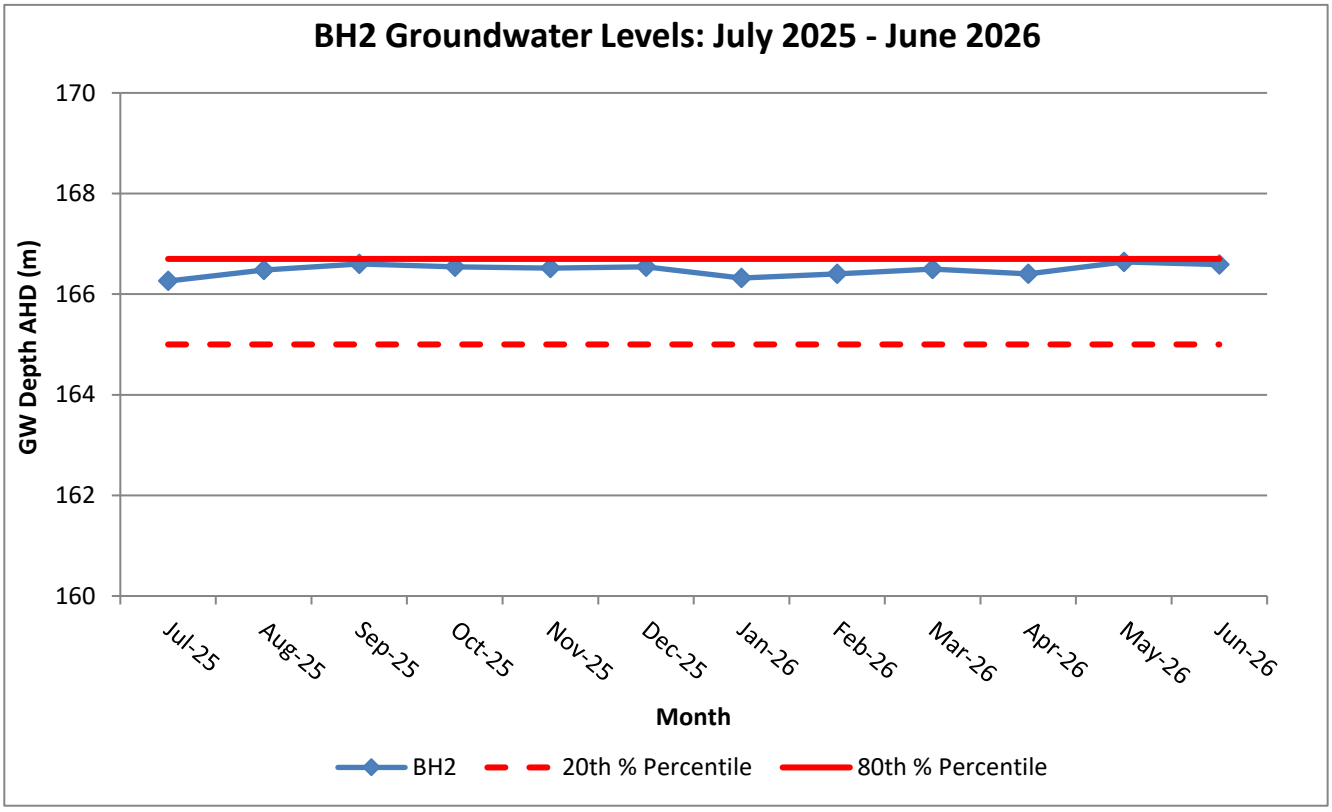


Chart 25: BH2 Groundwater Levels for July 2025 – June 2026

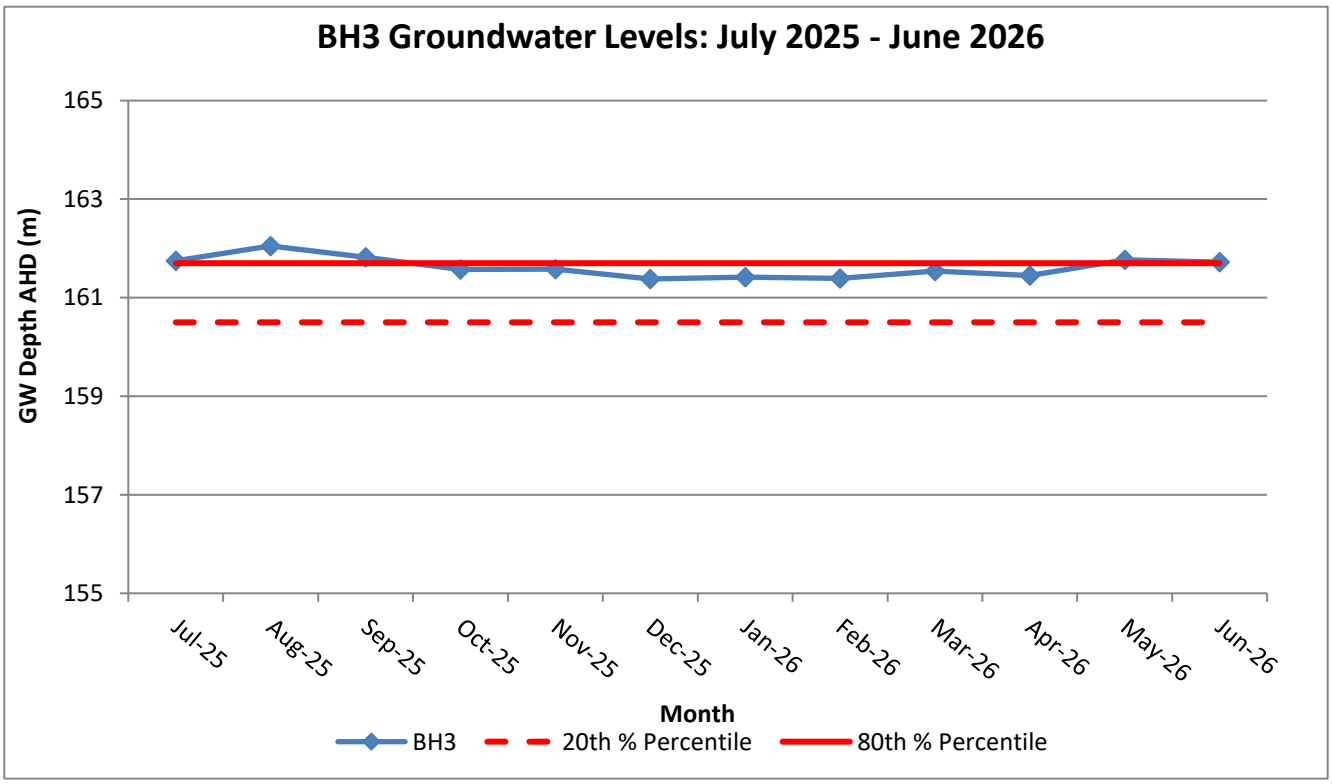


Chart 26: BH3 Groundwater Levels for July 2025 – June 2026

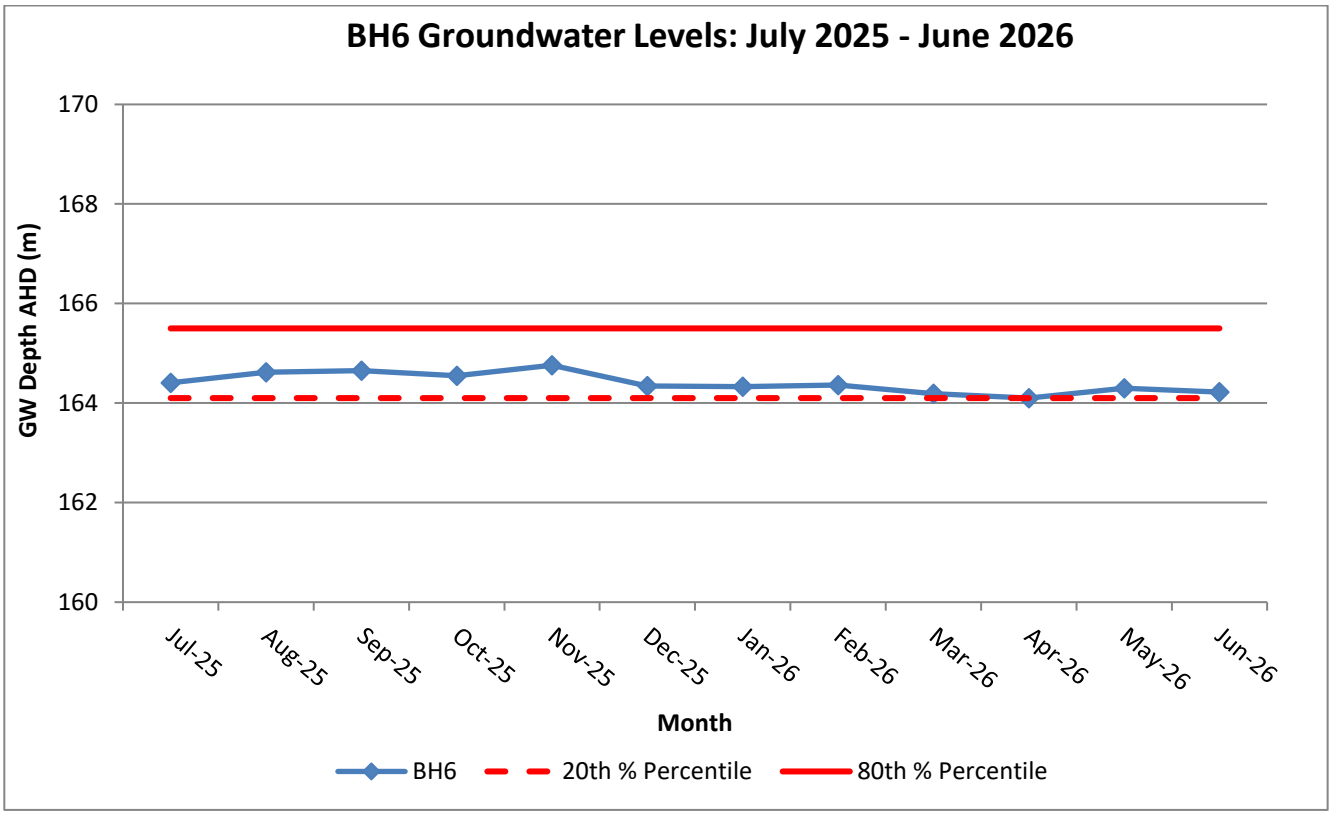


Chart 27: BH6 Groundwater Levels for July 2025 – June 2026

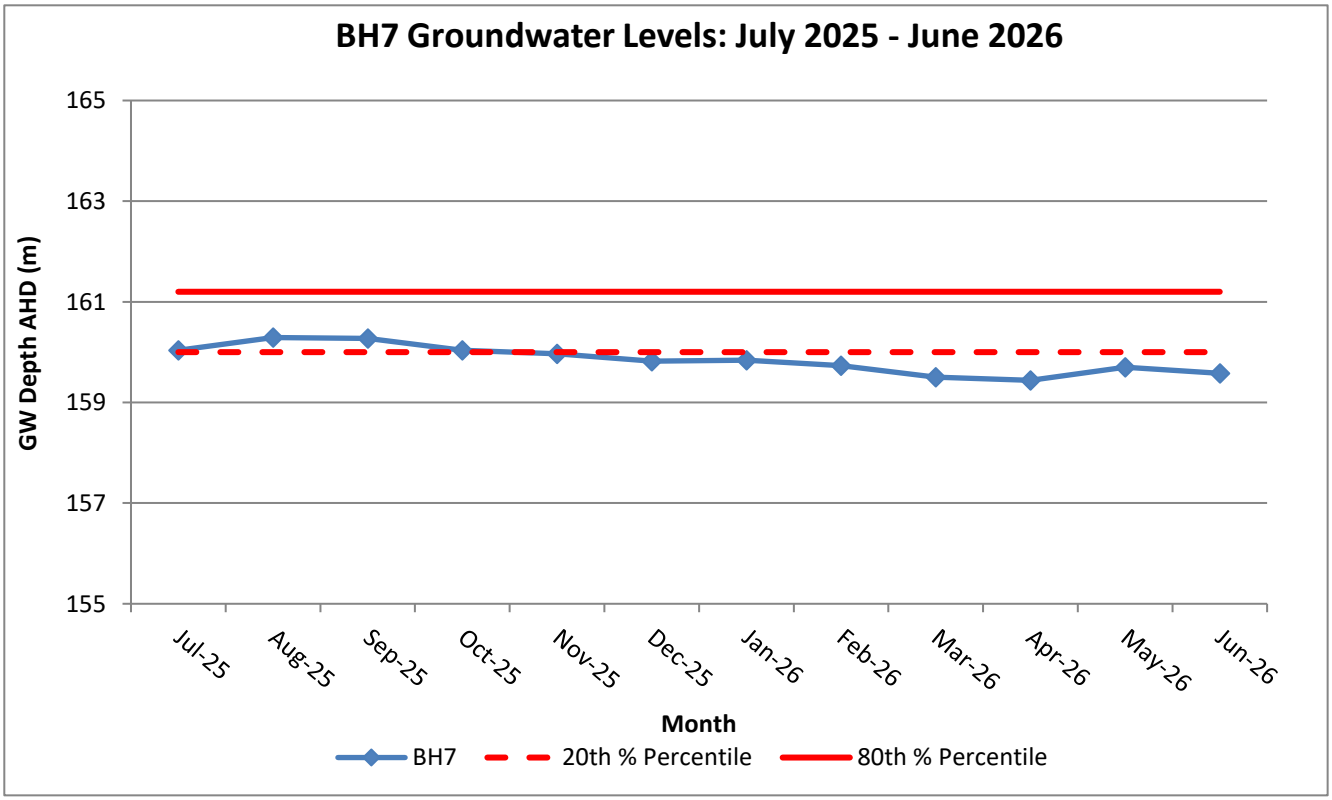


Chart 28: BH7 Groundwater Levels for July 2025 – June 2026

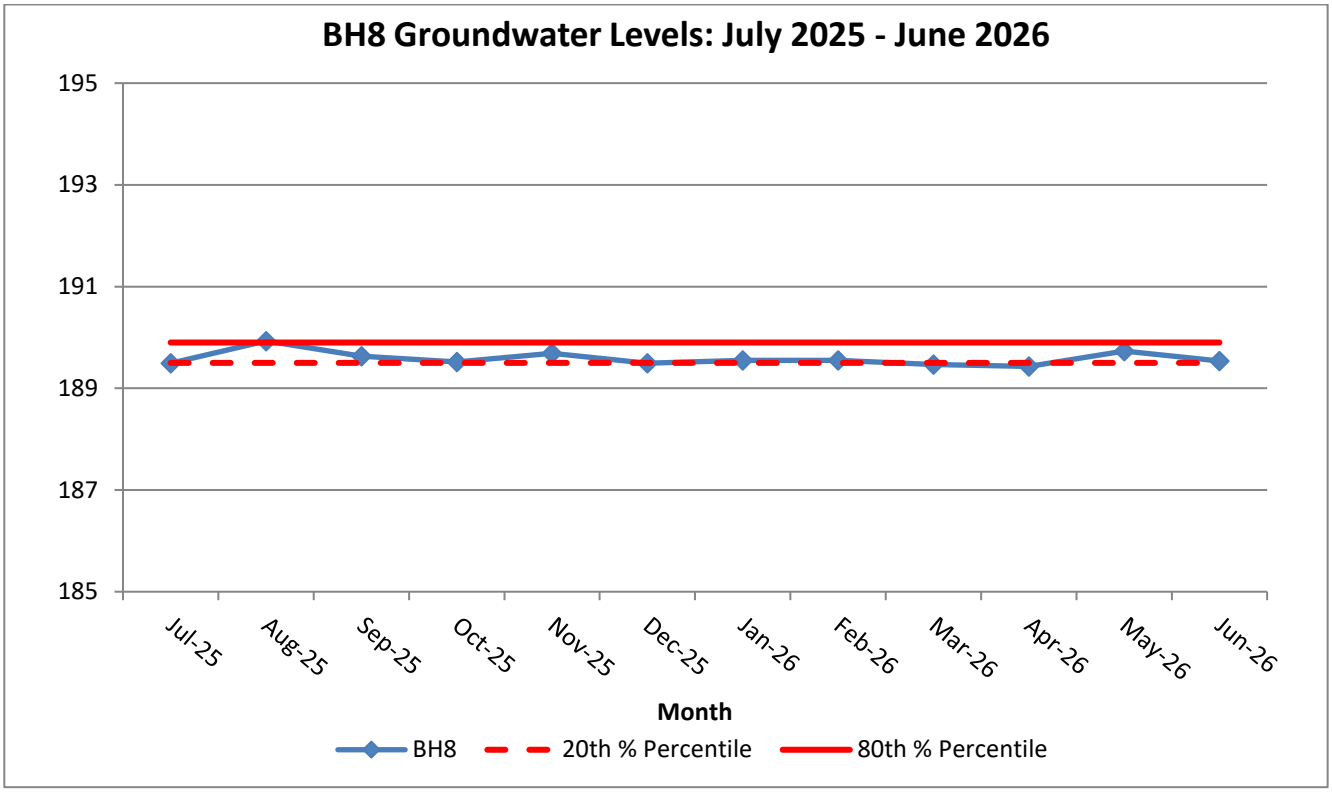


Chart 29: BH8 Groundwater Levels for July 2025 – June 2026

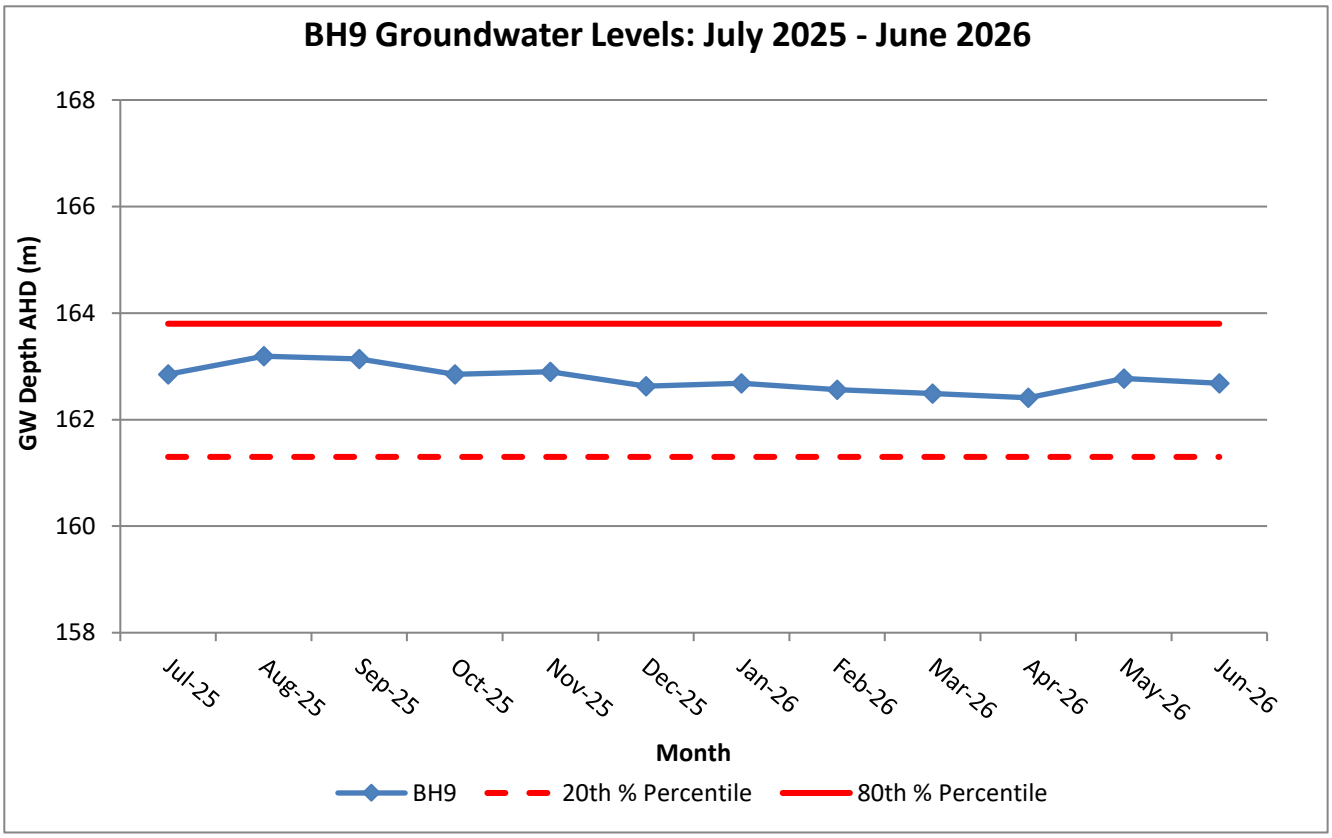


Chart 30: BH9 Groundwater Levels for July 2025 – June 2026

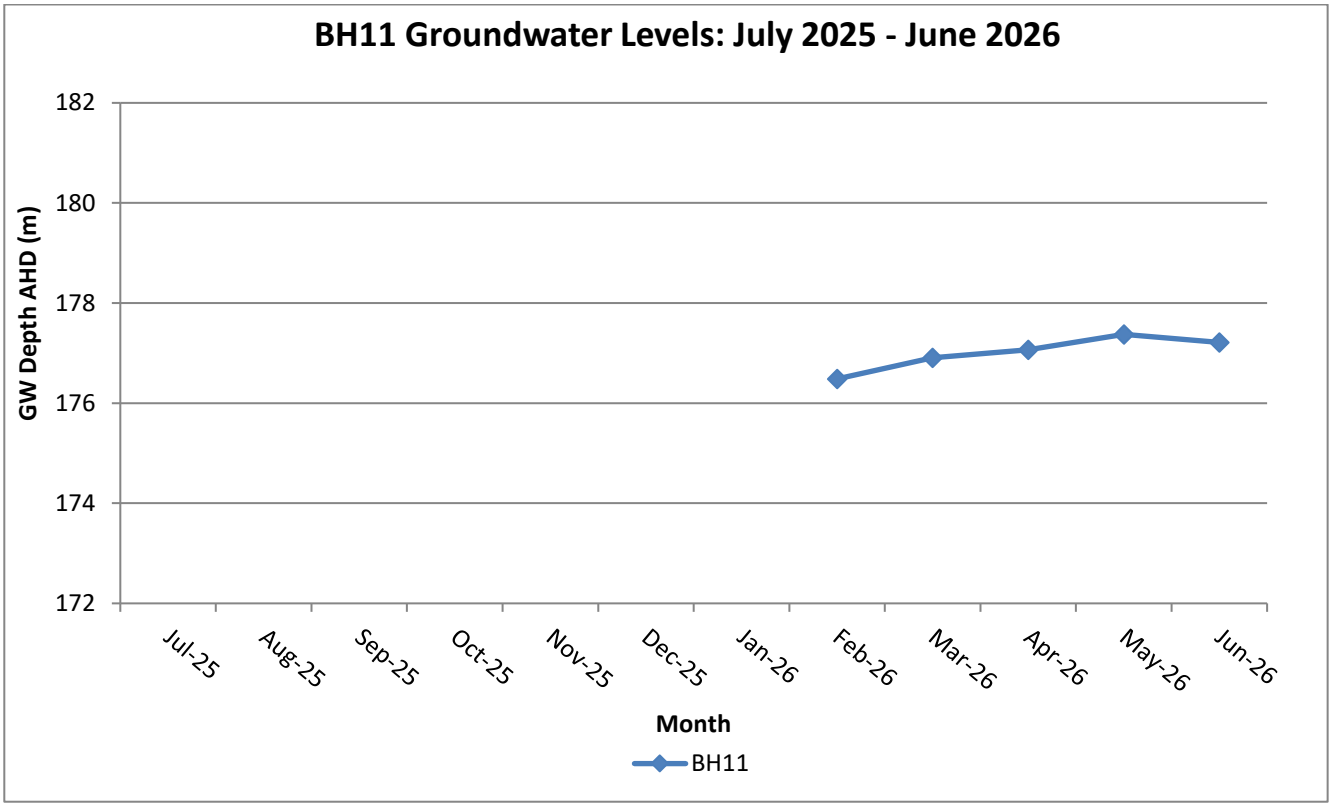


Chart 31: BH11 Groundwater Levels for July 2025 – June 2026

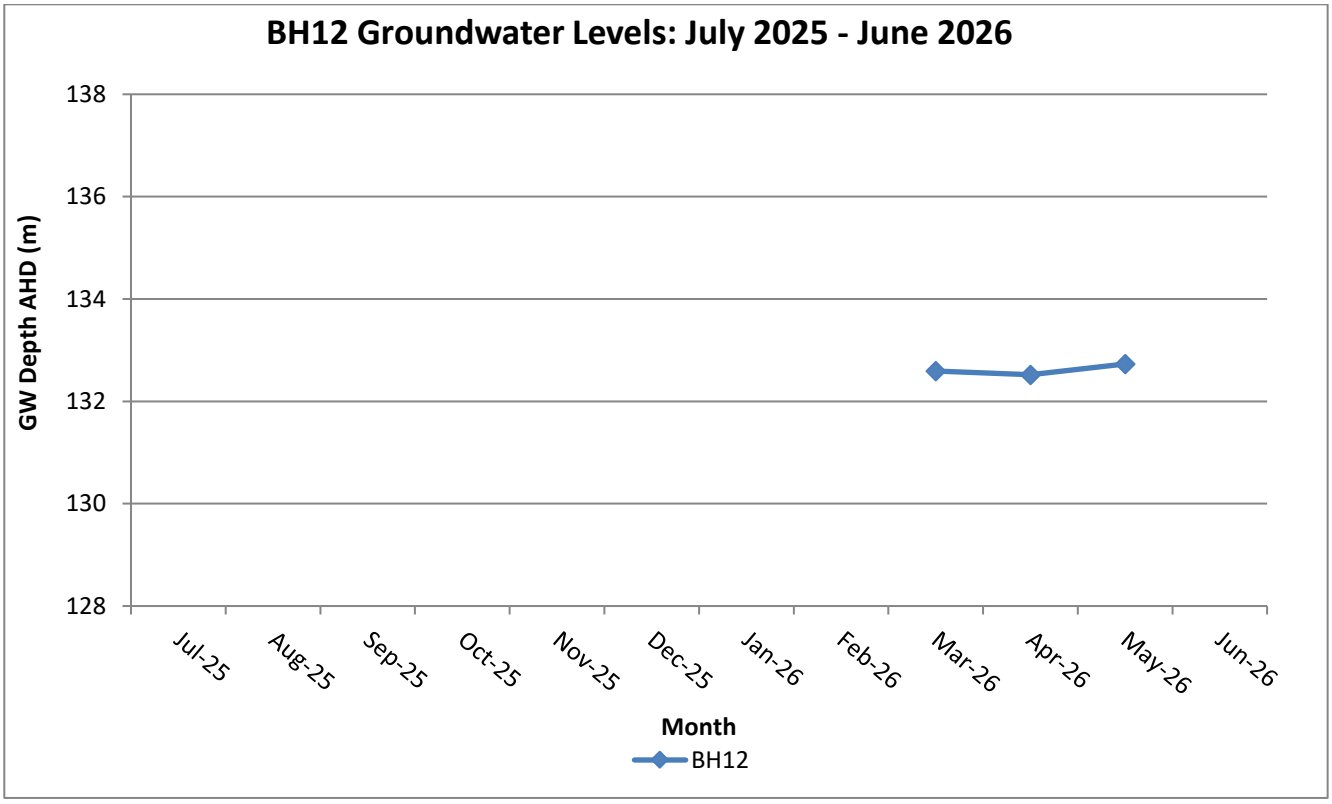


Chart 32: BH12 Groundwater Levels for July 2025 – June 2026

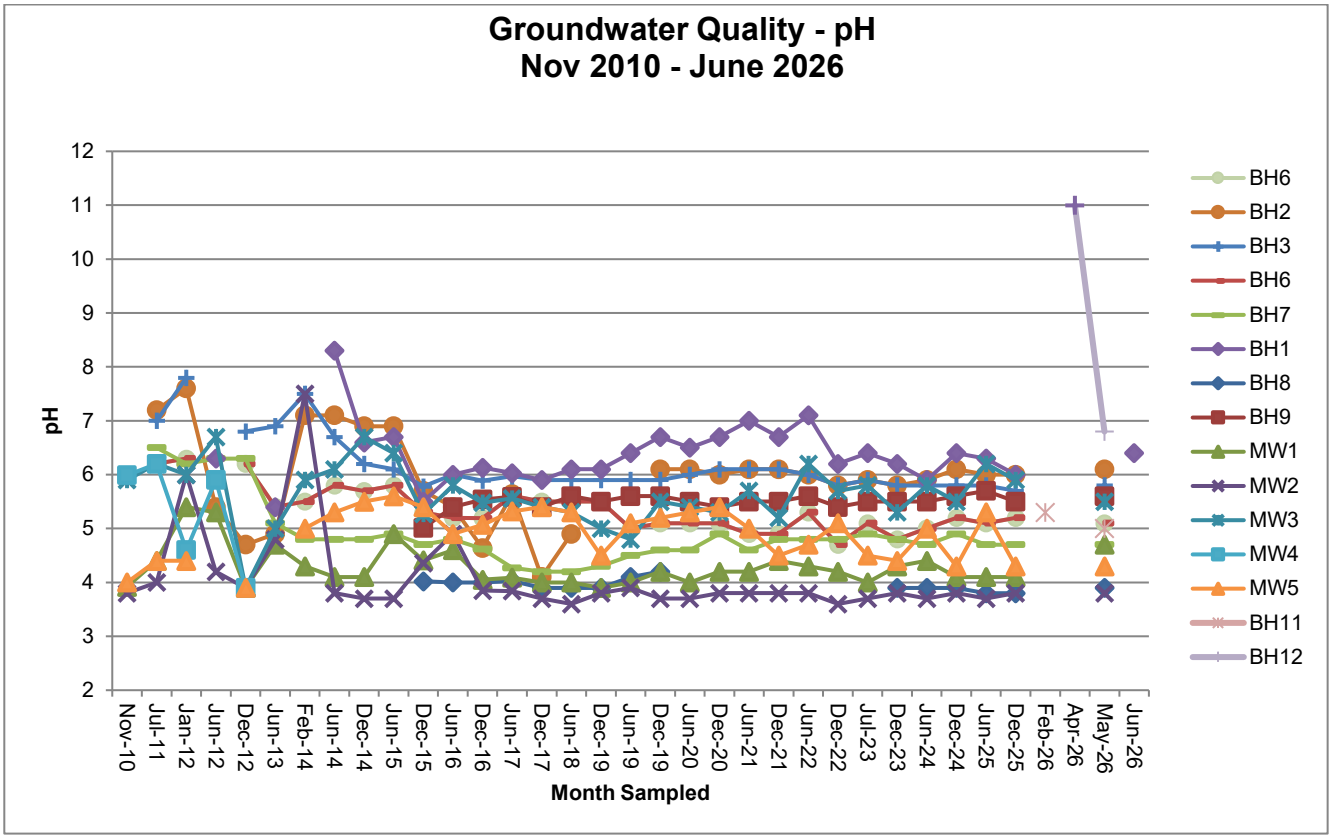


Chart 33: Long term pH results.

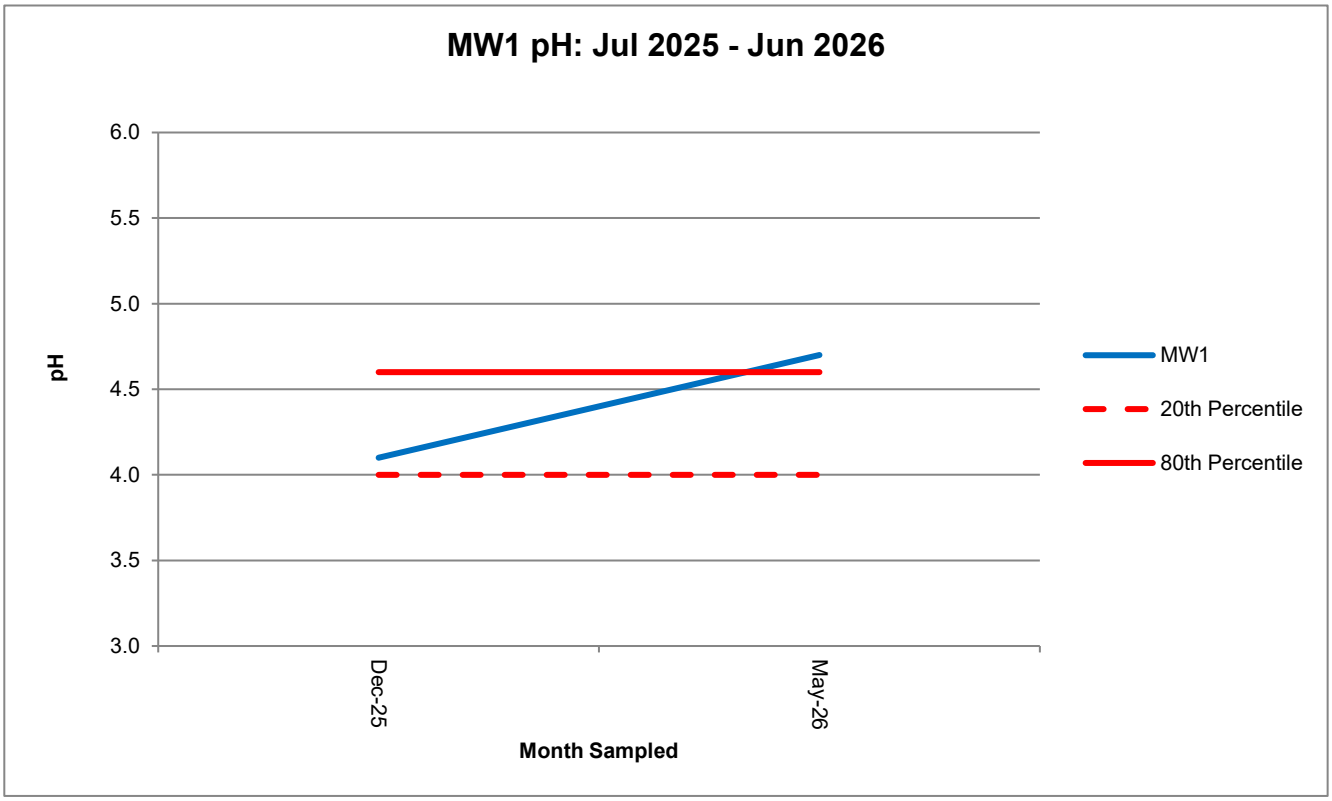


Chart 34: MW1 pH Results July 2025 – June 2026

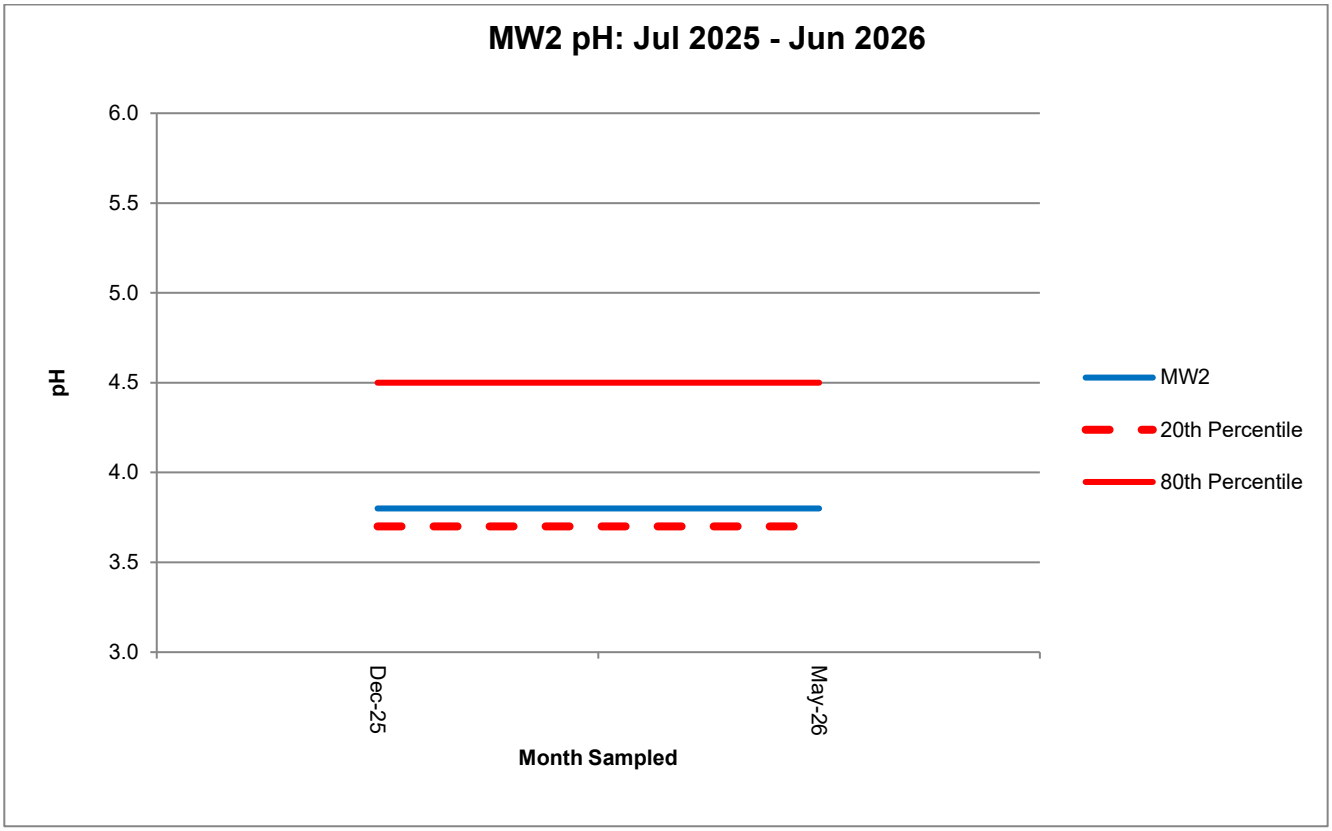


Chart 35: MW2 pH Results July 2025 – June 2026

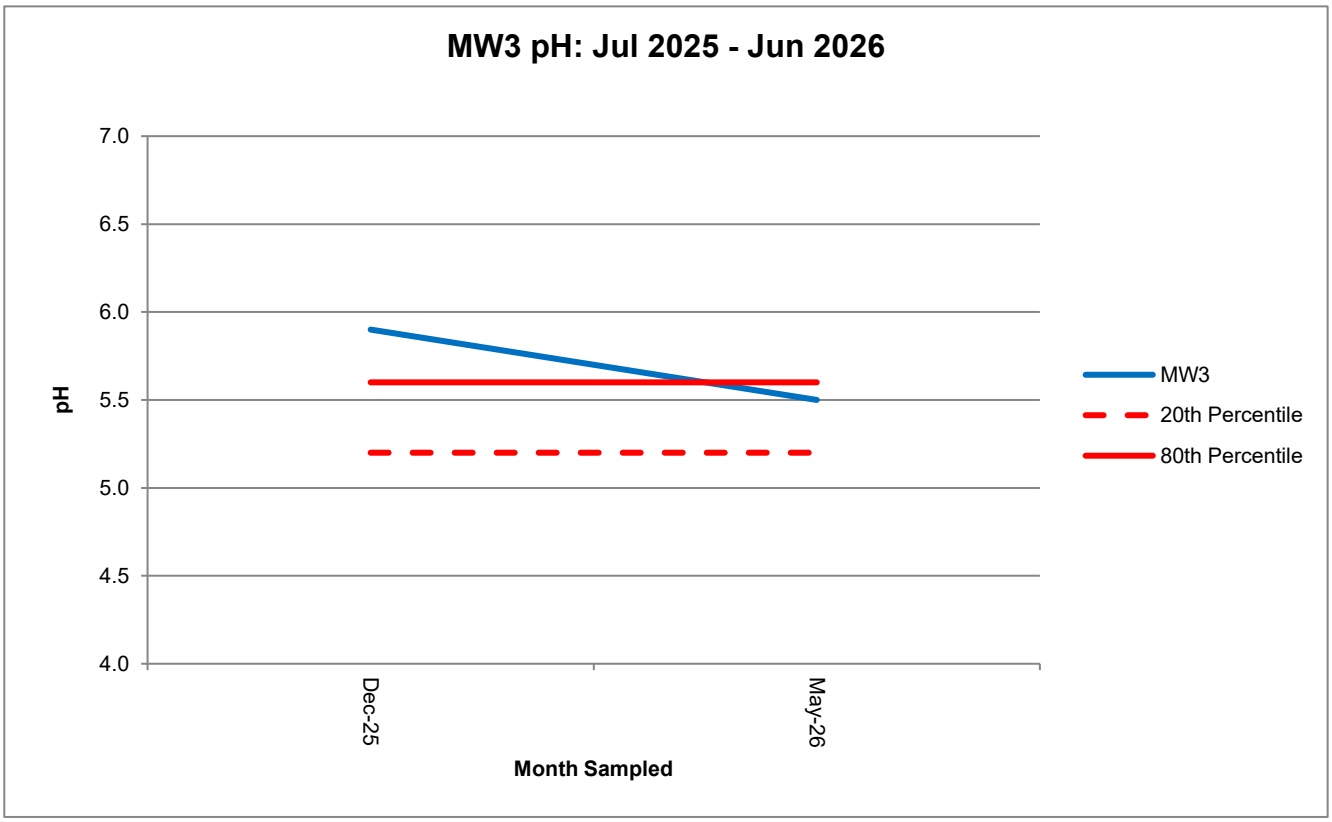


Chart 36: MW3 pH Results July 2025 – June 2026

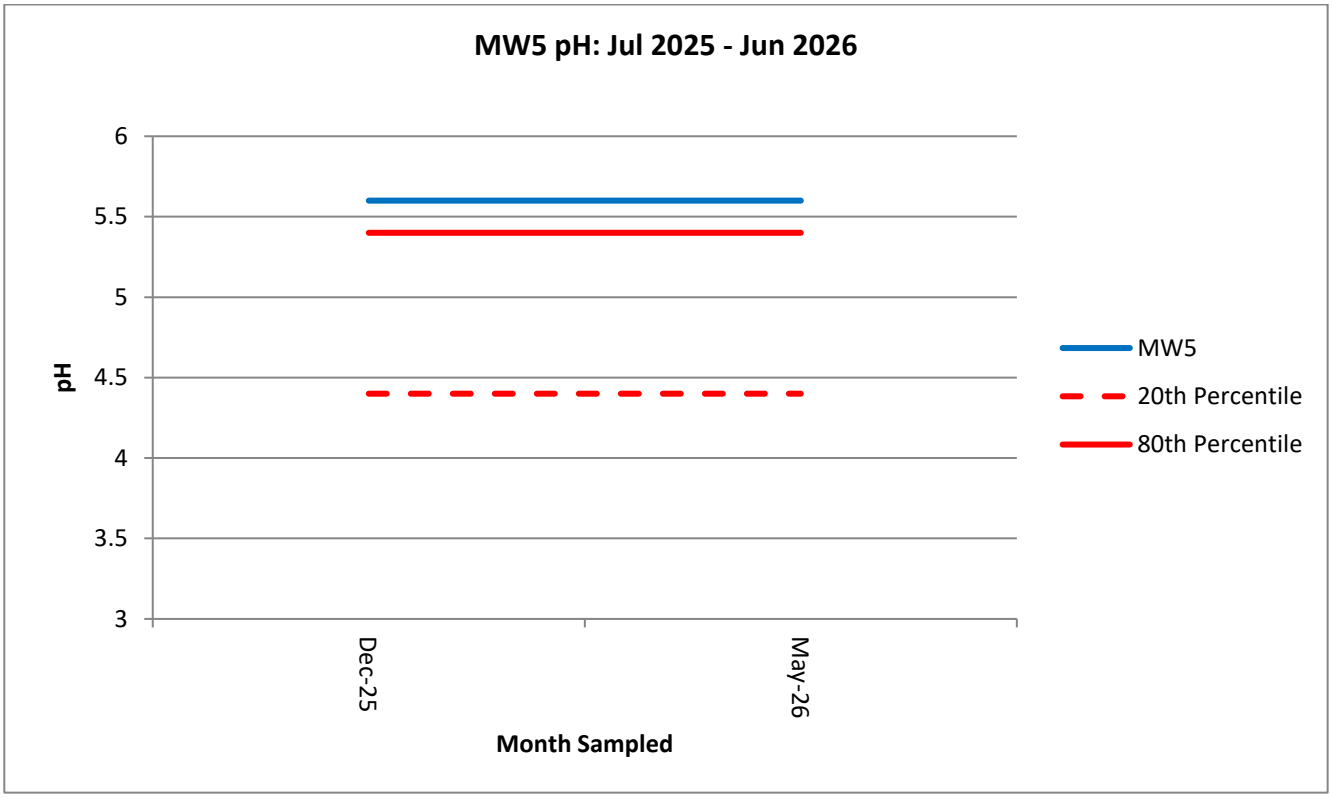


Chart 37: MW5 pH Results July 2025 – June 2026

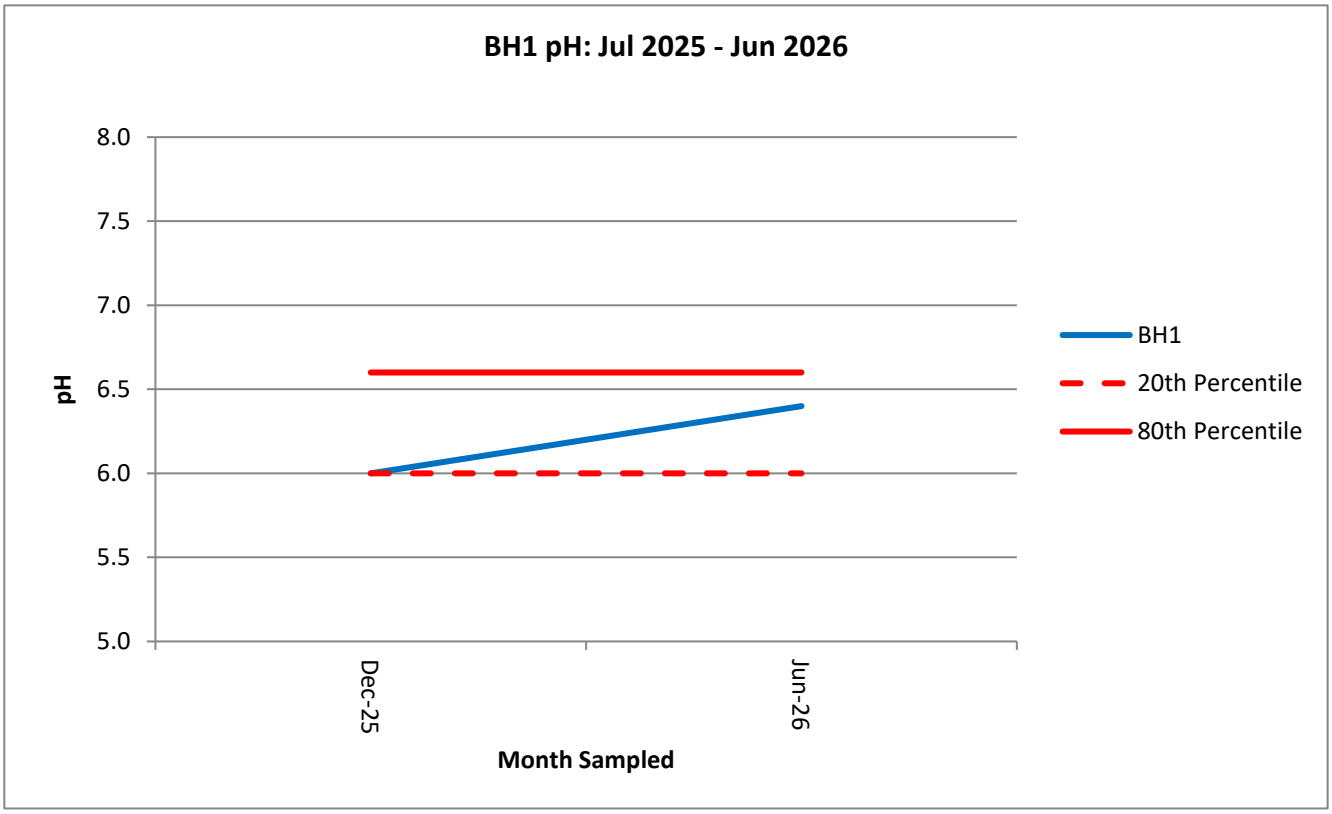


Chart 38: BH1 pH Results July 2025 – June 2026

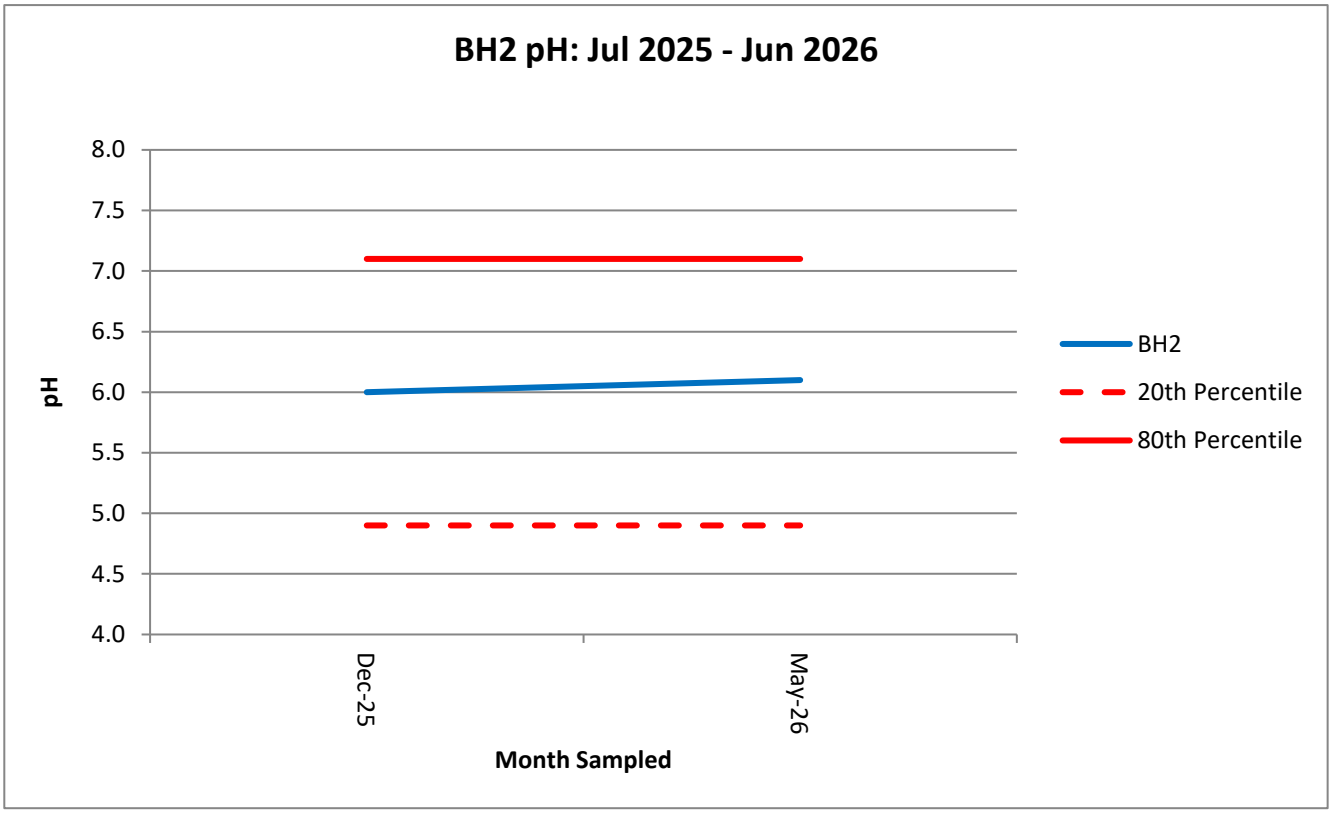


Chart 39: BH2 pH Results July 2025 – June 2026

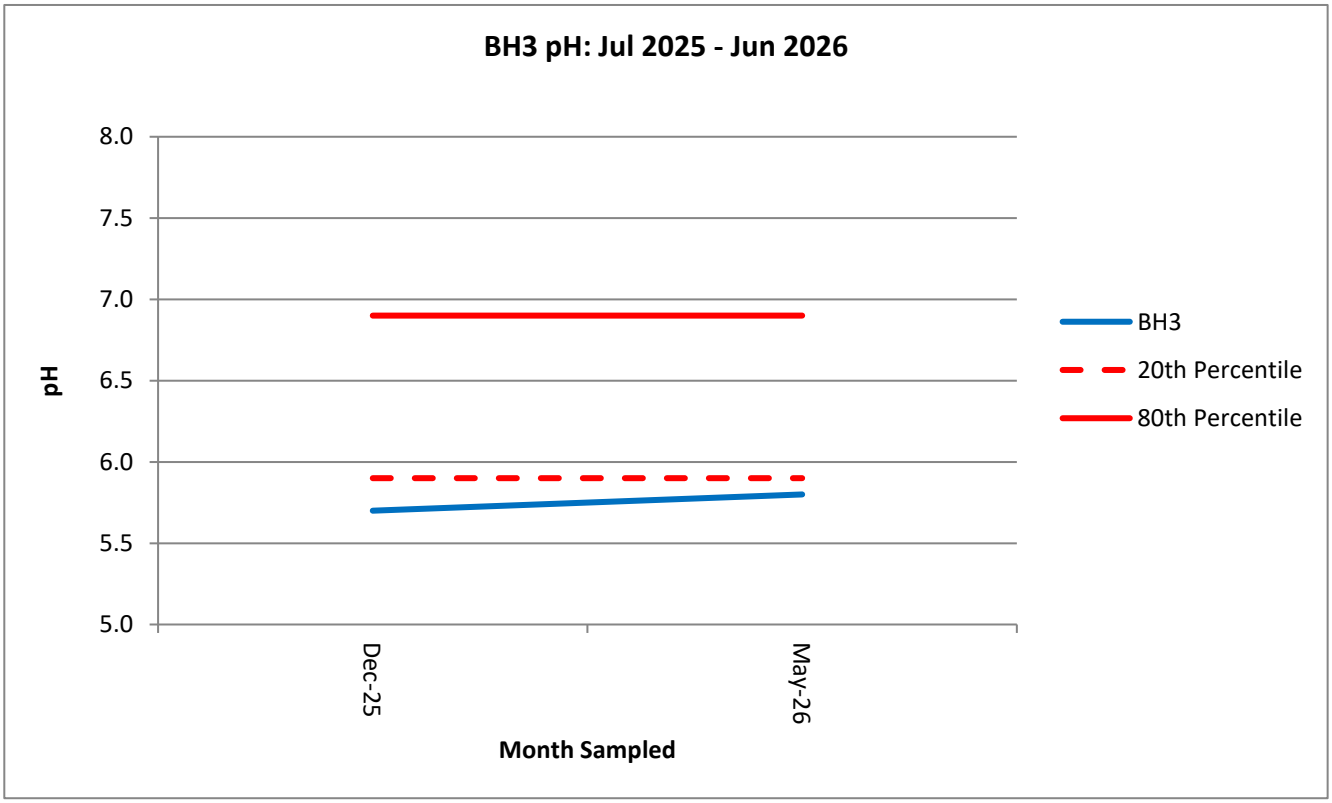


Chart 40: BH3 pH Results July 2025 – June 2026

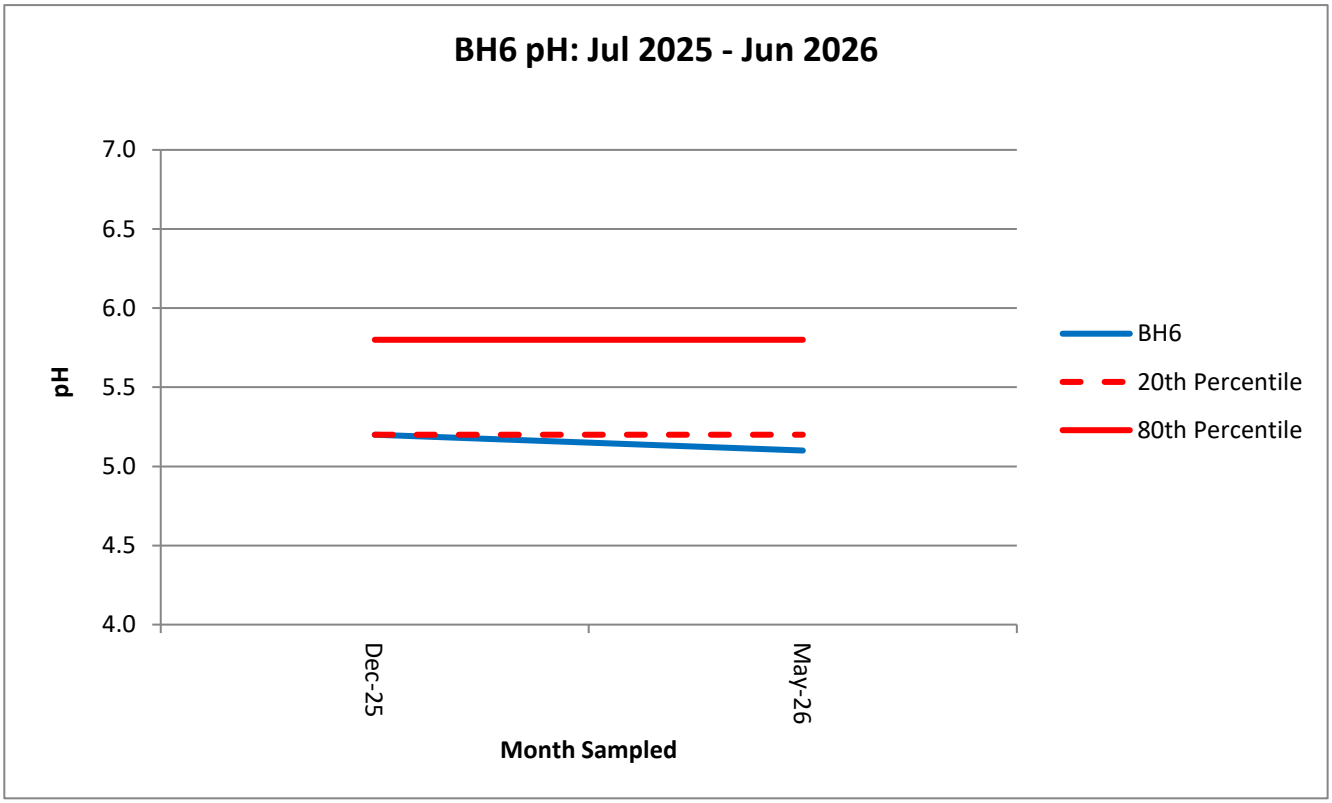


Chart 41: BH6 pH Results July 2025 – June 2026

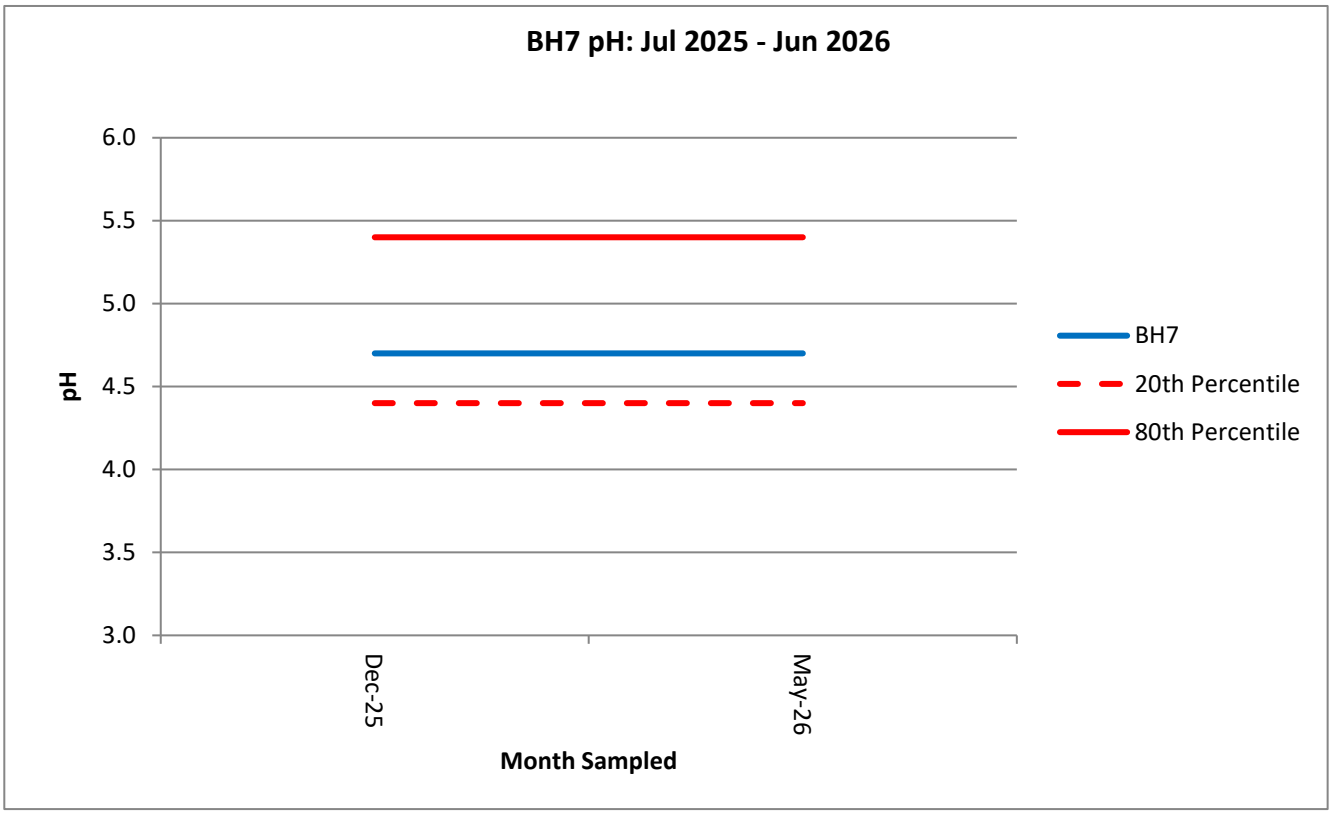


Chart 42: BH7 pH Results July 2025 – June 2026

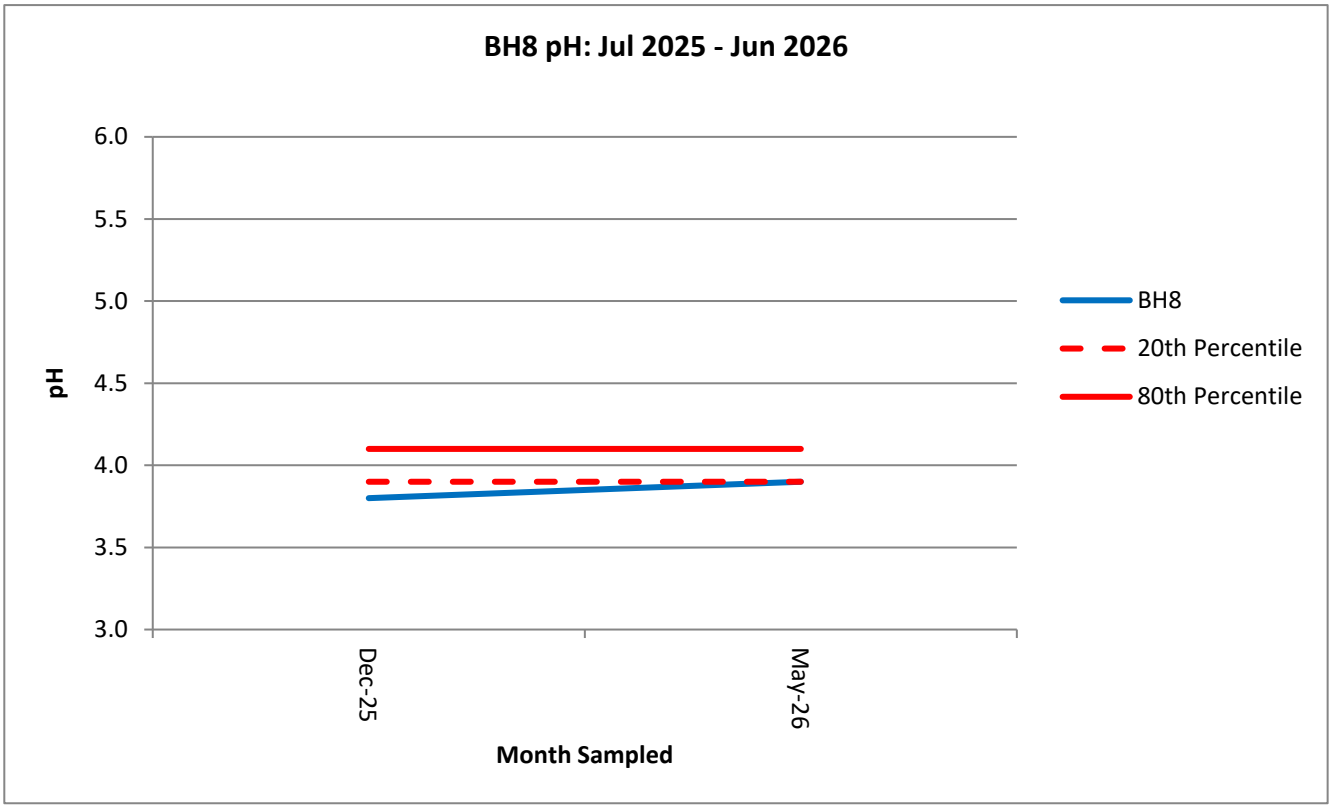


Chart 43: BH8 pH Results July 2025 – June 2026

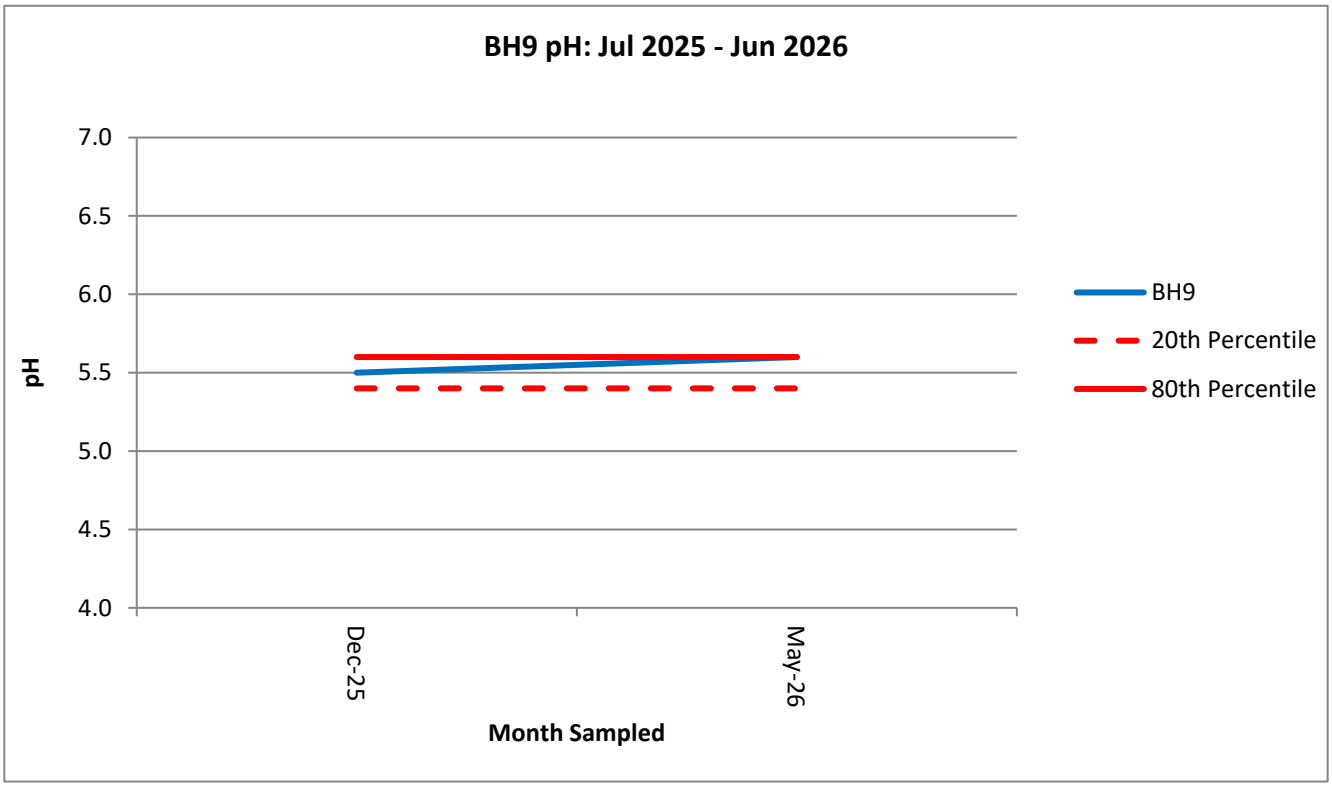


Chart 44: BH9 pH Results July 2025 – June 2026

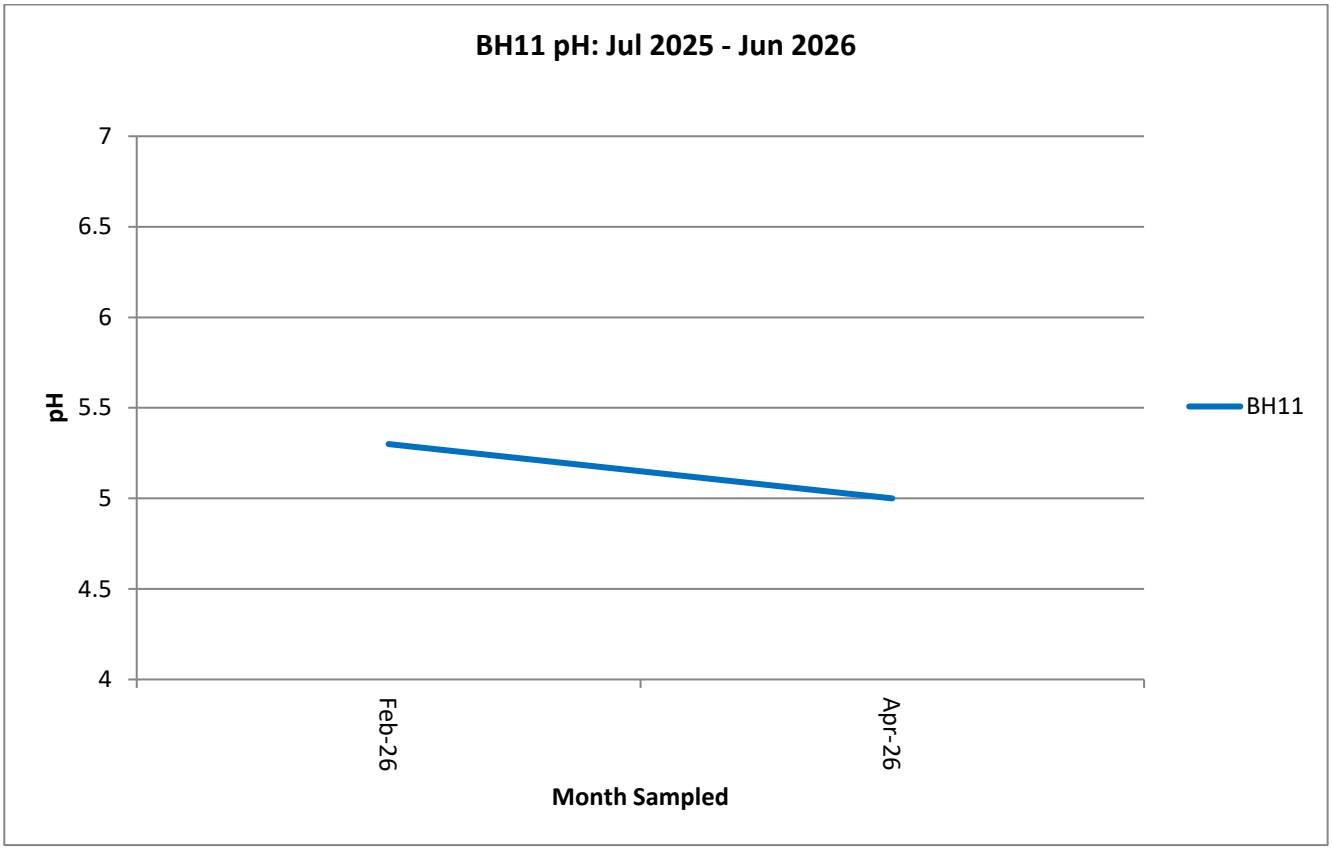


Chart 45: BH11 pH Results July 2025 – June 2026

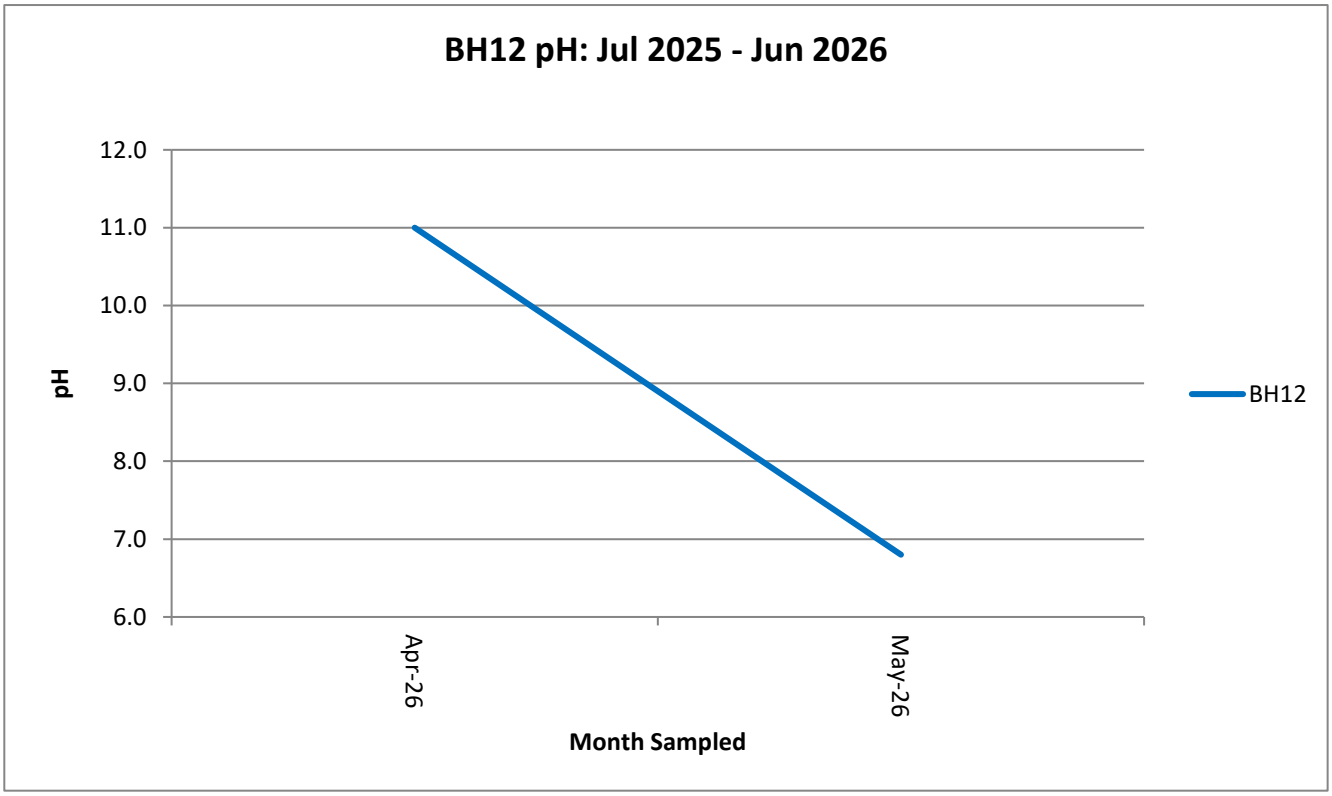


Chart 46: BH12 pH Results July 2025 – June 2026

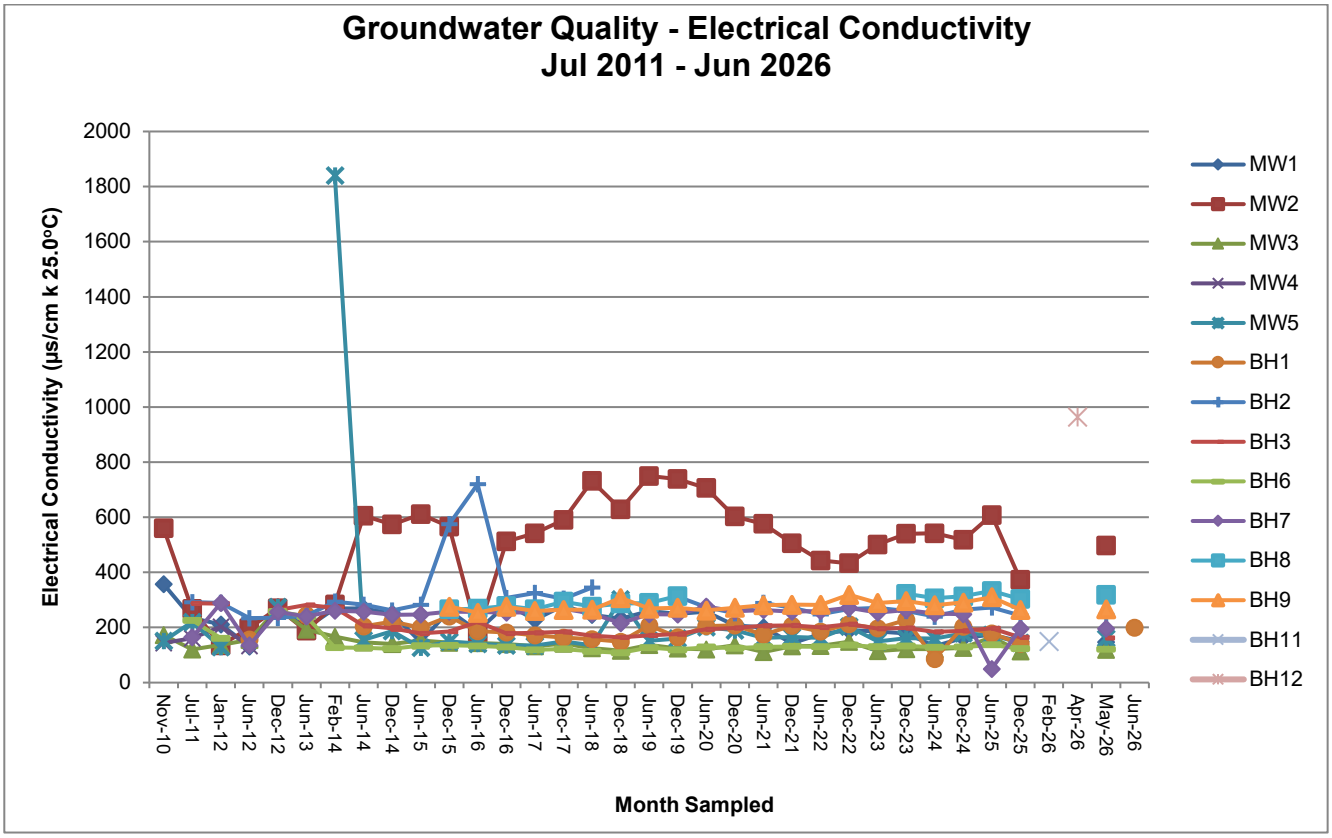


Chart 47: Long term Electrical Conductivity Results.

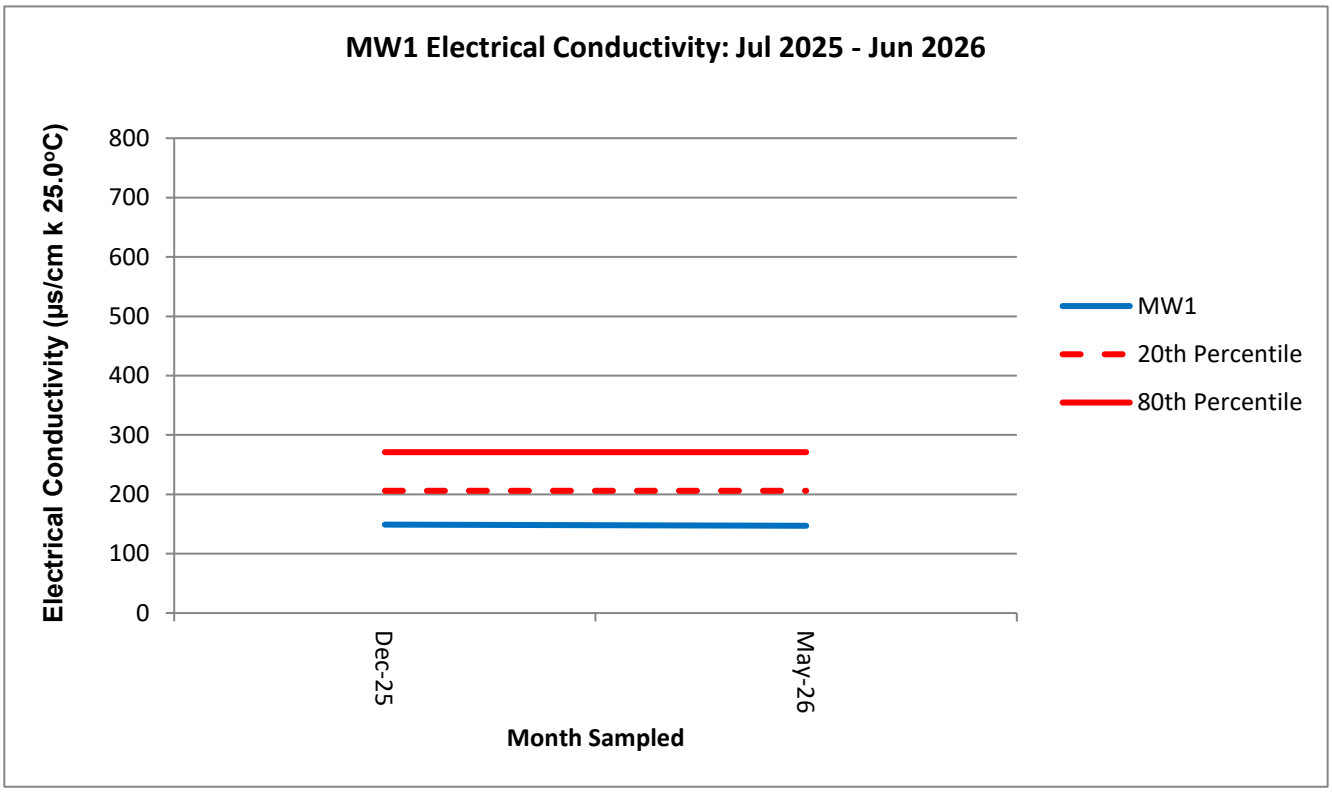


Chart 48: MW1 Electrical Conductivity Results July 2025 – June 2026

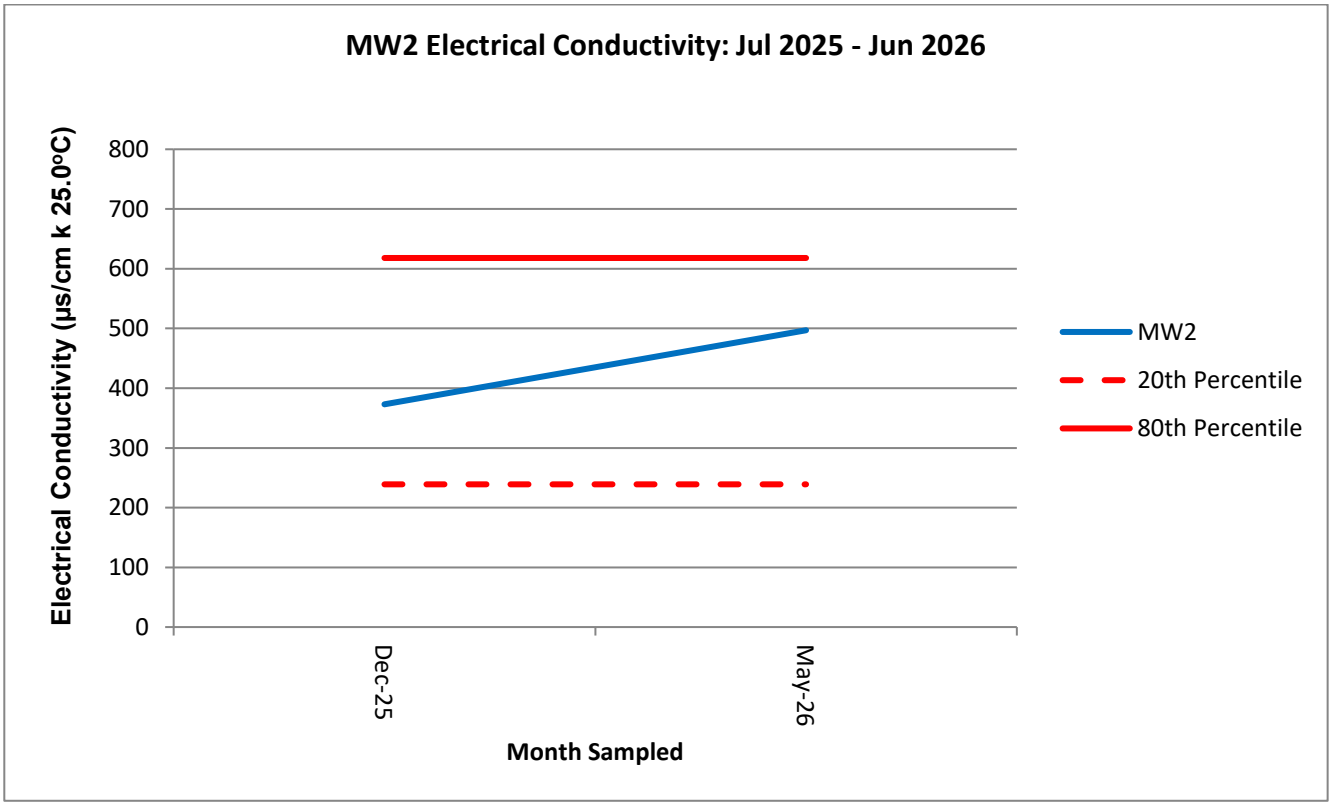


Chart 49: MW2 Electrical Conductivity Results July 2025 – June 2026

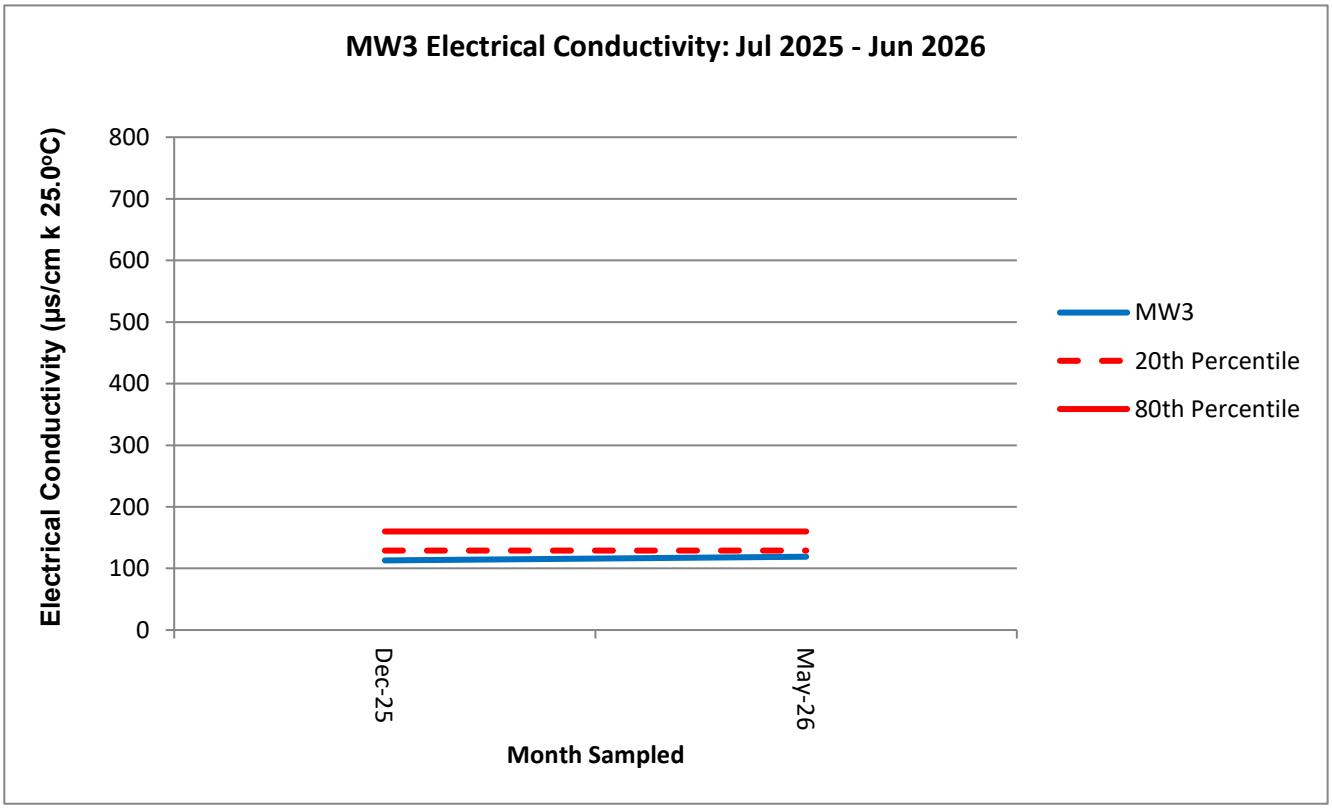


Chart 50: MW3 Electrical Conductivity Results July 2025 – June 2026

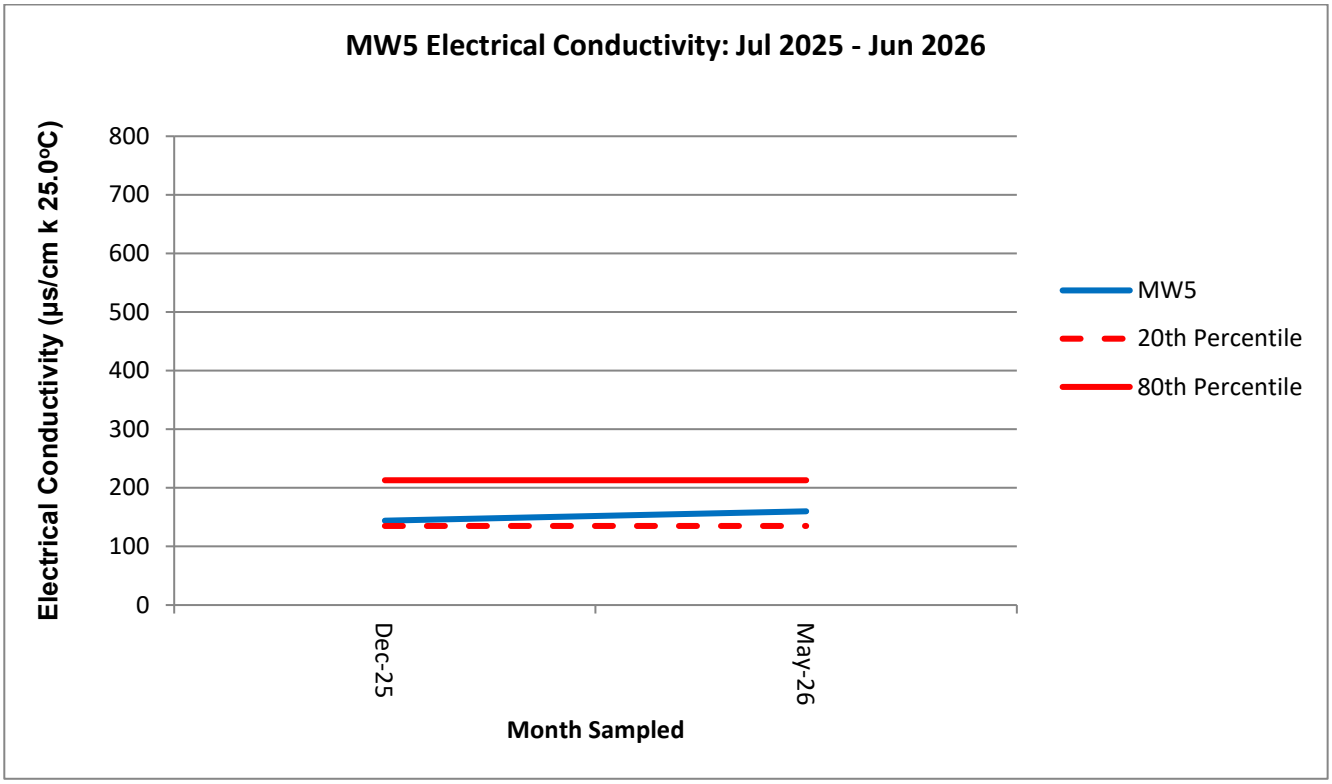


Chart 51: MW5 Electrical Conductivity Results July 2025 – June 2026

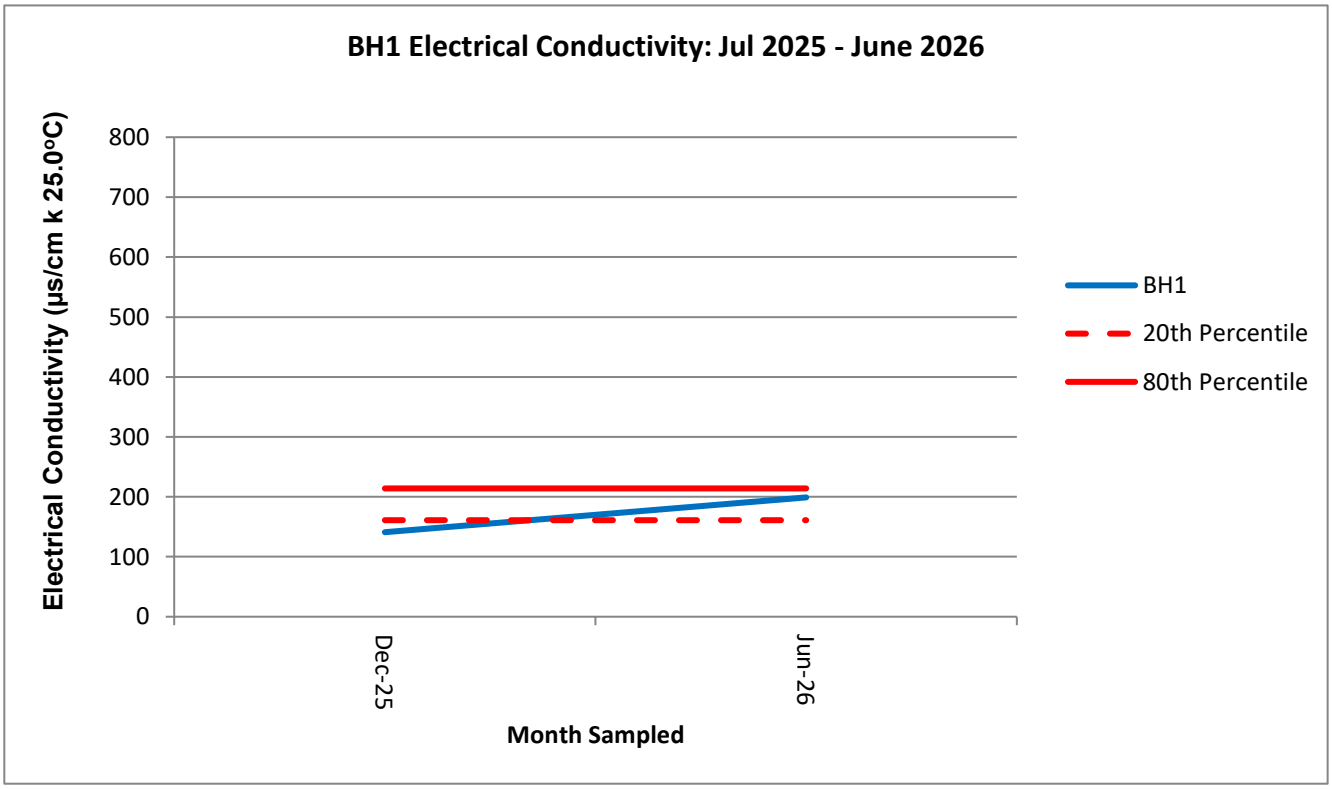


Chart 52: BH1 Electrical Conductivity Results July 2025 - June 2026

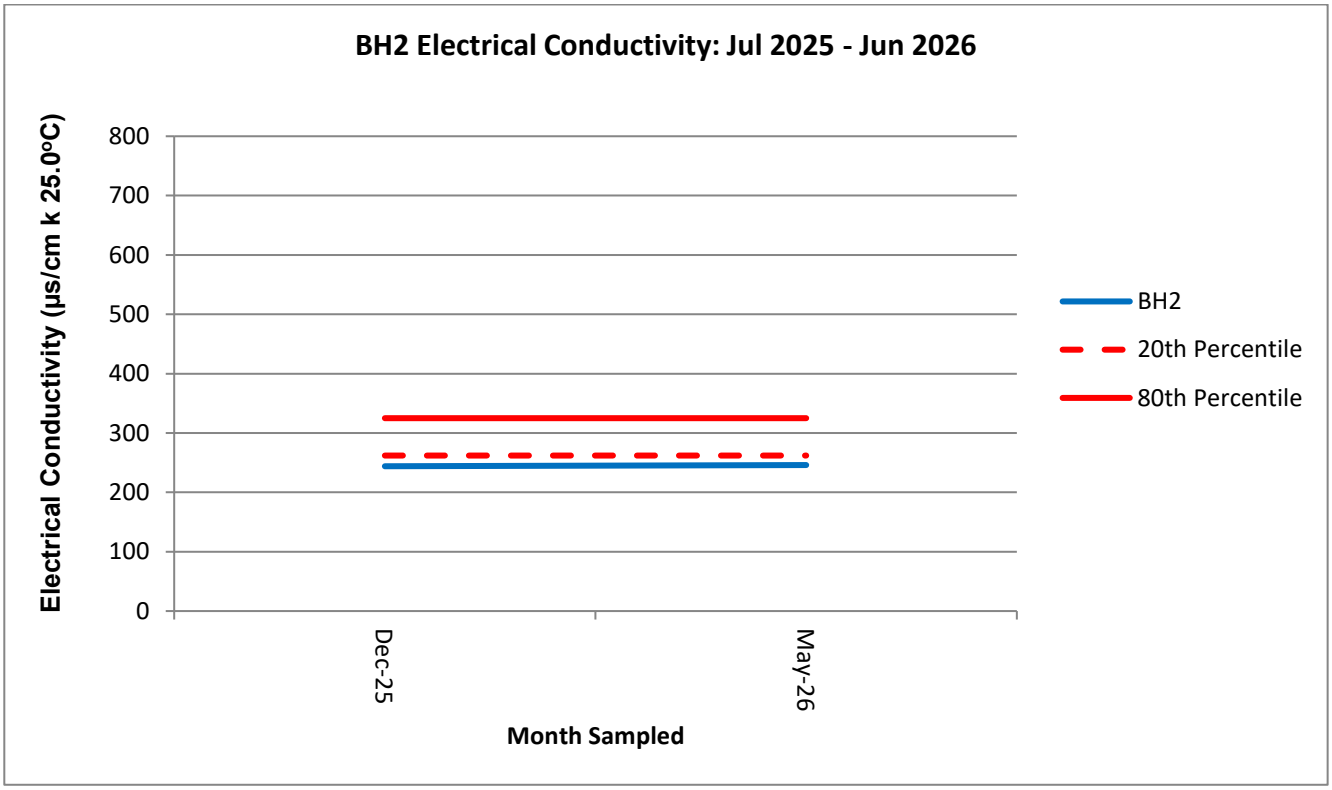


Chart 53: BH2 Electrical Conductivity Results July 2025 – June 2026

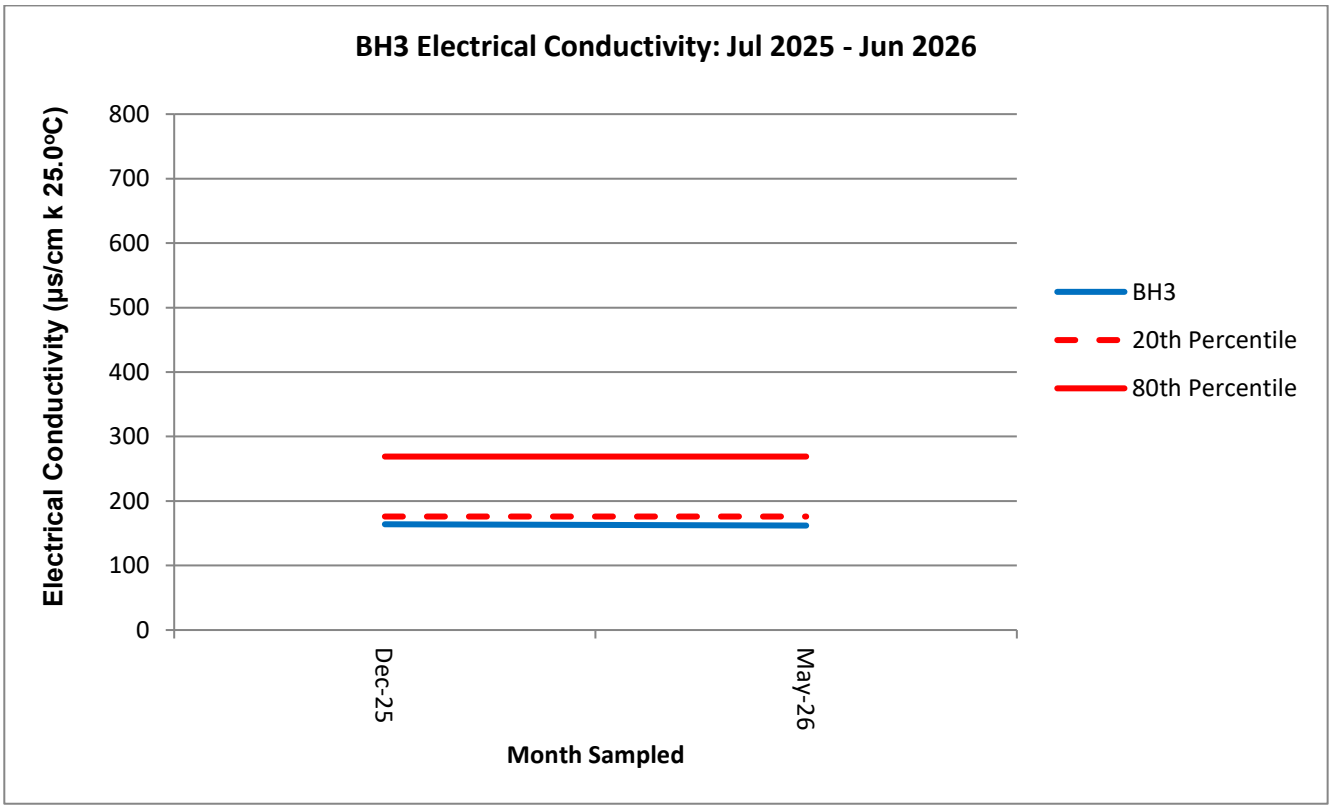


Chart 54: BH3 Electrical Conductivity Results July 2025 – June 2026

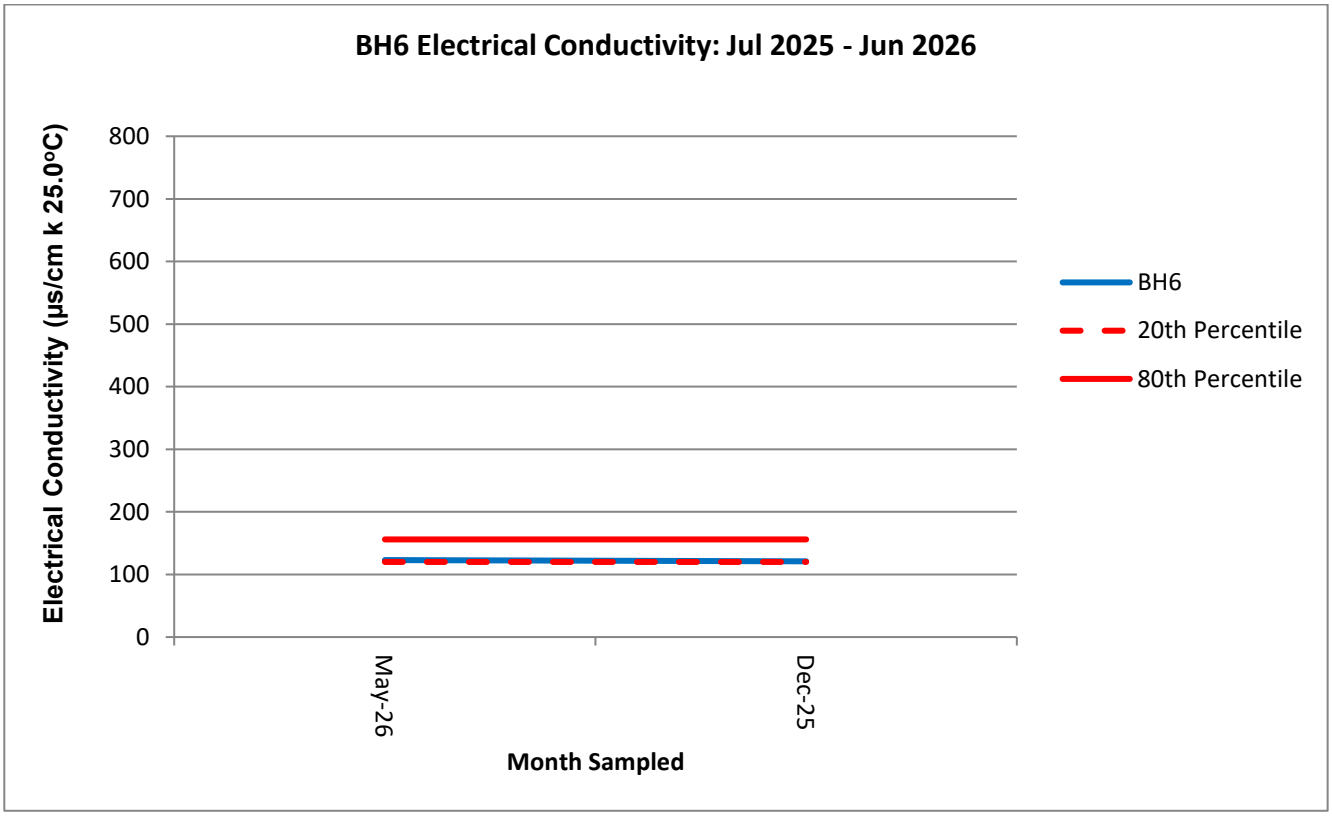


Chart 55: BH6 Electrical Conductivity Results July 2025 – June 2026

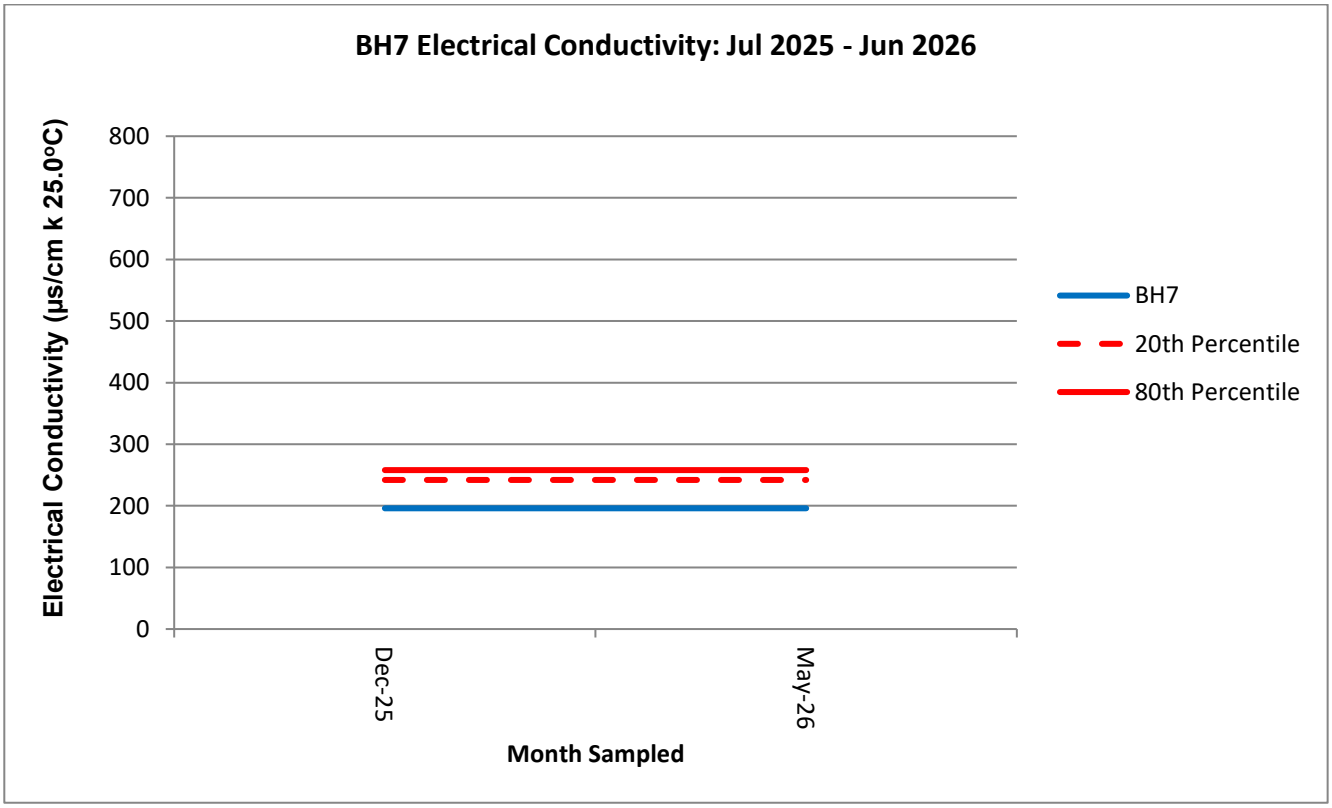


Chart 56: BH7 Electrical Conductivity Results July 2025 – June 2026

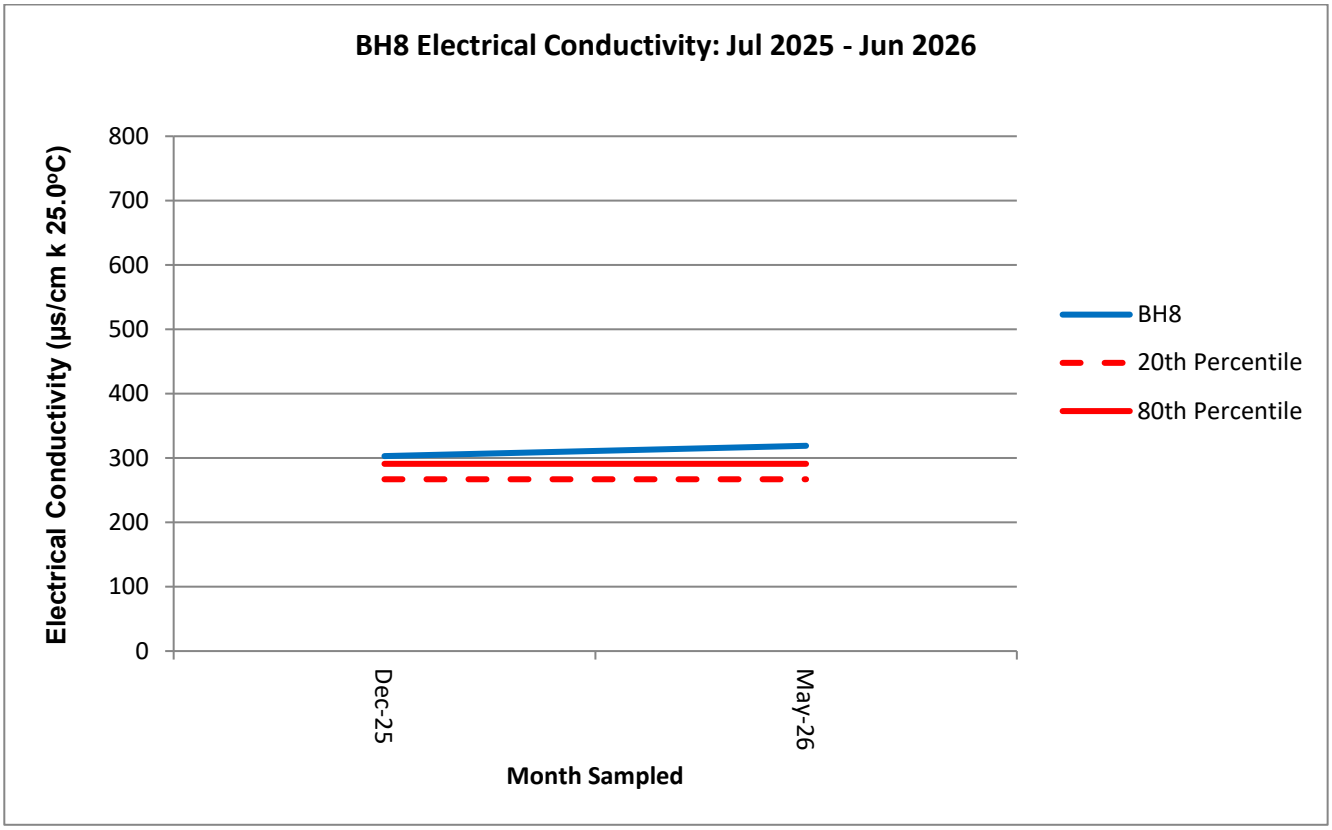


Chart 57: BH8 Electrical Conductivity Results July 2025 – June 2026

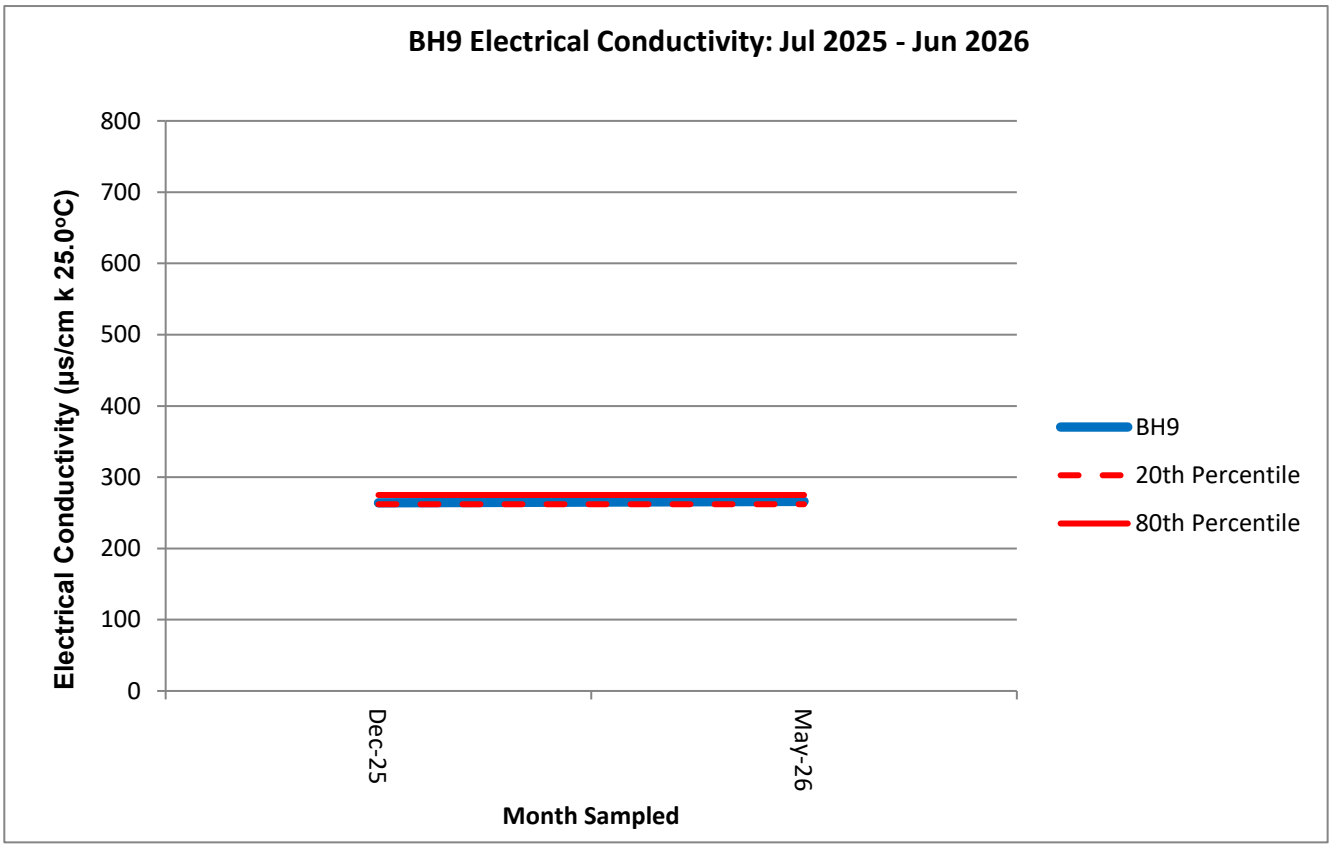


Chart 58: BH9 Electrical Conductivity Results July 2025 – June 2026

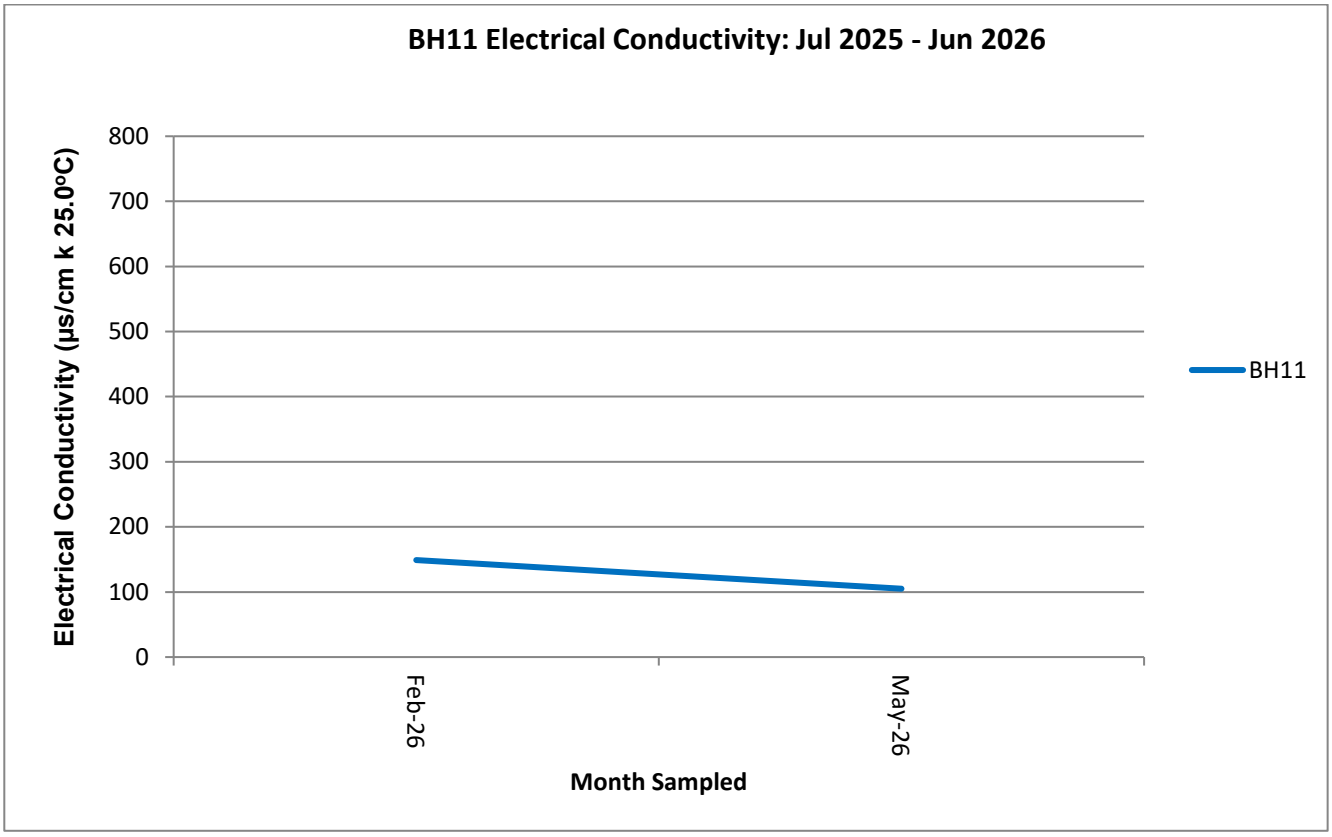


Chart 59: BH11 Electrical Conductivity Results July 2025 – June 2026

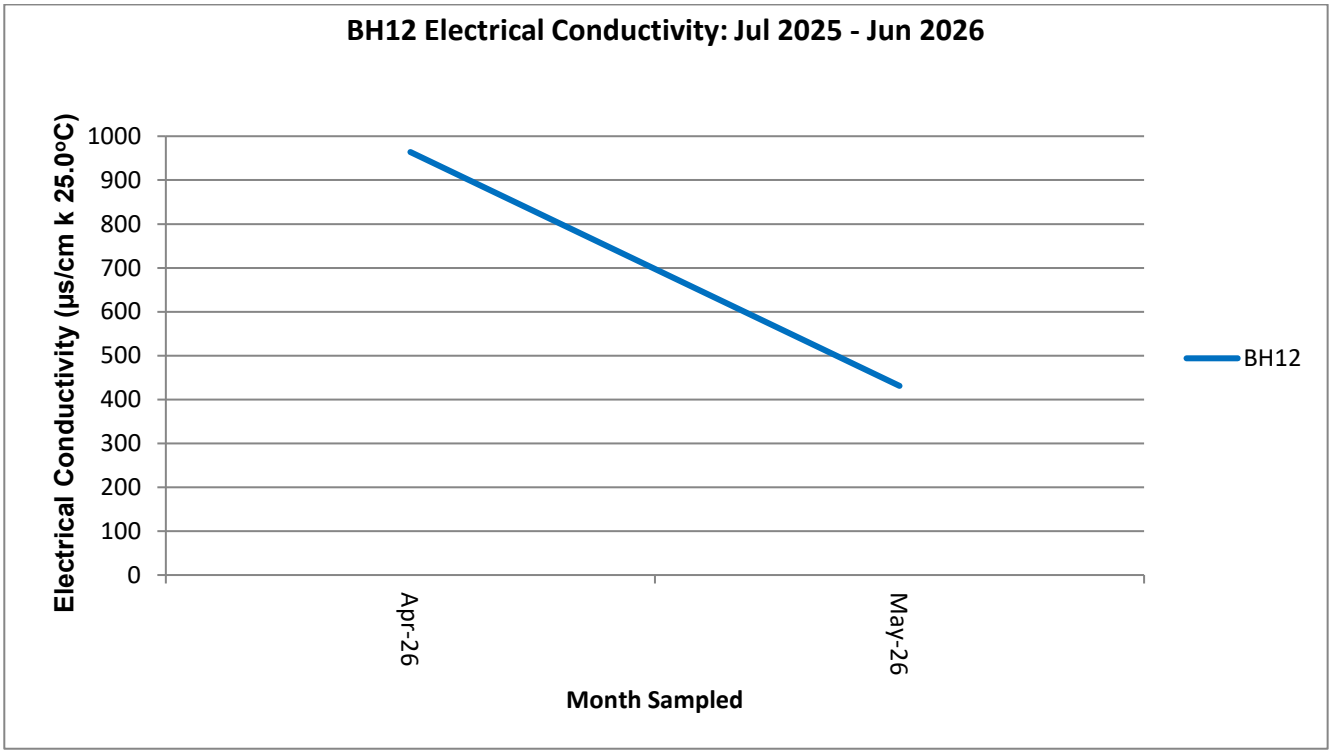


Chart 60: BH12 Electrical Conductivity Results July 2025 – June 2026

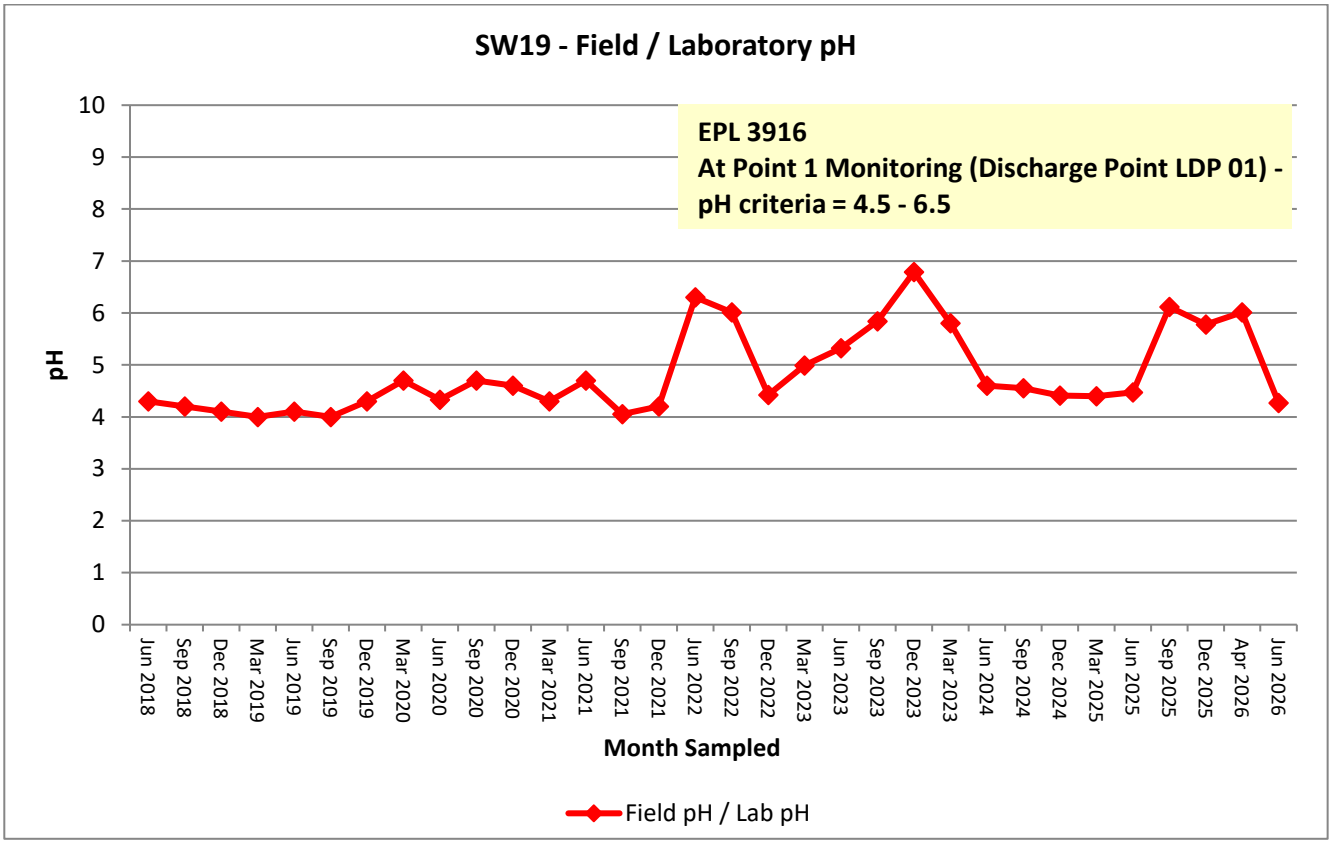


Chart 61: SW19 Field pH June 2018 – June 2026

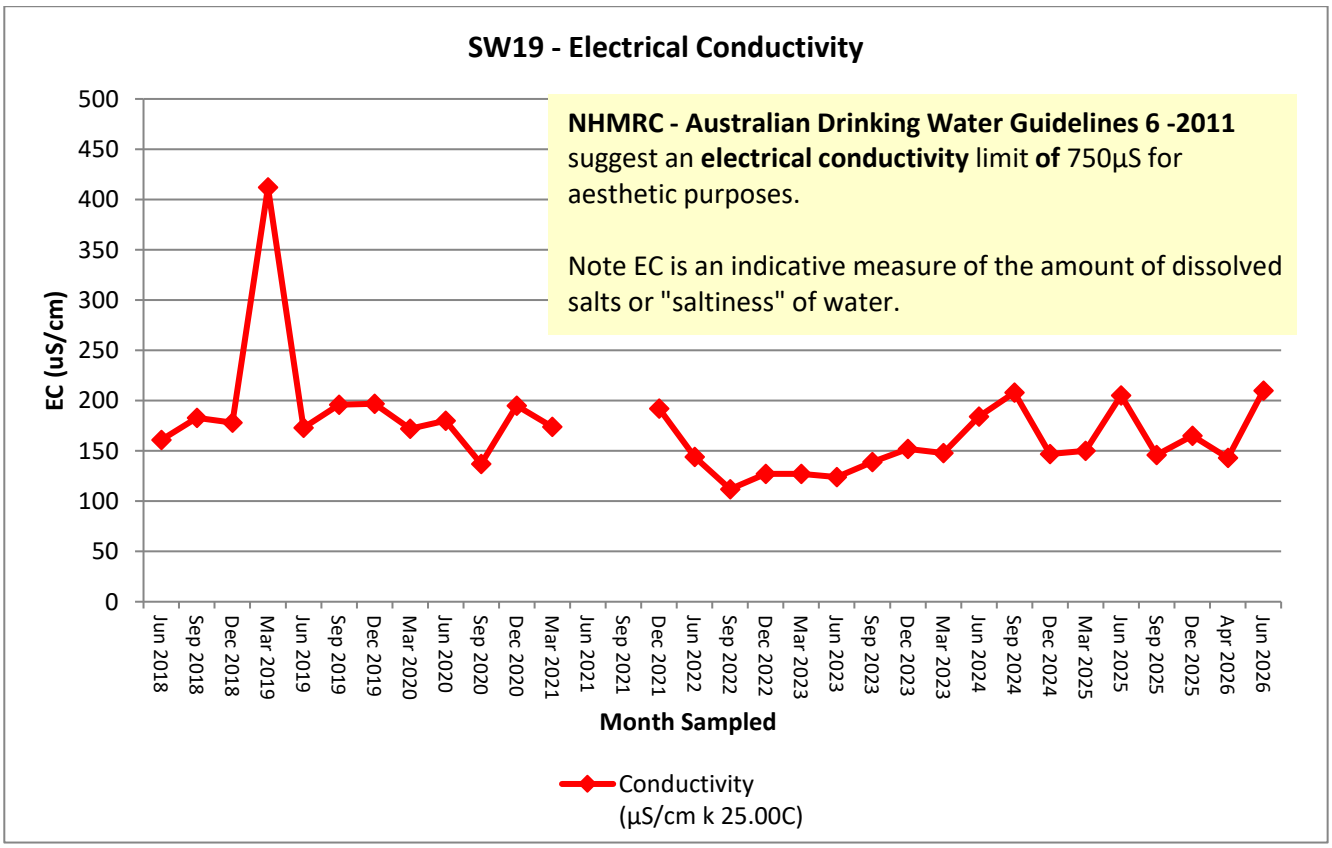


Chart 62: SW19 Electrical Conductivity June 2018 – June 2026

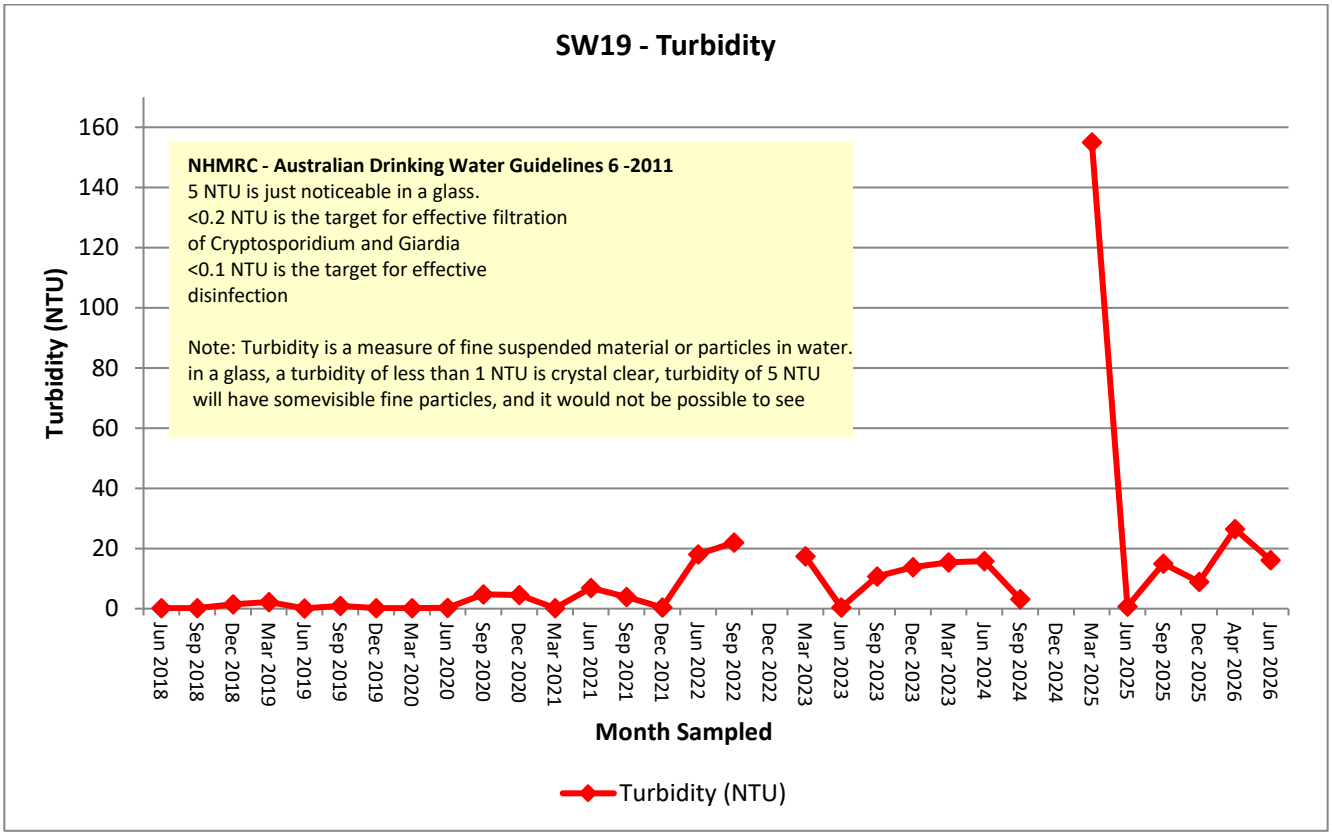


Chart 63: SW19 Turbidity June 2018 – June 2026

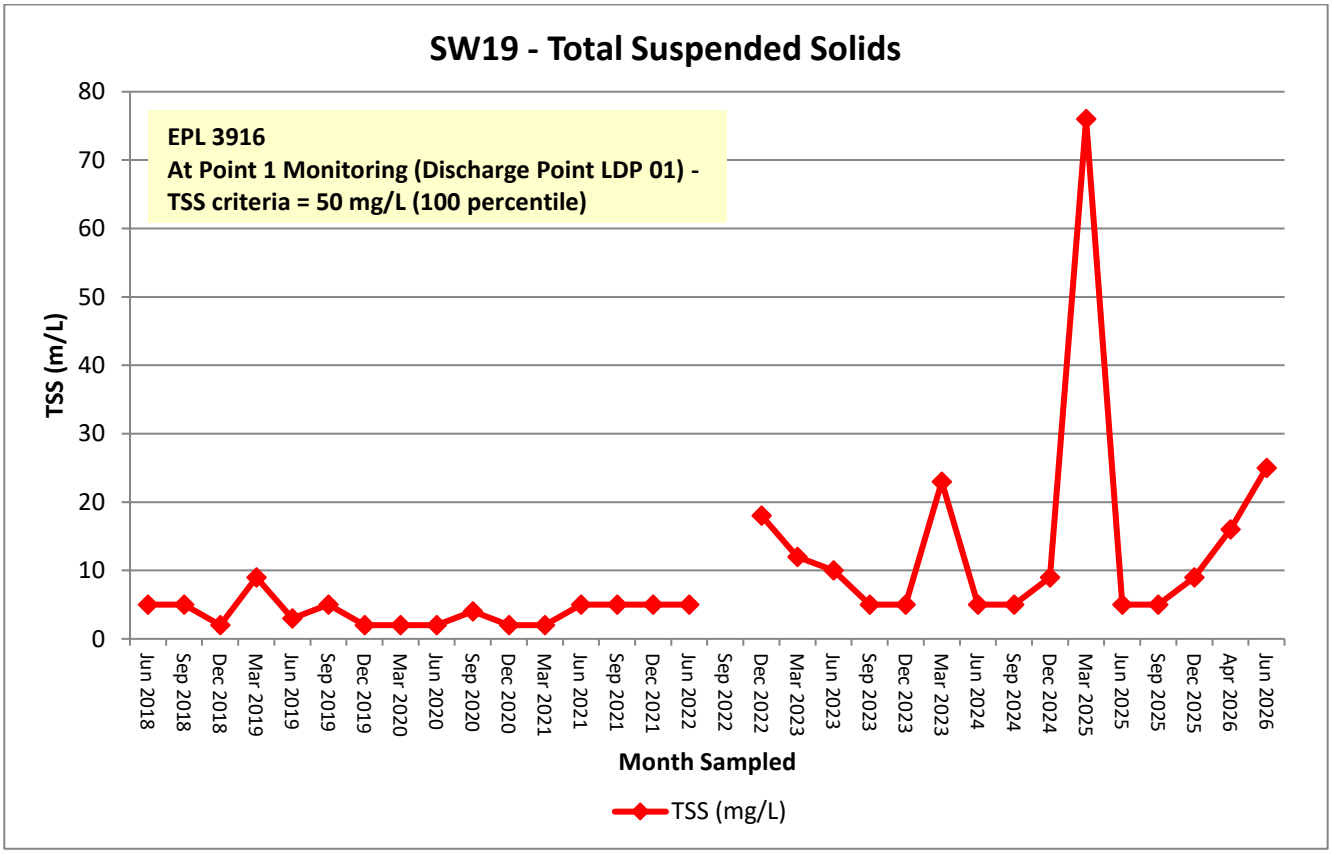


Chart 64: SW19 Total Suspended Solids June 2018 – June 2026

Table 28: LDP01 laboratory results, relevant water criteria and compliance for discharge.

Sample Date	pH			Total Suspended Solids (mg/L)			Turbidity (NTU)		
	Laboratory Result	EPL Criteria	Criteria met	Laboratory Result	EPL Criteria	Criteria met	Laboratory Result	EPL Criteria	Criteria met
No discharge at LDP01 during this reporting period.									

6.4 Analyses

6.4.1 Groundwater Levels

Groundwater level results for bores which monitor localised perched groundwater aquifers (MW series, BH8) indicate some fluctuations between water levels across the monitoring months. The majority of the measured groundwater levels in perched aquifer bores displaying a trend below the 20th percentiles (except MW2, and BH8) which are the lower limit of the adopted trigger levels in the Soil and Water Management Plan. This same trend was observed in the previous 2024 – 2025 reporting period. An investigation into the monitoring results indicate that these water level fluctuations are directly correlated to the amount of aquifer recharge of water through ground infiltration and percolation. Perched aquifers have been shown to be more responsive to surface water infiltration and percolation from rainfall events. With the return of the average rainfall, water levels in the perched aquifers have remained comparable to the levels recorded in the previous 2024 – 2025 reporting period due to similar annual rainfall.

Water level results for boreholes which monitor the Sydney Basin Central Groundwater Source aquifer (BH1, BH2, BH3, BH6, BH7 and BH9) depict a strong trend across the monitoring months. Almost all groundwater levels within the BCGS monitoring bores are within the 20th and 80th percentile, with some levels sitting slight above or below the baseline. During this reporting period, water levels in in BH3 rose slight above the 80th percentile whilst water levels in BH7 fell below the 20th percentile levels during several monitoring months. Similar trends and water levels in the SBCGS bores can be observed during this reporting period and those from the previous 2025 – 2026 reporting period, likely attributed to comparable annual rainfall.

6.4.2 Groundwater Quality

Greater fluctuations of pH values in groundwater were recorded during the 2010 to 2015 period. Relatively more stable pH values were recorded from 2015 to date, with the exception of BH2 which was struck by a vehicle late 2018. BH2 was rectified and groundwater quality monitoring recommenced in December 2019. pH values for MW2, BH1, BH2, BH7 and BH9 were within the 20th and 80th percentile trigger values during the reporting period. pH values for MW1, MW3 and MW5 were within and slightly above the 80th percentile. pH for BH3, BH6 and BH8 were within and slightly below the 20th percentile.

Electrical conductivity (EC) values in groundwater have been relatively stable from 2010 to the current reporting period, showing some fluctuations which were considered anomalies.

Electrical conductivity in MW2 showed greater fluctuations between 2010 and 2015 and started to stabilise from 2016 onwards. Elevated electrical conductivity value in MW5 was recorded in 2014 which then returned to stabilised values

thereafter. Electrical conductivity values in BH2 showed greater fluctuations in 2015 to 2016 which subsequently stabilised thereafter. During this reporting period, electrical conductivity values for the majority of boreholes fall within the 20th and 80th percentile trigger values. Electrical conductivity values in MW2, MW5, BH6 and BH9 were within or below the 20th and 80th percentiles. Electrical conductivity values in MW1, MW3, BH1, BH2, BH3 and BH7 were within or slightly below the 20th percentile levels. Electrical conductivity values in BH 8 were slightly above the 80th percentile level.

Other than the impact caused to BH2 due to vehicle struck, the variations in pH and electrical conductivity values over the years were likely to be influenced by climatic conditions with the return of average annual rainfall during this reporting period.

6.4.3 Assessment of Surface Water Quality and Discharge Event

SW19 represents the receiving water downstream of the discharge point (LDP01 which is Monitoring Point 1 of EPL 3916). Quarterly sampling and analysis of surface water quality at SW19 re-commenced in June 2018.

The receiving surface water quality monitoring at SW19 was undertaken on a quarterly basis during this monitoring period in September 2025, December 2025, March 2026 and June 2026.

Fluctuations of pH at SW19 have been recorded with wetter climatic conditions experienced during the reporting periods, pH ranged from 4.3 to 6.1 during this reporting period which generally comply with the EPL pH criteria of 4.5 – 6.5

Electrical Conductivity (EC) values fluctuated between 143 and 210 µS/cm during this reporting period. EC at SW19 were well below the *NHMRC - Australian Drinking Water Guidelines 6 - 2011* which suggests an electrical conductivity limit of 750µS for aesthetic purposes.

Turbidity values from SW19 ranged between 8.9 and 26.5 NTU. According to the *NHMRC - Australian Drinking Water Guidelines 6,* a turbidity of 2 NTU implies that water samples were mostly clear to some fine particles being visible whilst 5 NTU will have some visible fine particles and 60 NTU implies the water cannot be seen through.

Total suspended solids (TSS) at SW19 varied between 5 and 25 mg/L which are within the EPL 3916 TSS criteria of 50 mg/L.

Table 29 presents the baseline surface water (SW19) quality and trigger values contained in the ***Soil and Water Management Plan (v5, November 2020)*** (SWMP). The trigger values adopted in the SWMP are as follow:

- pH: 20th and 80th percentile
- TSS: 80th percentile
- Turbidity: 80th percentile

Table 30 presents the surface water (SW19) quality results yielded during this monitoring period.

Table 29: Baseline Surface Water (SW19) Quality and Trigger Values (June 2018 to June 2020).

Parameter	Minimum	20th Percentile	50th Percentile	80th Percentile	Maximum
pH	4.0	4.1	4.2	4.3	4.7
TSS (mg/L)	2.0	2.0	3.0	5.0	9.0
Turbidity (NTU)	0.1	0.2	0.2	1.1	2.2

Table 30: Surface Water (SW19) Quality Results 2025 – 2026

Parameter	Sep 2025	Dec 2025	Mar 2026	Jun 2026
pH	6.1	5.8	6.0	4.3
TSS (mg/L)	5	9	16	26
Turbidity (NTU)	15	8.9	26.5	16.1
SW19 quality results fall within the Trigger Values (SWMP, V5, Nov 2020)	No (pH and Turbidity above 80th percentile)	No (pH, TSS and Turbidity above 80th percentile)	No (pH, TSS and Turbidity above 80th percentile)	No (TSS and Turbidity above 80th percentile)

Elevated surface water (SW19) quality results were recorded during the last reporting period, specifically elevated turbidity and total suspended solids results. During this reporting period, pH levels at SW19 have increased from the levels recorded last year whilst electrical conductivity and turbidity levels are comparable to last year's levels. Total suspended solids show a slight increasing trend but well within the EPL criteria. High rainfall events may have resulted in higher creek flows within the creek which would likely to have caused some of the parameters to fall outside the trigger value thresholds of Table 29. The water quality results for this reporting period, although higher than historic results and trigger levels, the majority of the parameters sit below the EPL 3916 criteria. A close monitoring of the water quality at SW19 will continue.

No planned water discharge occurred at the licensed discharge point LDP01 (main water channel) during this reporting period.

6.4.4 Comparison of Surface Water Discharge Volume and Quality with Historical Data

The long-term discharge volumes and analysed water quality at the EPA licensed discharge point LDP01 are shown in Table 31. A total of 1.50 megalitres of water have been discharged during the discharge events since the 2003 – 2004 monitoring period to date. No 'planned' water discharge at the license discharge point LDP01 occurred during this reporting period.

Condition M2.3 of EPL lists the limits of water quality criteria to be met for water discharge which are:

- pH: 4.5 – 6.5
- Total suspended solids: 50 mg/L

Historically, laboratory results indicate that all water quality suites have met the EPL discharge criteria since the commencement of monitoring, except for one discharge event in the 2014 – 2015 monitoring period where the total suspended solids were slightly elevated and exceeded the EPL criteria. There was no discharge during the 2025 - 2026 reporting period.

Table 31: Long Term Discharged Water Volume at LDP01 (EPL licensed discharged point)

Annual Review Monitoring Period	Discharge Volume (Megalitre)	pH	Total Suspended Solid (mg/L)	Turbidity (NTU)	EPL Discharge Criteria Met
2003 – 2004	0.062 *1 0.034 *2	4.9 *1 5.0 *2	16 *1 31 *2	21 *1 33 *2	Yes *1 Yes *2
2004 – 2005	0.374 *1 0.156 *2	5.9 *1 6.3 *2	33 *1 22 *2	60 *1 6.3 *2	Yes *1 Yes *2
2005 – 2006	0	-	-	-	-
2006 – 2007	0	-	-	-	-
2007 – 2008	0	-	-	-	-
2008 – 2009	0	-	-	-	-
2009 – 2010	0	-	-	-	-
2010 – 2011	0	-	-	-	-
2011 – 2012	0	-	-	-	-
2012 – 2013	0	-	-	-	-
2013 – 2014	0	-	-	-	-
2014 – 2015	Not measured *1 Not measured *2	4.7 *1 5.5 *2	64 *1 32 *2	40 *1 80 *2	No *1 Yes *2
2015 – 2016	0	-	-	-	-
2016 – 2017	0	-	-	-	-
2017 – 2018	0	-	-	-	-
2018 – 2019	0	-	-	-	-
2019 – 2020	0.350 *1 0.520 *2 0.005 *3	5.79 *1 4.60 *2 no sample *3	18 *1 2 *2 no sample *3	24.1 *1 4.2 *2 no sample *3	Yes *1 Yes *2 No *3
2020 – 2021	0	-	-	-	-
2021 – 2022	Not measured *4	-	-	-	-
2022 – 2023	0	-	-	-	-
2023 – 2024	0	-	-	-	-
2024 – 2025	0	-	-	-	-

Annual Review Monitoring Period	Discharge Volume (Megalitre)	pH	Total Suspended Solid (mg/L)	Turbidity (NTU)	EPL Discharge Criteria Met
2025 – 2026	0	-	-	-	-
TOTAL Volume Discharged (Megalitre)	**1.500**				

Note: *1 *denotes to discharge event number 1 within the monitoring period*

*2 *denotes to discharge event number 2 within the monitoring period*

*3 *denotes to discharge event number 3 within the monitoring period*

*4 *denotes to discharge event number 3 within the monitoring period*

6.5 Maximum Extraction Depth Map

The Maximum Extraction Depth Map (MEDM) is based on the wet weather groundwater elevation and is determined by the quarry groundwater monitoring network.

An Independent Environmental Audit (IEA) was completed, and the report submitted in February 2026. Condition 23 of Schedule 2 of DA 250-09-01 states that a review and update of the MEDM for the Quarry is to be undertaken within 3 months of the completion of the IEA, to the satisfaction of the Secretary. A review of the MEDM was undertaken by WSP and the reviewed document was submitted to the DPHI on 4 May 2026 for review and approval. At the time of submitting this Annual Review, the MEDM (May 2026) is still under review by DPHI.

The next revision and update of the MEDM will be undertaken within 3 months of the next IEA which is scheduled to occur late 2028.

6.6 Water Access License Usage

The Annual Returns for Water Access License (WAL) 24341 for the 2025 - 2026 reporting period were submitted to WaterNSW in July 2026. The total water usage for the WAL is listed in Table 32 below.

Table 32: Water usage for Water Access Licences

Water Access License Number	Annual Water Usage (Megalitres)
WAL 24341	0

6.7 Chages to Environmental Procedures

Current groundwater management measures are considered adequate. No changes to environmental procedures are proposed.

Monitoring of the extraction limit will continue in order to ensure compliance. The Maximum Extraction Map for Old Northern Road quarry will require review following the next Independent Environmental Audit scheduled in late 2028.

Continue to monitor groundwater levels and quality, together with observations of any environmental or land use changes.

Any planned surface water discharge at LDP01 main water channel (Monitoring Point 1 of EPL 3916) will require grab samples prior to discharge for laboratory analysis to ensure pH, TSS and turbidity are within the specified EPL concentration limits. Dixon Sand staff to implement the Permit to Discharge procedure which outlines the steps required leading up to the allowable water discharge.

Quarterly sampling of surface water at SW19 to continue as normal.

7. Ecological Monitoring and Rehabilitation

7.1 Vegetation Clearing

No vegetation clearing was undertaken during this reporting period.

7.2 Bush Regeneration and Weed Management

Rehabilitation and weed management at Old Northern Road quarry were undertaken by a bush regeneration contractor with multiple visits each month throughout the reporting period.

A total of 343.5 hours was spent on bush regeneration works at Old Northern Road Quarry, equating to approximately 56% of the time spent between Old Northern Road Quarry and Haerses Road Quarry scope of works.

Bush regeneration, native vegetation planting and weed management were carried at the following locations:

- Vegetated areas on Lots 1 and 2 excluding areas in the extraction pit and sediment ponds,
- Native Vegetation Corridor on Lot 29,
- Southern border of extraction pit on and twin sediment ponds on Lot 196 (now Lot 1 DP1288211),
- Front gate embankment, and
- Biodiversity Offset Area located at Haerses Road (Lots 176 and 177 DP 752039).

Bush regeneration works involved mechanical and chemical methodologies.

Figures 3 to 6 (inclusive) show the locations and the types of bush regeneration and weed management works which have been undertaken at the Old Northern Road Quarry and Biodiversity Offset Area (located at Haerses Road) during this reporting period.

The Annual Bush Regeneration Report provided by the contractor for the 2025 - 2026 reporting period is attached as Appendix G.



Figure 3: Work areas subjected to bush regeneration and weed management at Old Northern Road Quarry (source: BushIT 2026).

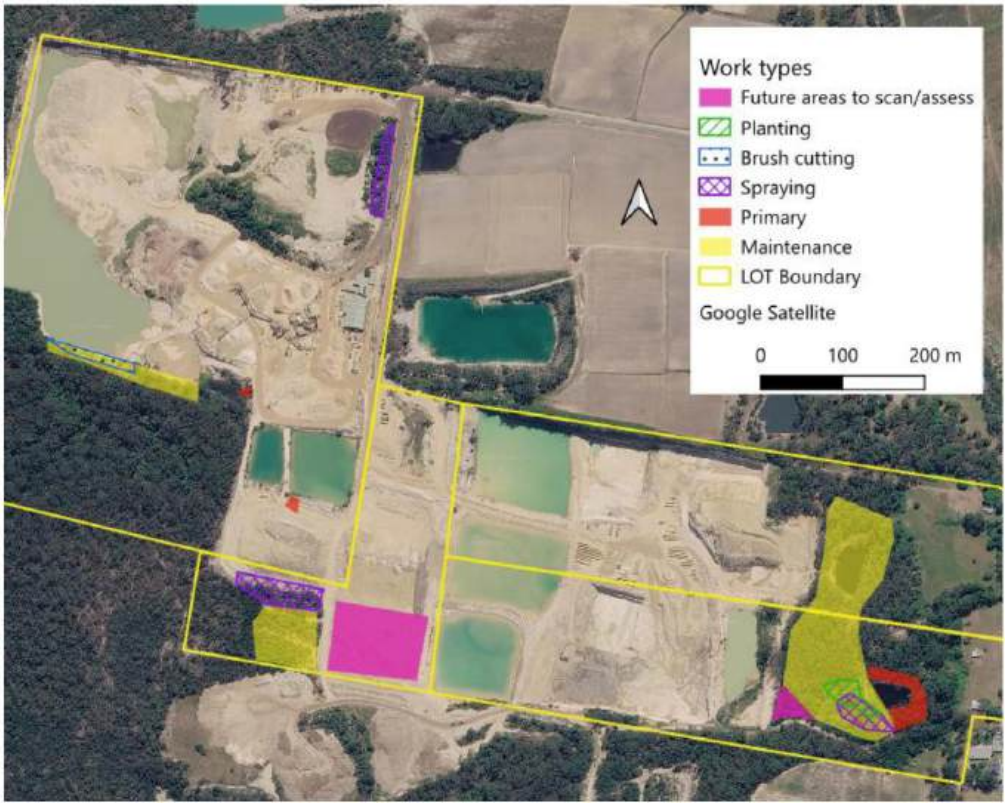


Figure 4: Types of work undertaken at Old Northern Road Quarry (source: BushIT 2026).

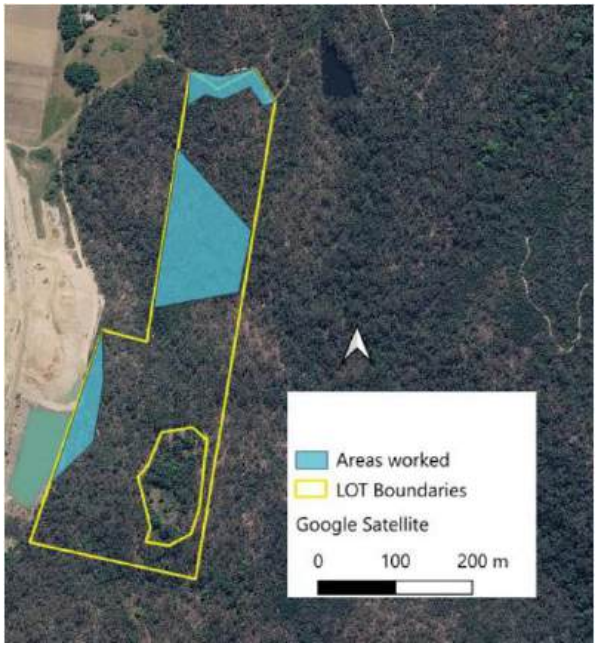


Figure 5: Work areas subjected to bush regeneration and weed management within the Biodiversity Offset Area, located at Haerses Road (source: BushIT 2026).



Figure 6: Types of work undertaken at the Biodiversity Offset Area, located at Hearses Road (source: BushIT 2026).

7.3 Biodiversity and Rehabilitation

Dixon Sand engaged South East Environmental to undertake the annual biodiversity and rehabilitation monitoring and reporting for Old Northern Road Quarry. Progress assessments were made against the commitments in Old Northern Road Quarry Biodiversity and Rehabilitation Management Plan (BRMP). The Biodiversity and Rehabilitation Management Report (South East Environmental, 2026) aimed to:

- Identify native flora and fauna species, populations and ecological communities known to or likely to occur within the Native Vegetation Corridor (NVC) and Haerses Road Biodiversity Offset Area (HRBOA),
- describe the native vegetation and habitats within the NVC and HRBOA,
- describe the current condition of the threatened flora and its habitat found outside of the NVC at Old Northern Road,
- discuss the ongoing monitoring of threatened flora and fauna previously recorded at both ONR and HRBOA,
- determine the legislative and conservation significance of species, populations and ecological communities known or likely to occur within the NVC and HRBOA with reference to the Commonwealth *EPBC Act 1999* and the *NSW BC Act 2016*,
- recommend appropriate biodiversity and environmental management measures that should be implemented to reach criteria for monitoring success set by the Old Northern Road Quarry Biodiversity and Rehabilitation Management Plan (2018), and
- provide an independent monitoring report for inclusion as part of the external reporting for the quarry Annual Review.

Field surveys were conducted over July and August 2026 throughout the established monitoring sites across the quarry. Specific survey methodologies were adopted including the 20m x 50m quadrats, 2m x 20m subplot, 1m x 1m line plots and random meandering. Fauna survey methods included general searches for direct and indirect evidence of native fauna including scratches, scats, nests, hollows in use, camps, roosts, den sites etc. in the study area, including diurnal and nocturnal call identifications. Opportunistic sightings of all fauna species were recorded throughout the survey period and during the monthly site inspection. Early morning dedicated bird surveys undertaken. Unbaited motion detection infra-red digital camera for 30 nights within the NVC and HRBOA.

It was noted that the flora survey was conducted over a short timeframe during winter and therefore some plant species may have been undetected and not identified due to their dormancy or lack of flower status. The study was limited by the timing and frequency of survey.

Sections 7.3.1 to 7.3.10 describe the findings at each nominated rehabilitation and monitoring area, assessment against completion criteria, together with discussion and recommendations. The full Biodiversity and Rehabilitation Management Report (South East Environmental, 2026) is contained in Appendix H.

The locations survey quadrats, fauna survey and threatened species monitoring are shown in Figure 7.

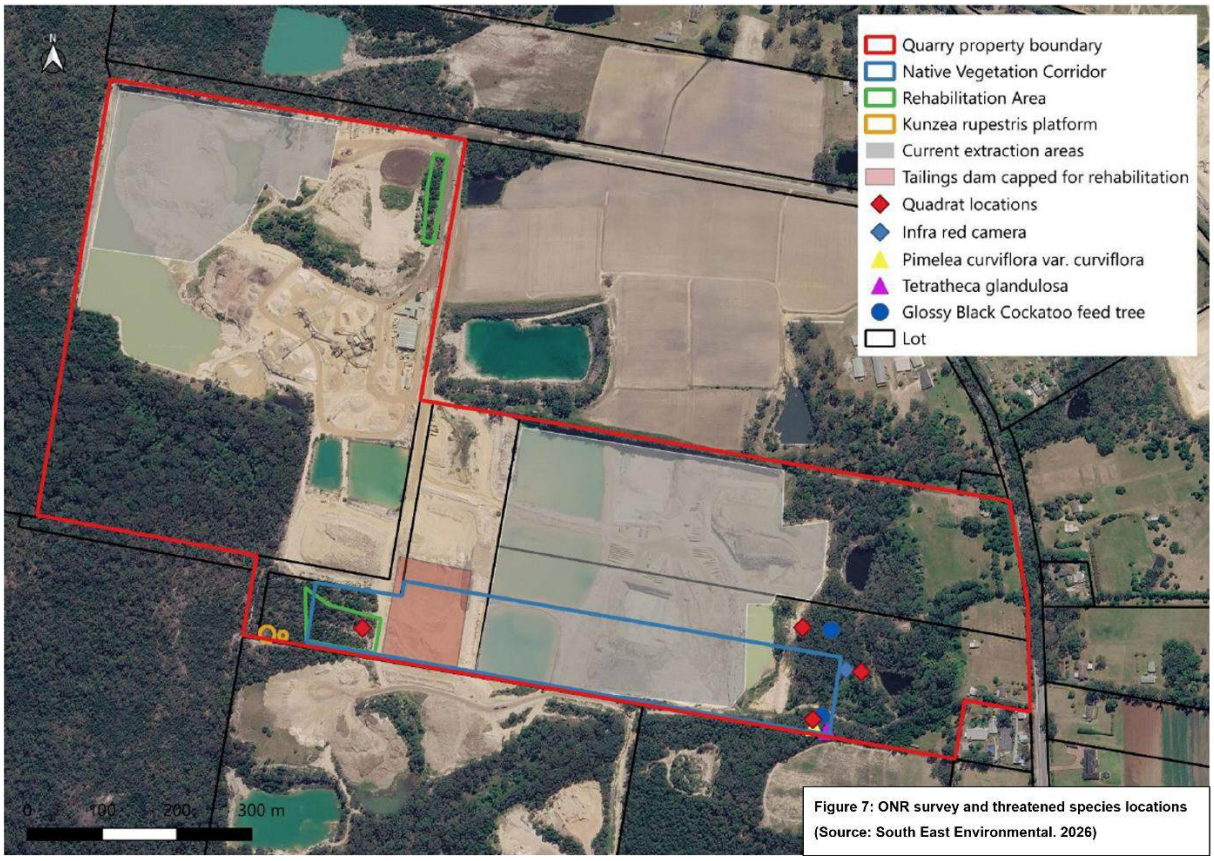


Figure 7: ONR survey and threatened species locations (Source: South East Environmental. 2026)

7.3.1 Native Vegetation Corridor

The Native Vegetation Corridor (NVC) comprises an area of 6.83 hectares, extending from the south-western corner of Lot 29 and extending along the southern boundary of Lot 2 to the area located between the 250m buffer and the Maroota Public School. The NVC is currently in the mid-stage of its rehabilitation strategy.

Five out of nine vegetation monitoring sites are located within the NVC.

The location of the NVC and vegetation monitoring sites are shown in Figure 8.

Rehabilitation of native vegetation in the NVC commenced in late 2017 on the south-western boundary of Lot 29, comprising an area of approximately 0.8 hectares and utilising three rehabilitation methods. Parts of the current NVC are utilised as haul road, sediment ponds and active extraction area. The remaining area are existing areas containing native vegetation and disturbed areas which are remnants of orchard plantation, grazing land and farm dams.

Rehabilitation Area – Planted

The planted area in the NVC is approximately 0.4 hectares in size. One vegetation monitoring site, as specified by the BRMP, is located in this area. Native nursery tube stocks were planted in this location. Two of the species, *Melaleuca deanei* (vulnerable) and *Darwinia fascicularis* ssp. *oligantha* (endangered population) under the *Biodiversity Conservation Act* 2016, were propagated from onsite specimens, grown in commercial nurseries and replanted in the NVC.

A total of 47 native species has been planted in this area, including the abovementioned propagated threatened species. The ecological survey during this monitoring period identified 70 native species which were not recorded as

planted and have emerged from seed bank storage from the sub-soil, including the vulnerable species *Tetratheca glandulosa*. This is an increase of 21 species recorded from the survey undertaken last year, which were mainly increased in forbs and grasses species. The return to average climatic conditions is likely to cause the short lived and moisture dependant small forbs and ferns being outcompeted by the hardier grasses and shrubs. In addition, it may be possible that some species not recorded during this year's survey were not actively growing or flowering during the survey period and therefore, not easily identifiable.

One weed species being Whiskey Grass (*Andropogon virginicus*) was identified and present within this planted rehabilitation area in very low density. This weed species has been actively managed over a number of years.

There were 14 live specimens of *Melaleuca deanei*, 7 *Darwinia fascicularis* ssp. *oligantha* and 7 *Tetratheca glandulosa* located this reporting period. No *Acacia bynoeana* and *Pimelea curviflora va*r. *curviflora* were identified during this period which suggests that the species may have responded to the ample moisture during the 2020 – 2022 period and short lived, or they may haven been preyed upon by herbivore species present within the NVC.

Plate 1 shows the view of the planted rehabilitation area from the east looking west.

Plate 2 shows the status of the *Melaleuca deanei* planted in 2017 within the planted NVC area.

Plate 3 contains the current status of one of the propagated *Darwinia fascicularis* ssp *oligantha* cuttings planted in 2017.

Plate 4 shows the *Tetratheca glandulosa* within the planted rehabilitation area.

The annual survey indicates that the overall condition of the planted rehabilitation area is very good with canopy trees reaching reproductive maturity with flowering buds present during the survey event in July and August 2026 period. It appears that species diversity within the planted NVC has reached its peak with the noted slight increase in forbs, ferns and grasses. Native mammals observed include macropods, bandicoots and possums. Ten bird species was recorded which remain the same as the previous year's count.

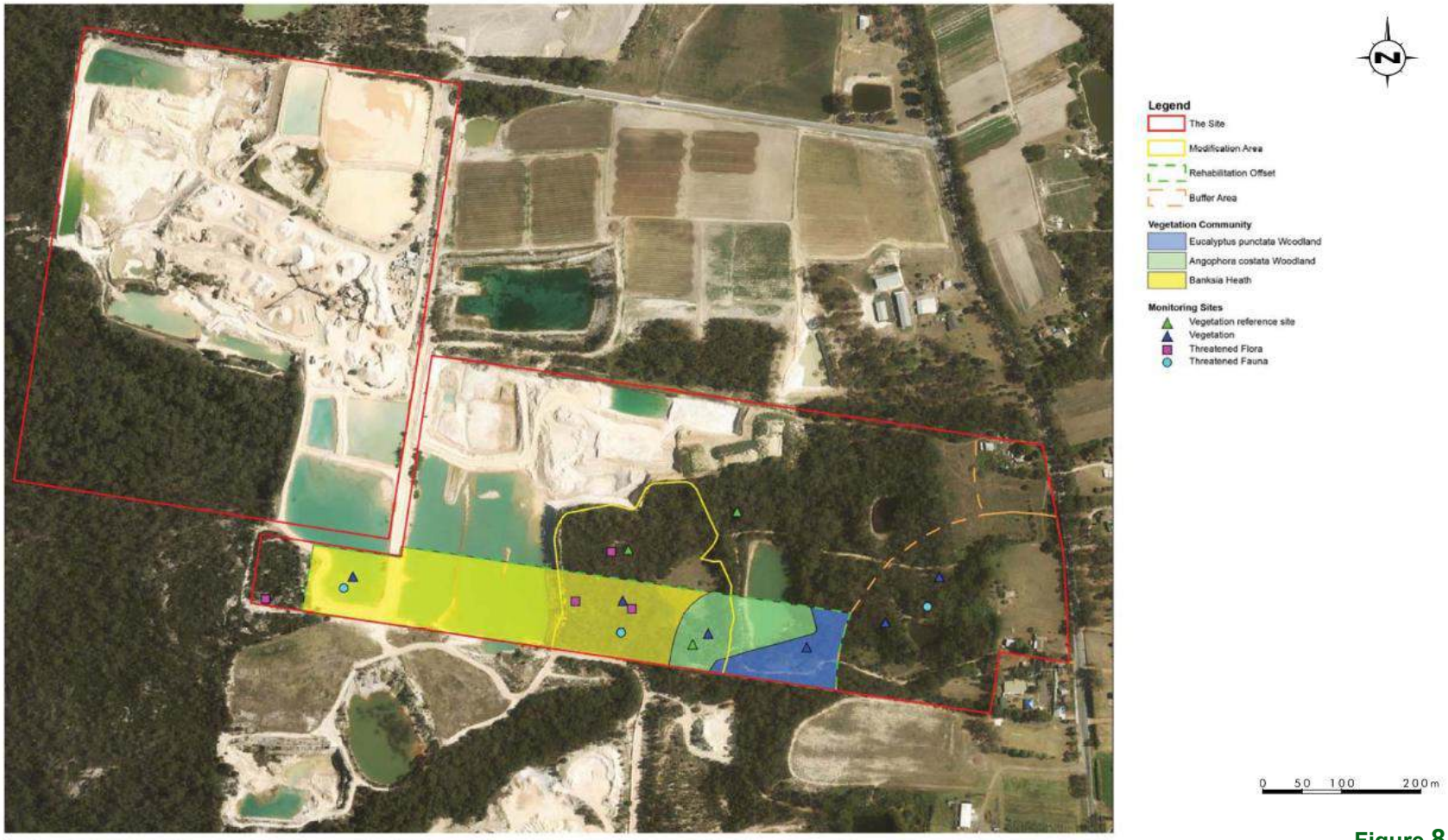


Figure 8

Location of Ecological Monitoring Sites
Old Northern Road Quarry

Image Source: Cumberland Ecology (2015)

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20180220 17.30



Plate 1: View of planted rehabilitation area from east looking west, 2026 (source: South East Environmental, 2026).

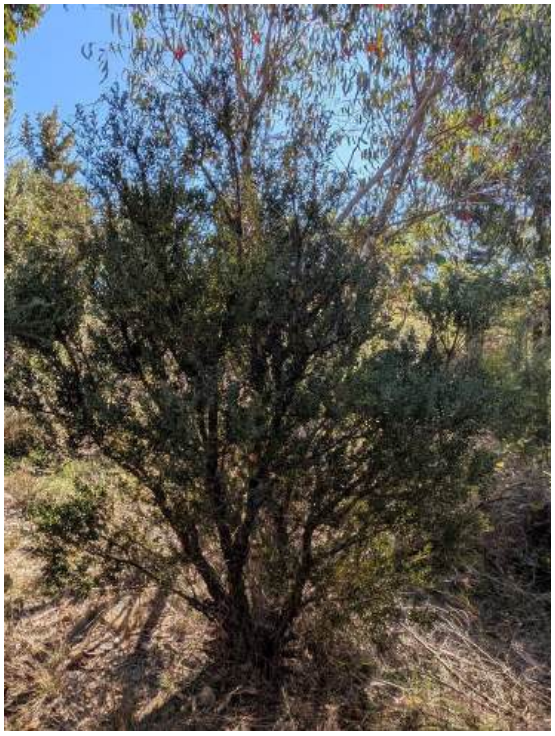


Plate 2: Propagated Melaleuca deanei planted in 2017 within the planted NVC area (source: South East Environmental, 2026).



Plate 3: Propagated *Darwinia fascicularis ssp. Oligantha* planted in 2017 (source: South East Environmental, 2026).



Plate 4: Tetratheca glandulosa within the planted NVC area (source: South East Environmental, 2026).

Rehabilitation Area – Translocated

This area involved direct translation of material from Lots 1 and 2 vegetation clearing. Continued recruitment from seed bank storage were observed to continue to be ample. All age classes ranging from small seedlings to adult shrubs were observed from small seedlings to adult shrubs which had limited flower during the survey. Shrubs and ground cover species were reasonably abundant throughout the area and having reached densities making survey on foot difficult on occasions. The scattered canopy species have begun to emerge in the western half of the translocated area.

Translocated *Darwinia fascicularis* ssp*. oligantha* is numerous, particularly on the western section of the area however, there were evidence of losses due to shading from nearby trees and shrubs. One single translocated *Tetratheca glandulosa* were observed to be in a healthy state with flowers present during August 2026 survey.

Three *Melaleuca deanei* which were planted in 2017 are still present and observed to be in a healthy state. A further 32 *M. deanei* individuals have been planted within this area during the 2020 – 2022 reporting period. Only 20 of the specimens were located due to plant guards being removed however it is likely that the unlocated specimens are healthy given the 20 specimens showing signs of active growth. The parent plant was translocated to this area after the 2:1 targeted species offset ratio was achieved. The mother plant was translocated using a loader with a large bucket with the aim of collecting as much soil and root ball as possible. Unfortunately, the main tap root was broken during the process causing the plant material died back. At the location of this translocated parent plant, two single seedlings of *M. deanei* were observed to have emerged from the two soil mounds in the last reporting period. Unfortunately, these two seedlings were not present during this reporting period possibly as they have not survived or being predated by the herbivores in the NVC. It had been hoped that seed banks of Melaleuca deanei within the translocated soil may be present however, this does not appear to be the case.

Plate 5 shows the translocated *Tetratheca glandulosa* flowering within the translocation area in 2026.

Plate 6 contains a specimen of *M. deanei* which was planted in the translocation area in 2017.

Plate 7 shows *Darwinia fascicularis ssp oligantha* specimen within this area.



Plate 5: Translocated *Tetratheca glandulosa* flowering within the translocation area 2026 (source: South East Environmental, 2026)



Plate 6: *M. deanei* planted in 2017 within the translocation area 2026 (source: South East Environmental, 2026)



Plate 7: *Darwinia fascicularis ssp oligantha* within the translocation area 2026 (source: South East Environmental, 2026).

Rehabilitation Area – Soil Seed Bank

Ample natural recruitment of native species was observed in this area, although no new *Darwinia fascicularis* ssp. *oligantha* recruitment was observed likely due to being shaded by the surrounding vegetation. Ground cover and shrub species are present throughout however the shrub density has impacted and resulted in ground cover species to become sporadically distributed. The emerged canopy stratum comprising *Eucalyptus punctata*, *Eucalyptus pilularis* and *Corymbia* gummifera is recorded. *Banksia ericifolia* continues to be the dominant shrub species with *Grevillea buxifolia* and *Acacia suaveolens* remaining widespread.

A single planted *Melaleuca deanei* was located during this survey period which now stands approximately 2.2 metres in height, gaining height since last year's survey. The density of the shrub regrowth is suspected to be impeding on the efforts to locate other individuals. All the surviving threatened species which were located was observed to be in a healthy state.

Plates 8 shows the view of the translocated rehabilitation area from east looking west 2026.

Plates 9 shows the view of the soil seed bank rehabilitation area from north looking south 2026.

Plates 10 shows the view of the soil seed bank rehabilitation area from south looking north in 2026.

Front Gate Rehabilitation

The area around the front gate of the quarry underwent initial rehabilitation in 2017 with supplementary planting of native species. The front gate rehabilitation area is thriving with a number of shrubs in flower and new recruitment observed. Previous gaps in vegetation are being filled with natural recruitment and regeneration. Two *M. deanei* propagated from cuttings were planted in this area in 2023 however both did not survive due to compact ground and lack of water. Weed density remains an ongoing priority in this area.

Plate 11 shows the status of the front gate rehabilitation.



Plate 8: View of soil seed bank rehabilitation area from east looking west 2026 (source: South East Environmental, 2026).



Plate 9: View of soil seed bank rehabilitation area from north looking south 2026 (source: South East Environmental, 2026).



Plate 10: View of soil seed bank rehabilitation area from south looking north 2026 (source: South East Environmental, 2026).



Plate 11: Front gate rehabilitation area 2026 (source: South East Environmental, 2026)

Vegetation Monitoring within NVC

Out of the nine vegetation monitoring sites across the whole Old Northern Road Quarry site, five vegetation monitoring sites are located within the NVC including one site within the planted rehabilitation area previously discussed. From the remaining four sites, one site could be safely accessed for monitoring as the three remaining sites are currently in active quarry extraction area.

The overall health of the vegetation and biodiversity within the NVC is good, an improvement from being moderate during last year's survey. Historic disturbance was observed in this area and likely to be due to livestock grazing and timber removal. Recent average rainfall in the local area has assisted in the recovery of vegetation from previous drought and wet conditions.

The remaining areas throughout the NVC are impacted by the presence of *Lantana camara*. An effort to remove and control has been undertaken for a number of years however due to the distribution and density, long term management is required to completely remove the species across the entire site. Where Lantana has been removed and controlled, the area is shown to be recovering well with supplementary planting of shrub species assisting in regeneration. The establishment and presence of ground cover grasses and forbes species have increased in density with moderate ground cover observed.

During the 2021-2022 reporting period, it was determined that the required number of cloned *Melaleuca deanei* specimens to offset vegetation clearing under DA250-09-01 Modification 4 had been achieved and determined successful, meeting the 2:1 offset ratio. This enabled the parent plant to be removed from the original site on Lot 2 Strip 2. An attempt to translocation the parent plant was made via digging around the root ball and carrying the plant with the attached root ball using a loader bucket. However, the root system of the parent plant was found to be extensive and had coiled around large sandstone boulders and throughout the cracks of others. The parent plant was translocated and planted in the NVC with the root ball and immediate surrounding soil. Two seedlings have been observed to emerge at the root ball locations where the parent plant was translocated during the previous monitoring period. Unfortunately, these two seedlings in the root ball appeared to have perished during this monitoring period.

Vegetation Monitoring outside NVC

Four vegetation monitoring sites are located outside the NVC. Accesses to two of the monitoring sites are located in the current extraction areas and therefore cannot be accessed. Access to one other monitoring site was restricted by the presence of *Lantana camara*.

The first accessible survey site is located outside the NVC within the 250m buffer to the Maroota Public School with vegetation determined to be *Smooth barked Apple – Red Bloodwood – Sydney Peppermint heathy open forest on slopes of dry sandstone gullies of western and southern Sydney, Sydney* Basin Bioregion. This area was subjected to historic disturbance, most likely from timber harvesting. Survey indicated there is abundance *Eucalyptus piperita* regenerating within the survey quadrat, all being around the same age which indicates that the area had been previously cleared. Diversity within the survey site was categorised as reasonable and biodiversity values moderate. This survey site will not be subjected to future vegetation clearing for the quarry and therefore presents a good opportunity to monitor the effects of sand extraction in nearby retained vegetation.

The additional survey site is also classified as *Smooth barked Apple – Red Bloodwood – Sydney Peppermint heathy open forest on slopes of dry sandstone gullies of western and southern Sydney, Sydney.* This survey location is located just within the 250m buffer to the Maroota Public School and will not be subjected to future vegetation clearing.

Vegetation within this survey plot appears to have had very little disturbance and contains no exotic weeds. This survey location will also provide good baseline data for future reference for rehabilitation.

Lantana camara have some impacts on the remaining area outside the NVC. The third survey quadrat could not be accessed due to this. Removal and control of the species have commenced within this section however more efforts are required as progress is slow and favourable conditions for weed growth have affected weed management progress. Survey at this site can commence once Lantana thickets are removed or reduced in density.

It was observed that vegetation within the two survey areas have increased in shrub, forb and grass diversity during this monitoring period. This is likely to be attributed to stabilisation of competing species post favourable growing season over 2021 – 2023. Wet and dry period which occurred during this reporting period were likely to have contributed to the loss and reduction of species which prefer more stable climatic conditions. Despite the reduction in certain species within the quadrats, the species that are present are well established with increased density noted.



Figure 9

Location of Ecosystem Monitoring Sites
Haerses Road Biodiversity Offset Area

Image Source: Cumberland Ecology (2015)

File Name (A4): R06/4209_021.dgn
20180220 17.10

7.3.2 Haerses Road Biodiversity Offset Area

The Haerses Road Biodiversity Offset Area (HRBOA) has a minimum area of 8.70 hectares and is located east of Stage 2 extraction at the Haerses Road quarry. Five vegetation monitoring sites are located within the HRBOA. The HRBOA and locations of the monitoring sites are depicted in Figure 9.

A slight reduction in the threatened *Darwinia biflora* density within the 20 x 20m survey quadrat of Monitoring Plot 2 was observed this year although the species is well presented throughout the entire area of the vegetation community. The notable reduction in its density may be due the requirement for periodic fire in order to maintain the heath vegetation community and ecological requirements of *Darwinia biflora.*

Overall, there was a stabilisation to foliage cover and structure cover in most stratus at most survey sites. Grass and groundcover species appear to remain stable in diversity and density with little change noted. Canopy and shrub remain stable. Extensive Long-nosed Bandicoot digs were noted in an area close to Quadrat 1, similar to previous years. Bird presence and density have remained consistent from the last survey period.

7.3.3 Threatened Flora Monitoring

Four threatened flora species are being monitored at the Old Northern Road quarry.

Kunzea rupestris* and *Darwinia fascicularis* ssp. *oligantha

Kunzea rupestris population are located on two distinct area within the far western area of Lot 29, growing on two rock platforms (eastern and western) which are also occupied by *Darwinia fascicularis* ssp. *oligantha.*

The eastern rock platform contains four individual patches of *Kunzea rupestris* with the presence of *Darwinia fascicularis* ssp. *oligantha.* During the July 2026 survey, twenty-four individual Kunzea rupestris were counted in patch one which is a slight increase from last year due to the observed new recruits. The entire patch appears to be in relatively good health with flower buds and new growth buds observed on mature plants.

The western rock platform contains five patches of *Kunzea rupestris* which was observed to be growing within a vegetation community with far more flora diversity than what is present on the eastern platform with larger shrubs growing in deeper soil profile in more protected conditions.

The overall health of the *Kunzea rupestris* population is good following the ideal weather conditions in the local area over the past 12 months. New recruitment was observed to occur in available soil pockets together with new growth on most established plants including presence flower buds. Mosses and lichens were present on both rock platforms.

***Melaleuca deanei* (propagated and planted specimens)**

Since 2017, 52 propagated and planted *Melaleuca deanei* plants are alive and are thriving in various locations around the Old Northern Road quarry premise. Locations include different areas in the NVC.

In June 2022, the parent plant of *Melaleuca deanei* located in the Banksia heath plant community on Lot 2 strip 2 had been translocated to the NVC following the success of the 2:1 offset of propagation and planting. The translocated parent plant suffered damaged to the main tap root which caused a die back. New recruit or possibly regrowth have been observed growing from the translocated root stock. However, these new recruits have perished during this reporting period.

The 2:1 offset ratio requires 36 plants to be propagated and planted. This offset ratio has been achieved and currently, a total of 52 propagated *Melaleuca deanei* specimens are present on site and showing signs of active growth.

Tetratheca glandulosa

Several *Tetratheca glandulosa* plants have been identified in Quadrat 2 during this period including occurrence of *Pimelea curviflora var curviflora specimens*.

7.3.4 Threatened Fauna Monitoring

Old Northern Road Quarry

Feed trees for Glossy Black Cockatoo are confirmed to be present in transect 2 of the NVC and within the 250m buffer to the Maroota Public School. It is common for this species to return to the same stand of feed trees repetitively. However, there were no birds observed feeding in these trees during this reporting period. However, the Glossy Black Cockatoos have been noted flying overhead at other times throughout the year.

A pair of resident Wedge-tailed eagles were again observed flying over the site several times during this monitoring period. A White Breasted Sea Eagle was also observed flying over the quarry during this reporting period. A Red-bellied black snake and an Australian Water Dragon were frequently sighted around the edge of the bushland behind the tailings ponds. A brush-tailed Wallaby was recorded within the rehabilitation area and the NVC. Scats from the Common Bush-tailed Possum were also found within the NVC and 250m Maroota School buffer quadrats.

Bat survey utilising Anabat express sound recorder was not undertaken this reporting period within the Old Northern Road premise due to equipment being misplaced by the servicing company. Bat survey will resume in the next monitoring period.

The full list of fauna observed on site during this reporting period is contained in Appendix H.

Haerses Road Biodiversity Offset Area

There is a historic Bionet record of a Koala and Glossy Black Cockatoo sighting to the north of HRBOA towards Hitchcock Road.

A search for Koala scat under *Eucalyptus punctata* within all survey quadrats at the HRBOA were undertaken and no scats were present. However, Koala sightings in the local area, particularly in Glenorie, have increased since the Wollemi/Yengo mega bushfire over the spring-summer of 2019 – 2020.

Glossy Black Cockatoo feed trees were recorded in Quadrat 1.

Several Brown Treecreepers were again observed foraging at various locations which indicate their permanent presence and residents within the site.

Infra-red motion detection camera was installed within the HRBOA for 30 days and nights. Images of the Swamp Wallaby were again captured during this survey period.

The Dural Land Snail (*Pommerhelix duralensis*) was identified during the previous 2019 and 2024 survey within the HRBOA. During the flora survey, a search of the species was undertaken again this year under leaf litter, particularly around rocks and crevices. Shell castings of the Dural Land Snail were successfully located which is a strong indication that the species is persistent within this location and a healthy population is likely to exist.

Bat survey utilising Anabat express sound recorder was not undertaken this reporting period within the HRBOA due to equipment being misplaced by the servicing company. Bat survey will resume in the next monitoring period.

7.3.5 Exotic Flora

The weed distribution map has been reviewed during this reporting period which is contained in Figure 10. Weed species identified on this map will be the focus of weed management priority over the next reporting period. The map will continue to be reviewed and revised as required on an annual basis. There has been a slight change to the weed density from the previous year, with a reduction in Whiskey Grass due to committed efforts to eradicate the species within the rehabilitation areas.

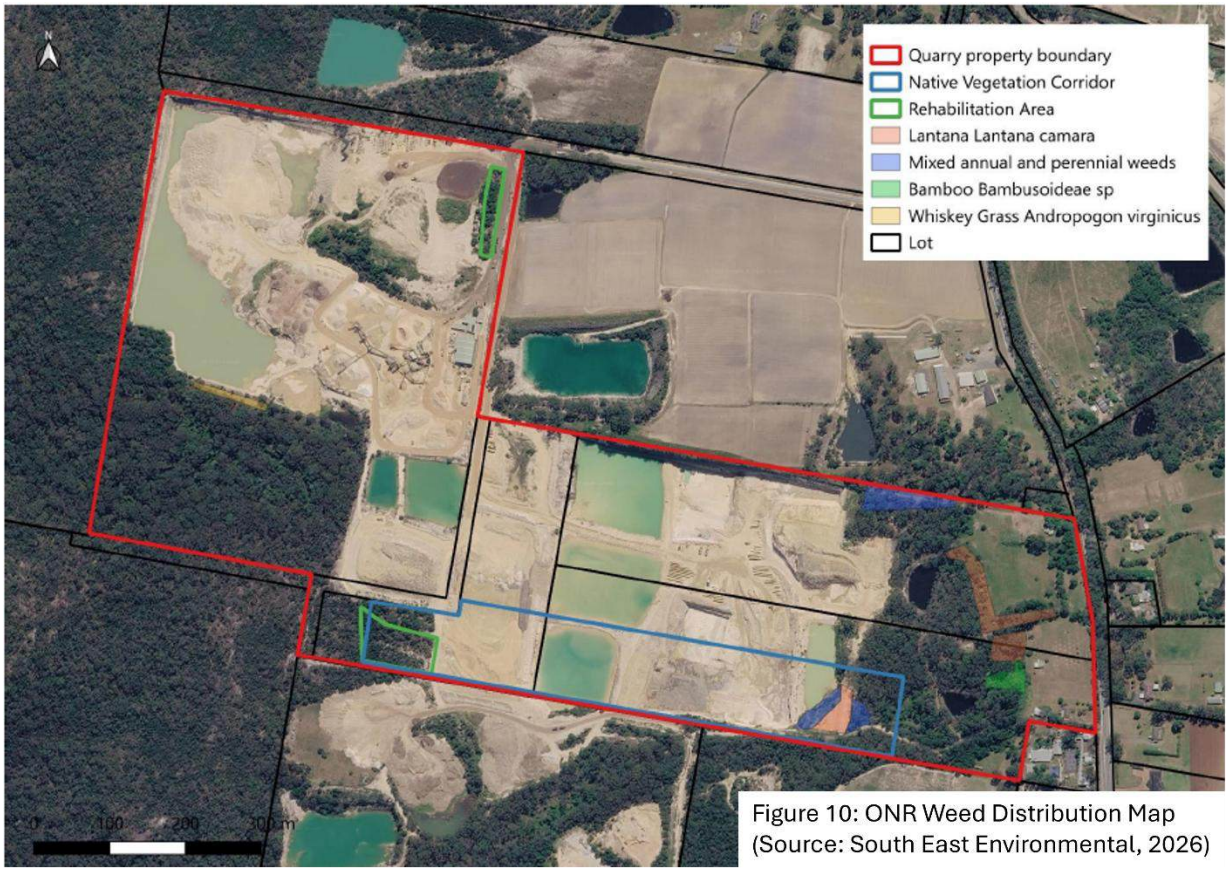


Figure 10: ONR Weed Distribution Map
(Source: South East Environmental, 2026)

The following weed species were identified within the 250m buffer area, NVC and Lot 196 at the Old Northern Road Quarry:

- *Ageratina adenophora* (Crofton Weed),
- *Andropogon virginicus* (Whiskey Grass),
- *Bidens Pilosa* (Coblers Pegs),
- *Paspalum dilatatum* (Paspalum Grass),
- *Senecio madagascariensis* (Fireweed), and
- *Lantana camara* (Lantana)

Fireweed and Lantana are listed as Weeds of National Significance (WoNS) under the NSW *Biosecurity Act* 2015 and a weed management program is currently put in place for these species throughout the life of the rehabilitation plan.

One High Threat Weed (HTW) has been identified within the HRBOA, Whiskey Grass (*Andropogon virginicus*).

Current progress of rehabilitation corresponds to the 'Mid stage 2016 – 2023' staging of rehabilitation and rehabilitation strategy contained in Table 7.1 of the BRMP which includes:

- completion of rehabilitation on selected extracted areas on Lots 196 and 29,
- commencement of rehabilitation on strip 1,
- continual extraction on strips 2 and 3, and
- maintenance of previous revegetation, setbacks, buffer zones and bunds.

7.3.6 Pest Species Monitoring and Control

Feral pest species monitoring was undertaken by South East Environmental utilising infrared cameras, sand/mud plots, direct observation of prints and burrows, scat identification and digs.

The following feral pest species were identified to be present on the quarry premise:

- European Red Foxes – identified through sand plot prints
- Noisy Minor – identified through on-site observation,
- Dogs – identified through prints
- European Rabbit – identified through scats, and
- Deer - prints

European rabbit scats were observed in several locations within the NVC and 250m school buffer in low density. Carnivore scats observed on site were highly likely to be those of European Red Fox. No rabbits were observed to be feeding during the day, scats were not in high density and warrens were not observed. The population of rabbits is therefore, considered to be low, and likely to be kept under control by biological means such as predation from foxes, dogs, cats and birds of prays such as Wedge-tailed Eagle that are present nearby. Should the number of rabbits become problematic, it may be necessary to engage in a control program to reduce or eliminate the population.

Noisy minors were observed in lower numbers within the NVC and the 250m buffer area. Noisy minors are considered a pest if present in high density and is a key threatening process to a number of threatened native species of small birds such as the Brown Tree Creeper which is present in the HRBOA. The population of the Noisy Minor was considered to be small and lower than those recorded in the previous years. This could be attributed to continued effort to control Lantana in the area. Noisy Minors favours habitats within open understory or an understory of one dominant species, enabling them to intimidate other bird species. The management of Lantana by the contracted Bush regenerator allows restoration of understory species diversity which allows a broader range of bird species to inhibit. Several small and medium bird species have been observed within the NVC and 250m school buffer during this period. Nevertheless, the population of the Noisy Minor will continue to be monitored over time and management strategy to be implemented to prevent the species from becoming dominant which can lead to elimination and displacement of other native bird species.

Deer prints were located within the drainage line crossing to quadrat 4 within the HRBOA. This is the first year deer prints have been recorded on site. An increased in deer sighting has been occurred in the Maroota area.

7.3.7 Progressive Rehabilitation

Progressive rehabilitation of the quarry during this reporting period included:

- Continued capping and compaction of the silt ponds located on Lot 196 directly north of the current Native Vegetation Corridor (NVC). Part of the silt pond will form the northern boundary of the NVC, and the remainder will be revegetated to Class 4 Agriculture.
- Continued capping and compaction of the silt pond located on Lot 29 directly east of the current haul road separating Lots 29 and 196. Once optimal status is obtained, stockpiled windrows of material and topsoil will be applied to this area for rehabilitation of Banksia Heath Community, extending east from the current NVC on Lot 29.

The locations of the silt ponds undergoing capping and compaction are shown in Figure 11 below.

No revegetation was able to be carried out for rehabilitation of the silt ponds during this reporting period as further settlement, stabilisation and compaction of the silt ponds are required in order to support top dressing of topsoil and revegetation material.

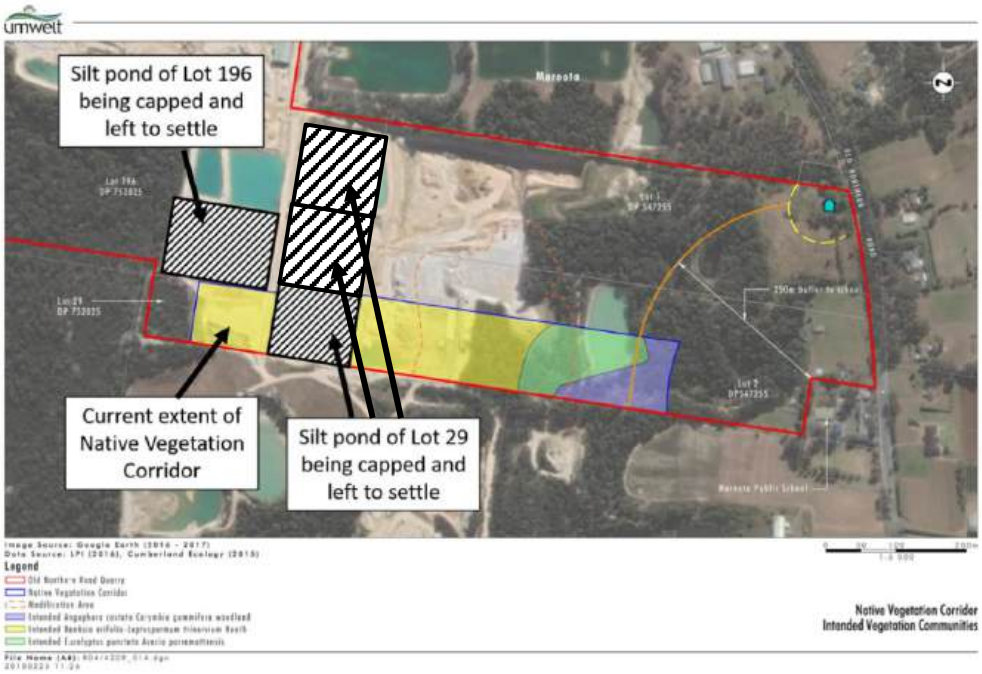


Figure 11: Locations of silt ponds undergoing capping and compaction in 2026, in preparation for future rehabilitation.

7.3.8 Progressive Achievement of Completion Criteria

Section 5.2 of the BRMP contains the preliminary rehabilitation performance and completion criteria. The status of targets being achieved against the preliminary rehabilitation performance and completion criteria are contained in Table 33.

Table 33: Assessment against criteria to monitor success of rehabilitation.

Aspect	Preliminary Rehabilitation Performance and Completion Criteria	Target Achieved	Comments
Decommissioning	All surface infrastructure will be decommissioned and removed.	N/A	Noted – completion criteria not yet triggered
Soil	Rehabilitated slopes are stable	Yes	Complied with – managed through a combination of weekly and monthly inspections by Quarry Managers and Environmental Officer, or Delegates. Aspects managed through mitigation measures contained in the Soil and Water Management.
	No significant erosion is present that would constitute a safety hazard or compromise the capability of supporting the end land use.		
	Contour banks are stable and there is no evidence of overtopping or significant scouring as a result of runoff.		
	Surface layer is free of any hazardous materials.		
Water	Runoff water quality from the site does not pose a threat to downstream water quality.	Yes	Complied with - aspect managed through downstream surface water monitoring, and other mitigation measures contained in the Soil and Water Management.
Native Vegetation	Revegetation areas contain flora species assemblages characteristic of the desired native vegetation communities.	N/A	At this stage it is too early in the rehabilitation process to determine if the desired vegetation community is being established. Species planted in the NVC have been specifically chosen to recreate a Banksia Heath community. The vegetation community developing within the soil seed bank rehabilitation area is starting to demonstrate a characteristic vegetation assemblage of a Banksia Heath community.
	Second generation tree seedlings are present or likely to be, based on monitoring in comparable older rehabilitation sites (i.e., evidence of fruiting of native species observed).	N/A	It is too early in the rehabilitation process for second generation tree seedlings. Fruiting of tree species has only just commenced therefore this KPI is likely to be achieved within the next 1-2 years.

Aspect	Preliminary Rehabilitation Performance and Completion Criteria	Target Achieved	Comments
	More than 75 per cent of trees are healthy and growing as indicated by long term monitoring.	Yes	More than 75% of the native vegetation within the active rehabilitation area is healthy and is growing as expected for long term survival. All shrub and ground cover species have reached maturity with flowering and seed production observed. Some species have begun self-propagation within rehabilitation sites. *Eucalyptus*, *Angophora* and *Corymbia* species have now reached maturity and observed to be flowering.
	More than 50 per cent of translocated or propagated threatened flora species survive as indicated by long term monitoring.	Yes	More than 50% of translocated and planted propagated threatened flora species has survived despite the extreme weather conditions of the past reporting periods. To date, at least **45** propagated *Darwinia fascicularis subsp. Oligantha* and at least **52** propagated *Melaleuca deanei* have survived transplanting in the rehabilitation area. A complete count of translocated *Darwinia fascicularis subsp. Oligantha* was not undertaken at the time of relocation however it appears that any losses that may have occurred were minimal and new recruits are now visible throughout much of the area.
	There is no significant weed infestation such that weeds do not comprise a significant proportion of species in any stratum.	Yes	There is no significant weed infestation within the rehabilitation area. Significant weed infestations are located within the future area designated for NVC rehabilitation. These areas are being actively addressed by weed management contractors.
Stream and Riparian Zone Restoration	Drainage line stable displaying no signs of erosion	N/A	Noted – aspect not yet triggered.
	Weed species densities no greater than surrounding vegetation		
	Access to riparian zone is restricted		
	Riparian zone established to a width of 20 metres		

Aspect	Preliminary Rehabilitation Performance and Completion Criteria	Target Achieved	Comments
	Riparian zone is considered self-sustaining and exhibits 60% or more of the control site scores for each riparian condition monitoring attribute		
Weed and Pests	Regular inspections indicate a decline weed diversity, density and abundance and a decline in signs of feral animal activity.	Yes	There were very few weed species identified within the rehabilitation area. There are no signs of feral animal activity.
	There is no significant weed infestation such that weeds do not comprise a significant proportion of species in any stratum.	Yes	There is no significant weed infestation within the rehabilitation area. Significant weed infestations are located NVC but outside the rehabilitation area. These areas are being actively addressed by weed management contractors.
	There is no evidence of significant damage resulting from feral animal activity	Yes	There is no evidence of significant damage caused from feral animal activity within the rehabilitation area. Native herbivores such as Wallabies and Possums are active within the rehabilitation area with some predation observed, however not so severe to be considered problematic.
Bushfire Hazard	Appropriate bushfire hazard controls have been implemented.	Yes	Complied with – bushfire hazards are managed through the Bushfire Management Plan (Parts 1 and 2).
Ongoing Public Safety	Appropriate mechanisms are established to control access and manage public safety post-closure.	N/A	Noted – aspect not yet triggered

7.3.9 Stream Restoration

Riparian stream restoration has not commenced. The areas where the riparian stream was to be reinstated are either still being extracted or yet to be extracted.

7.3.10 Discussion and Recommendations

The annual biodiversity monitoring and rehabilitation management report undertaken by South East Environmental for this reporting period marks the ninth year of monitoring and reporting for the quarry. The slightly lower than average rainfall over this reporting period provided on-going ideal growing conditions and stabilisation of the rehabilitation areas of the NVC. Vegetation within all stratums continue to show an increase or stabilised in size, maturity and density over the last twelve months. New juvenile recruits can be observed within the shrub layer but a slight decline in groundcover species diversity.

Other vegetation within the Old Northern Road quarry have shown to recovered well from previous drought conditions from the 2017-2019 ad wet conditions of 2020-2022. The below average rainfall over the past 12 months continued to provide ideal growing conditions for native vegetation. Resilience has been observed in native vegetation within areas of no weedy growth, with no new weed growth or establishment of weed following the return of regular and above rainfall events.

Vegetation changes within the HRBOA are observed to be minimal which provides a good demonstration of the hardiness of native vegetation stand with minimal historic disturbances. Similarly, a slight decrease in shrub and groundcover species density since the previous reporting period has been observed, likely attributed to a change in condition from above average rainfall to below average rainfall during this reporting period. This slight decline in species is expected to have reached its peak with returning average climatic condition and demonstrate the species' requirement for fire to persist within its environment long term.

The threatened *Kunzea rupestris* located west of the NVC have been affected by the prolonged drought conditions of 2017-2019 and wet conditions of 2020-2022. The *Kunzea rupestris* was adversely impacted by the drought, particularly from radiant heat reflection from the surrounding sandstone outcrop. New juvenile recruits have been recorded due to continued regular rainfall.

Other threatened species previously recorded on site were located and appear to be in a healthy state.

Management of Lantana within the NVC and 250m school buffer area at the Old Northern Road Quarry will be continuing to be the priority for bush regeneration contractors to prohibit the spread of the weed into new areas which can form potential habitat for exotic fauna such as the European Red Fox and European Rabbit. Climatic conditions supporting Lantana growth has impacted on the progress of Lantana eradication on site.

A silt pond directly east of the NVC rehabilitation area is the designated area for continuing the NVC rehabilitation. Rehabilitation was scheduled to commence this reporting period however due to the prolonged wet weather conditions experienced previously, there has been a delay in the silt pond final capping, sufficient evaporation and stabilisation. It is anticipated that rehabilitation in this area can commence during the next reporting period. Rehabilitation will also focus on the western embankment at the front entrance to the quarry site.

The other two silt ponds located on Lot 29 are also reaching their final stages of capping and will be rehabilitated to Class 4 Agriculture when optimal compaction and stabilisation are achieved.

Continue with supplementary planting within the rehabilitation area and locations within the NVC and 250m buffer to the school where Lantana has been removed.

7.4 Change in Environmental Procedures

Old Northern Road NVC Rehabilitation Area

- Continue to monitor and manage competitive native species and trees by culling to optimise growth of native species including the planted and translocated threatened species.
- Continue with routine weed control (particularly perennial grass such as Cynodon dactylon – Couch grass) and monitoring of regenerating native species,
- When the capped siltponds to the east of the NVC are deemed suitable to commence rehabilitation, the brushed-matt materials from the stockpiles will be spread and supplementary planting of canopy species propagated by the nursery utilising seeds collected from site,

- Re-marking of the planted Melaleuca deanei

Old Northern Road Lots 1 and 2

- Seed collection for nursery propagation to be used for supplementary planting in existing or future rehabilitation areas,
- Supplementary planting or similar treatment in identified areas as required,
- Continued management of *Lantana camera* and review techniques recommended in the Ecological Monitoring Report (South East Environmental, 2026), and
- Continued management of other weed species including exotic grasses.

Old Northern Road other areas

- Continue with routine management of Whiskey Grass along the southern boundary of Cons Hill (formerly Lot 196) and carry out direct seeding or supplementary planting of remnant canopy species and competitive native grasses (such as *Imperata cylindrica*) to revegetate compacted areas, exposed areas and edge areas as required.

Haerses Road Biodiversity Offset Area

- Continue with management of invasive grass and annual species along the western border of the HRBOA. and
- Investigate the potential to carry out an ecological burn in accordance with EHG's guidelines.

Front Gate Embankment

- Ongoing maintenance of exotic grassed utilising brush cut, manual removal and spot spraying before setting seed methodology.
- Undertake supplementary planting in exposed areas to reduce the spreading of invasive grasses.

8. Community and Social Impacts

8.1 Compliance

Dixon Sand is required to adhere to the following community related consent conditions:

Table 34: Community related consent conditions

Development Consent	Consent Condition	Requirement	Compliance
DA250-09-01	Condition 8 of Schedule 5	The Applicant must establish and operate a Community Consultative Committee (CCC) for the development to the satisfaction of the Secretary. The CCC must be established by 10 October 2018 and operated in general accordance with the Department's Community Consultative Committee Guidelines, November 2016 (or later version). Notes: • The CCC is an advisory committee. The Department and	The current CCC members were re-appointed by the DP&E on 1st March 2018 (note joint CCC for the Old Northern Road and Haerses Road quarries). Additional members have been endorsed by the Chair Person after this date.

Development Consent	Consent Condition	Requirement	Compliance
		other relevant agencies are responsible for ensuring that the Applicant complies with this consent. • In accordance with the guidelines, the Committee should comprise an independent chair and appropriate representation from the Applicant, Council and the local community. • The CCC established and operated prior to the approval of Modification 5 must continue to be operated in accordance with the procedures required by the consent prior to the approval of Modification 5 until such time as the CCC required by this condition is established.	
DA250-09-01	Condition 1(e) of Schedule 5	describe the procedures to be implemented to: • keep the local community and relevant agencies informed about the operation and environmental performance of the development. • receive, record, handle and respond to complaints. • resolve any disputes that may arise during the course of the development. • respond to any non-compliance. • respond to emergencies; and	Refer to the Environmental Management Systems
DA165-7-2005	Condition 1(e) of Schedule 5		
DA250-09-01	Condition 1(f) of Schedule 5	include a Community Relations Plan, developed in consultation with Council, the CCC, and the Maroota Public School, which includes: • identification of stakeholders potentially affected by the development. • detailed strategies to ensure open communication between the Applicant, the community and Maroota Public School. • detailed strategies to monitor and evaluate social impacts of the development on the local community and Maroota Public School; and • measures to improve community relations including: o quarry open days and education sessions to promote better understanding of quarry operations in the wider community. o participation in community activities; and o strategies involving in-kind exchanges of expertise and resources for activities such	The Community Relations Plan is included as Appendix 11 of the Environmental Management System

Development Consent	Consent Condition	Requirement	Compliance
		as bush regeneration, Landcare, Streamwatch, and other community-based environmental programs.	
DA165-7-2005	Condition 8 of Schedule 5	The Applicant must establish and operate a Community Consultative Committee (CCC) for the development to the satisfaction of the Secretary. The CCC must be established by 30 June 2018 and operated in general accordance with the Department's Community Consultative Committee Guidelines, November 2016 (or later version). Notes: • The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent. • In accordance with the guidelines, the Committee should comprise an independent chair and appropriate • representation from the Applicant, Council and the local community. • The CCC established and operated prior to the approval of Modification 1 must continue to be operated in accordance with the procedures required by the consent prior to the approval of Modification 1 until such time as the CCC required by this condition is established. • The Applicant may, with the approval of the Secretary, combine the function of this CCC with the functions of other CCCs in the area.	The current CCC members were re-appointed by the DP&E on 1st March 2018 (note joint CCC for the Old Northern Road and Haerses Road quarries). Additional members have been endorsed by the Chair Person after this date.

8.2 Complaints and Follow-up Actions

Two complaints were received for the Old Northern Road Quarry during the 2025 – 2026 reporting period.

Table 35: Complaint received during the reporting period

Complaint 1	
Date complaint received	10 September 2025
Issue	PF Formation received a complaint from the public regarding a haulage truck driving over the speed limit and in an erratic manner.

Recommended Action(s)	Dixon Management to: • investigate the supplied photo and identify the location of the incident • contact the truck company and inform them of the complaint • enforce the relevant procedure.
Outcome	The location of the incident was identified to be outside of Maroota area in Glenorie. As this is outside of the local Maroota area, the truck company is responsible for implementing their internal company complaint protocol, investigation and disciplinary action. Dixon's Management contacted the truck company and informed them of the specifics of the complaint. No further action required.
Close out Date	11 September 2025
Complaint 2	
Date complaint received	23 October 2025
Issue	EPA received a complaint from the public regarding dust and sand tracked from local quarries onto Old Northern Road and Wisemans Ferry Road in Maroota. On 16 October 2025, EPA officers inspected this area and observed dust and sand being tracked onto Old Northern Road from the Dixon Sands premises. EPA requested a response containing the results of the investigation into this matter and any action taken to prevent the tracking of dust from the premises onto local roads in this area.
Recommended Action(s)	Dixon Management to: • investigate the area associated with the complaint and initiate prompt cleanup • Dixon Management to provide response to EPA's request for information • Dixon Management to carry out a review of the internal dust/sediment monitoring procedure
Outcome	• Sediment at intersection of Old Northern Road and Quarry access road is cleaned up. • Complaint details discussed during the CCC meeting on 05/11/2025, including the ongoing issue in relation to inadequate shoulder and road drainage infrastructure in the general Maroota area. It was noted that TfNSW will commence maintenance and shoulder/drainage works along sections of Old Northern • Road (including the section related to the complaint) on 11/11/2025. • Response submitted to EPA on 06/11/2025, noting the sediment cleanup and ongoing issue with inadequate road shoulder and drainage infrastructure since the 2022 floods. • Toolbox talk carried out for staff and operators at both Old Northern Road and Haerses Road quarries, regarding the complaint, dust/sediment monitoring and cleanup, procedures, dust/sediment mitigation.
Close out Date	6 October 2025

A copy of the complaints register for this reporting period is contained in Appendix K.

8.3 Long Term Complaints Trend

Long term complaints monitoring data commencing since the 2003 – 2004 monitoring period is depicted in Chart 65 below. It must be noted that complaints were recorded for the Old Northern Road and Haerses Road quarries combined from the 2006 – 2007 to 2017 – 2018 monitoring periods, with complaints recorded separately for individual quarries from hereon.

A total of twenty-seven complaints have been received by Dixon sand since the 2003 – 2004 monitoring period to date.

The number complaints were between nil and up to three from the 2003 - 2004 to 2007 – 2008 monitoring periods, all of which were associated with haulage trucks driving in a dangerous manner or exceeding the speed limit.

During the 2008 – 2009 monitoring period, the number of complaints increased to six, with the majority associated with trucks driving in a dangerous manner or exceeding the school zone speed limit. One complaint was in regards to excessive noise generation where the source of noise was identified to be caused by a different operation.

From 2009 – 2010 to 2016 – 2017 monitoring periods, the number of complaints were minimal and fluctuated between nil and two. These complaints were associated with haulage trucks driving in a dangerous manner or exceeding the speed limit.

The 2016 – 2017 monitoring period recorded an increase in number of complaints to eight complaints which were associated with haulage trucks driving in a dangerous manner, excessive noise generation, operation outside of approved hours and excessive dust generation.

From this point, a downward trend in number of complaints was observed. The number of complaints received reduced to five haulage truck related complaints during the 2018 – 2019 monitoring period. The number of complaints further reduced to two truck related complaints (exceedance of speed limit) during this 2019 – 2020 monitoring period.

One haulage truck complaint (dangerous driving) was received during the 2019 - 2020 monitoring period.

Three complaints were received during the 2020 - 2021 reporting period which were related to noise, sediment and haulage truck.

The majority of the complaints were made by residents of Maroota, residents of neighbouring suburbs or local road users. One complaint was made by Dixon Sand Quarry Manager. Timing of events leading to complaints were mainly during quarry operation hours with the exception of complaints associated with operations outside of consented hours.

The locations of haulage trucks driving in a dangerous manner, exceeding the speed limit or excessively using engine brakes were mainly on Old Northern Road and Wisemans Ferry Road in the local areas.

All complaints have been closed out.

Dixon Sand did not receive any complaints during the 2022 - 2023 and 2023 – 2024 reporting periods.

Dixon Sand received one complaint in relation to tracking of sediment offsite during the previous 2024 – 2025 reporting period.

Two complaints were received during this 2025 – 2026 reporting period which were in relation to truck and sediment/dust.

Dixon Sand implemented the steps to identify the validity of the complaints received and employed appropriate actions outlined in the complaints procedure and the Maroota Local Traffic Management Policy (inter-pit policy).

Several complaints were identified to have been associated with other operations within or outside the local areas.

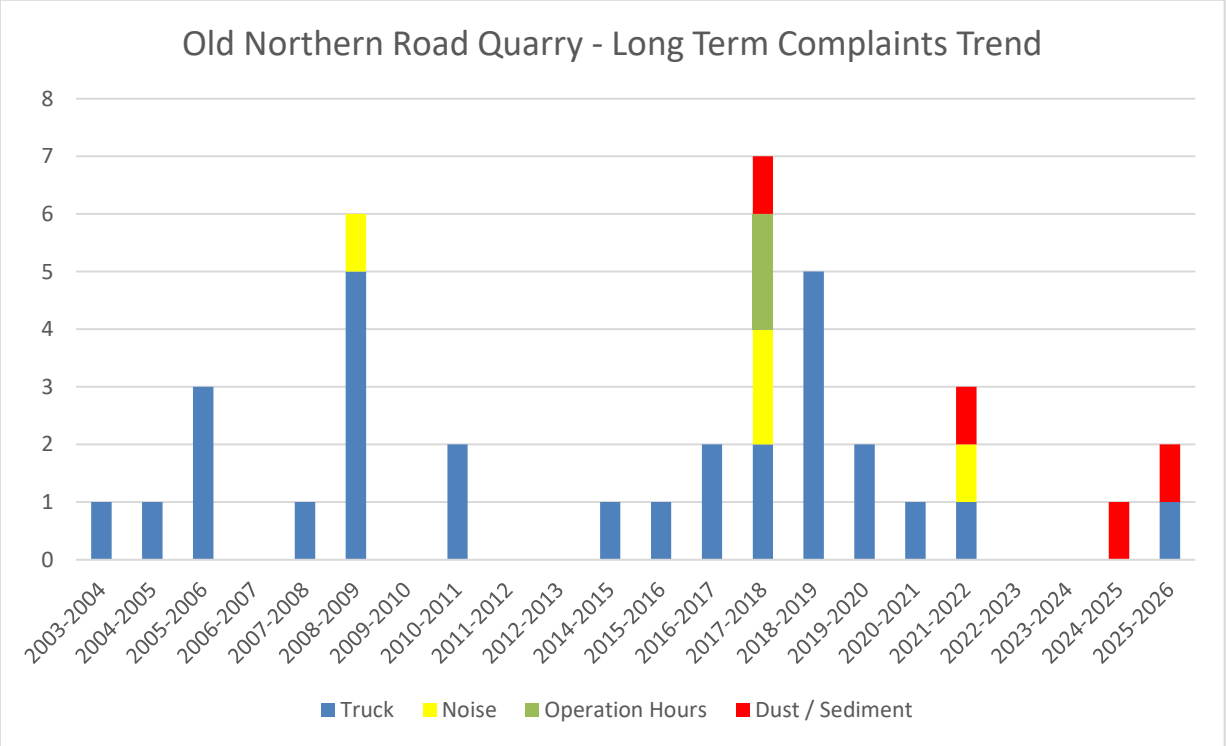


Chart 65: Long term complaints trend.

8.4 Community Consultative Committee, Meetings and Guidelines

Two CCC meetings were held in the 2025 - 2026 reporting period, in accordance with the consent conditions and CCC Guidelines (2023). The ordinary bi-annual CCC meetings were held on 5th November 2025 and 6th May 2026.

The minutes from the ordinary CCC meetings are provided in Appendix J.

8.5 Community and Stakeholder Liaison

In addition to engaging with the Community Representatives of the CCC, the local community is provided with an opportunity to comment on Dixon Sand's environmental performance through direct contact with quarry staff or through the contact portal via the company's website.

Stakeholder Liaison and Correspondences

Dixon Sand staff made contact with local community members on a number of occasions. These include:

- Notifying the Maroota Public School regarding noise monitoring undertaken in December 2025 and June 2026 and other matters relating to ground maintenance on school ground or in proximity to the school,
- Liaising with the neighbouring property owner to the Old Northern Road quarry regarding general infrastructure and road maintenance, and
- Bi-annual CCC meetings in November 2025 and May 2026

Local Initiatives and Community Contributions

Dixon Sand regularly makes monetary and resource contributions to a number of community initiatives and charities. Contributions made during this reporting period include:

- monetary donation and participation in the Maroota Public School's Annual Maroota Muster Festival,
- monetary donation to the Ronald McDonald House
- monetary donation to Royal Flying Doctor Service,
- monetary sponsorship of Sporting Individuals, teams and associations
- Christmas appeal for the Salvation Army, and
- publication of environmental monitoring data, and provision of all current consents and site management plans for public viewing on the Dixon Sand website.

8.6 Ecologically Sustainable Development

Ecologically Sustainable Development (ESD) can be defined as "using, conserving and enhancing the community's resources so that the ecological processes, on which life depends, are maintained and the total quality of life, now and in the future, can be increased" (Commonwealth of Australia, 1992).

The four principles of ESD are listed in Schedule 2 of the *Environmental Planning and Assessment Regulation* 2021 as follows:

- the precautionary principle;
- inter-generational equity;
- conservation of biological diversity and ecological integrity; and
- Improved valuation, pricing and incentive mechanisms.

Dixon Sand's Old Northern Road Quarry continues to manage all potential threats to the quality of the environment, determined with a reasonable degree of certainty through the use of scientific investigation and analysis of the individual and cumulative environmental impacts of the proposal.

Long-term environmental fluctuations have been, and will continue to be, monitored for the duration of extraction such as groundwater levels and quality, noise, air quality and threatened flora and fauna.

Threatened flora and fauna present on site are monitored annually to ensure they are not impacted by quarry activities. Similarly, noise and air quality monitoring will continue throughout the life of the developments. Mitigation measures are in place to minimise the potential adverse impacts likely to affect social and intergenerational equity. These measures relate to erosion and sediment control, surface and groundwater management, air quality control, and noise and waste management. Continual community relation strategies will ensure the community is well informed and has an effective means of voicing concerns and receiving feedback.

Dixon Sand aims to protect the biological diversity and ecological integrity of the sites through;

- progressive rehabilitation of the extracted areas using agricultural and native species;
- monitoring and maintenance of buffer areas to ecologically sensitive sites;
- establishment of native vegetation offset areas, biodiversity offset area and native rehabilitation areas to maximise native fauna habitats and enhance vegetation corridor for flora and fauna migration, and
- providing a final landform that integrates elements of the local area.

The value placed on environmental resources by Dixon Sand is represented as costs associated with the implementation of monitoring and mitigation measures throughout the life of the development consents.

8.7 Changes to Social Monitoring Procedures

No changes are proposed for the social management procedures.

9. Bushfire Management

9.1 Compliance

DA250-09-01 requires Dixon Sand to ensure that the Quarry is suitably equipped to respond to any fires on site. The Quarry is to assist the Rural Fire Service and emergency services to the extent practicable if there is a fire in the vicinity of the site.

A Bushfire Management Plan has been prepared for the Quarry.

10. Competency, Training and Awareness

The quarry management team is responsible for ensuring all personnel, including contractors, are provided with appropriate environmental training and awareness to ensure they understand their environmental awareness, responsibilities and how to mitigate the impacts. Training is undertaken using the following avenues:

- Compulsory site environmental induction for employees and contractors,
- Truck driver induction training,
- Pollution Incident Response Management Plan (PIRMP) and mock scenario training,
- Two-stage pre-clearing procedures and fauna handling and rescue procedures training,
- Permit to discharge protocols,

- Job Safety and Environmental Analysis,
- Environmental hazard identification workshop,
- Regular toolbox talks, and
- Emergency evacuation training.

11. Incidents and Non-Compliances

11.1 Environmental Incidents and Non-Compliances

Details of incidents and non-compliance are listed in Table 36 below.

Table 36: Incidents and Non-compliances

Date	Applicable Condition(s)	Details, Cause and Mitigation of Incident
31 March 2026	Condition 12 of Schedule 5 of DA 250-09-01	**Submission of 2025 - 2026 Annual Review after March 2026** Dixon Sand is required to submit the Annual Review for the Quarry by the end of March each year. The submission of this Annual Review at the end of September is technically non-compliant with the deadline required by the consent condition. However, Dixon Sand requested approval from the DPHI for the submission deadline of the Annual Review to be adjusted to reflect the financial year reporting. Approval was granted by the DPHI on 9 February 2018 to submit the Annual Review by the end of September each year. DPHI determined no breach of consent condition.
16 July 2026	Condition 13 of Schedule 2 of DA 250-09-01	**Submission of calendar year annual quarry production data to DRG** Dixon Sand contacted DRG asking the department to confirm the submission deadline for the Financial Year 2025 – 2026 minerals return. DRG notified Dixon Sand that submission of the Minerals Return form is no longer a requirement. Dixon Sand then notified DPHI Compliance Team and confirmed that the production data will still be reported in the Annual Review. DPHI acknowledged that reporting the production data through Annual Review is adequate. Refer to email from DPHI Compliance Team dated 6 August 2026.
26 June 2025 - 23 July 2025	Condition 7 of Schedule 3 of DA 250-09-01	DPHI notification and reporting not required as monthly dust deposition is compliant. Dust deposition gauge D1A (Front Gate – Access Road): • Monthly dust deposition = 2.6 g/m2/month • Rolling annual average dust deposition = 4.3 g/m2/month No consent breached. No further action required by DPHI. Incident closed out.
23 July 2025 - 20 August 2025	Condition 7 of Schedule 3 of DA 250-09-01	DPHI Notification and Reporting: **DA-250-09-01-PA-53** Dust deposition gauge D1A (Front Gate – Access Road): • Monthly dust deposition = 6.3 g/m2/month • Rolling annual average dust deposition = 4.6 g/m2/month Dust deposition gauge D6 (School):

Date	Applicable Condition(s)	Details, Cause and Mitigation of Incident
		• Monthly dust deposition = 43.7 g/m2/month • Rolling annual average dust deposition = 4.8 g/m2/month The exceeded monthly dust deposition at D1A is attributed to neighbouring farming activities. The exceeded monthly dust deposition at D16 is attributed to adjacent paddock being slashed. A different neighbouring property near the school was also being prepared for the annual Maroota Muster festival which was held on 14 August 2025. This involved extensive property slashing and construction of a driveway for festival attendees. No consent breached. No further action required by DPHI. Incident closed out.
20 August 2025 - 17 September 2025	Condition 7 of Schedule 3 of DA 250-09-01	DPHI notification and reporting not required as monthly dust deposition is compliant. Dust deposition gauge D1A (Front Gate – Access Road): • Monthly dust deposition = 1.3 g/m2/month • Rolling annual average dust deposition = 4.6 g/m2/month Dust deposition gauge D6 (School): • Monthly dust deposition = 0.7 g/m2/month • Rolling annual average dust deposition = 4.8 g/m2/month No consent breached. No further action required by DPHI. Incident closed out.
17 September 2025 - 15 October 2025	Condition 7 of Schedule 3 of DA 250-09-01	DPHI Notification and Reporting: **DA-250-09-01-PA-56** Dust deposition gauge D1A (Front Gate – Access Road): • Monthly dust deposition = 3.3 g/m2/month • Rolling annual average dust deposition = 4.6 g/m2/month Dust deposition gauge D6 (School): • Monthly dust deposition = 12.2 g/m2/month • Rolling annual average dust deposition = 5.6 g/m2/month The exceeded monthly dust deposition at D6 is likely to be attributed to a combination of factors including: The cause of the elevated monthly dust deposition result at D6 is likely to be attributed to a number of sources which include: • grass paddock surrounding dust gauge D6 had been slashed, as observed in the field during the dust gauge swap out by the contractor, • the farmland to the north of dust gauge D6 had been tilled resulting in extensive area of exposed dusty grounds, • The Rural Fire Service carried out bushfire mitigation works in close proximity to the Maroota Public School and dust gauge

Date	Applicable Condition(s)	Details, Cause and Mitigation of Incident
		D6. This included a whole day of tree and plant trimming and clearing of ground vegetation using whipper snipper, and • The Property owner located to the south-southwest of the school carried out lawn mowing on 13th October with dusty conditions observed on the day. No consent breached. No further action required by DPHI. Incident closed out.
15 October 2025 - 12 November 2025	Condition 7 of Schedule 3 of DA 250-09-01	DPHI Notification and Reporting: **DA-250-09-01-PA-57** Dust deposition gauge D1A (Front Gate – Access Road): • Monthly dust deposition = 1.5 g/m2/month • Rolling annual average dust deposition = 4.6 g/m2/month Dust deposition gauge D5 (Bundwall): • Monthly dust deposition = 4.6 g/m2/month • Rolling annual average dust deposition = 1.8 g/m2/month Dust deposition gauge D6 (School): • Monthly dust deposition = 2.3 g/m2/month • Rolling annual average dust deposition = 5.6 g/m2/month The exceeded monthly dust deposition at D5 is likely to be attributed to the extensive farmland tilling operation directly adjacent to D5. This resulted in large areas of surface disturbance, dust generation and the soil left exposed for a period of time. The forecasted gusty wind which moved across Sydney on 22 October 2025 may have contributed to picking up and depositing dust from the surrounding area. No consent breached. No further action required by DPHI. Incident closed out.
29 November 2025	Condition 7 of Schedule 3 of DA 250-09-01	DPHI not notified. The 24-hour average PM10 level reached 59.5 µg/m^3 which exceeded the 50 NEPM µg/m3 maximum criteria, as required in Table 3 of Condition 7 of Schedule 3 of the DA. The elevated PM10 was attributed to grass fire and bushfire burning on two properties adjacent to the Quarry, and potentially contributed by the neighbouring farming activities during this monitoring period. Grassfire and Bushfire are considered extra-ordinary events as defined in Note d of Table 3. Therefore, no consent condition has been breached. No further action required. Incident closed out.
12 November 2025 - 10 December 2025	Condition 7 of Schedule 3 of DA 250-09-01	DPHI Notification and Reporting: **DA-250-09-01-PA-59** Dust deposition gauge D1A (Front Gate – Access Road): • Monthly dust deposition = 3.6 g/m2/month • Rolling annual average dust deposition = 4.7 g/m2/month Dust deposition gauge D5 (Bundwall):

Date	Applicable Condition(s)	Details, Cause and Mitigation of Incident
		• Monthly dust deposition = 44.2 g/m2/month • Rolling annual average dust deposition = 5.3 g/m2/month Dust deposition gauge D6 (School): • Monthly dust deposition = 3.0 g/m2/month • Rolling annual average dust deposition = 5.7 g/m2/month The exceeded monthly dust deposition at D5 is likely to be attributed to dust generated by neighbouring farming operation. No consent breached. No further action required by DPHI. Incident closed out.
10 December 2025 - 7 January 2026	Condition 7 of Schedule 3 of DA 250-09-01	DPHI Notification and Reporting: **DA-250-09-01-PA-61** Dust deposition gauge D1A (Front Gate – Access Road): • Monthly dust deposition = 2.1 g/m2/month • Rolling annual average dust deposition = 4.2 g/m2/month Dust deposition gauge D5 (Bundwall): • Monthly dust deposition = 8.7 g/m2/month • Rolling annual average dust deposition = 5.8 g/m2/month Dust deposition gauge D6 (School): • Monthly dust deposition = 2.2 g/m2/month • Rolling annual average dust deposition = 5.7 g/m2/month The exceeded monthly dust deposition at D5 is likely to be attributed to dust generated by neighbouring farming operation and bare paddock adjacent to the dust gauge, which continued from the previously monitoring period where elevated monthly dust deposition at D5 was recorded. The quarry was closed from 23 December 2025 to 5 January 2026 for the annual Christmas holiday period. Therefore, the quarry was not operating on 13 days of the total 28 days of the monitoring period (not operating approximately 50% of the monitoring period). No consent breached. No further action required by DPHI. Incident closed out.
7 January 2026 - 4 February 2026	Condition 7 of Schedule 3 of DA 250-09-01	DPHI notification and reporting not required as monthly dust deposition is compliant. Dust deposition gauge D1A (Front Gate – Access Road): • Monthly dust deposition = 1.1 g/m2/month • Rolling annual average dust deposition = 4.1 g/m2/month Dust deposition gauge D5 (Bundwall): • Monthly dust deposition = 1.0 g/m2/month • Rolling annual average dust deposition = 5.7 g/m2/month Dust deposition gauge D6 (School):

Date	Applicable Condition(s)	Details, Cause and Mitigation of Incident
		• Monthly dust deposition = 2.9 g/m2/month • Rolling annual average dust deposition = 5.7 g/m2/month No consent breached. No further action required by DPHI. Incident closed out.
4 March 2026 - 1 April 2026	Condition 7 of Schedule 3 of DA 250-09-01	DPHI notification and reporting not required as monthly dust deposition is compliant. Dust deposition gauge D5 (Bundwall): • Monthly dust deposition = 0.9 g/m2/month • Rolling annual average dust deposition = 5.6 g/m2/month Dust deposition gauge D6 (School): • Monthly dust deposition = 1.9 g/m2/month • Rolling annual average dust deposition = 5.7 g/m2/month No consent breached. No further action required by DPHI. Incident closed out.
1 April 2026 - 29 April 2026	Condition 7 of Schedule 3 of DA 250-09-01	DPHI notification and reporting not required as monthly dust deposition is compliant. Dust deposition gauge D5 (Bundwall): • Monthly dust deposition = 0.7 g/m2/month • Rolling annual average dust deposition = 5.6 g/m2/month Dust deposition gauge D6 (School): • Monthly dust deposition = 2.9 g/m2/month • Rolling annual average dust deposition = 5.8 g/m2/month No consent breached. No further action required by DPHI. Incident closed out.
29 April 2026 - 25 May 2026	Condition 7 of Schedule 3 of DA 250-09-01	DPHI notification and reporting not required as monthly dust deposition is compliant. Dust deposition gauge D5 (Bundwall): • Monthly dust deposition = 1.8 g/m2/month • Rolling annual average dust deposition = 5.6 g/m2/month Dust deposition gauge D6 (School): • Monthly dust deposition = 0.5 g/m2/month • Rolling annual average dust deposition = 5.8 g/m2/month No consent breached. No further action required by DPHI. Incident closed out.

11.2 Notices issued by DPIRD

Dixon Sand received eleven notices under the *Work Health and Safety Act* 2011 from DPIRD (Resources Regulator) as detailed in Table 37 below.

Table 37: Notices issued by DPIRD (Resources Regulator)

Date Issued	Notice Reference	Issues	Status
5 September 2025	NTCE0018246- Section 191 Improvement Notice	ONR Processing Plant guarding and handrailing that does not comply with documented site standards to be audited and rectified	Closed
5 September 2025	NTCE0018257 - Section 23 Concerns	Wash screen electrical motor corrosion of the fan cover and Workshop electrical switchboards are not readily accessible	Closed
5 March 2026	NTCE0019613 - Section 191 Improvement Notice	ONR processing Plant requires structural audit and review of sites inspection program	Open
5 March 2026	NTCE0019614 - Section 191 Improvement Notice	Conduct on site testing of Welders. Include periodic testing of welders and ensure all electrical equipment is captured in testing	Closed
5 March 2026	NTCE0019617 - Section 23 Concerns	Review and updates required to the Fire or Explosion PHMP and Mechanical Engineering Control Plan. Several items in workshop and plant that were rectified on the day	Closed
5 March 2026	NTCE0019622 - Section 191 Improvement Notice	Inspect all rotating plant on site and install/secure guarding as required	Open
5 March 2026	NTCE0019623 - Section 191 Improvement Notice	ONR - Inspect all mobile plant on site and identify all pressure equipment including air receivers and accumulators	Closed
5 March 2026	NTCE0019624 - Section 191 Improvement Notice	Inspect light vehicle hoist stand conduct a Risk Assessment use of the hoist	Closed
5 March 2026	NTCE0019647 - Section 191 Improvement Notice	Processing Plant access ladders require safety bars, handrails to be placed in areas or replaced as required	Closed
5 March 2026	NTCE0019648 - Section 191 Improvement Notice	Small pedestal grinder concerns	Closed
5 March 2026	NTCE0019666 - Section 191 Improvement Notice	Review mechanical Engineering Control Plan re hydraulic hoses and control risk of oil injection on MEC Press	Closed

12. Independent Environmental Audit

12.1 Independent Environmental Audit Requirement

Condition 14 of Schedule 5 of DA 250-09-01 requires:

> *Within 12 weeks of commencing this audit, or as otherwise agreed by the Secretary, the Applicant must submit a copy of the audit report to the 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 these recommendations as required. The Applicant must implement these recommendations, to the satisfaction of the Secretary.*

The appointment of R.W. Corkery and Co Pty Ltd (RWC) to carry out the 2025 Independent Environmental Audit (IEA) for Old Northern Road Quarry was approved by DPHI on 23rd October 2025.

The 2025 IEA covers the 3-year audit period between 19 October 2022 and 13 November 2025. The *Independent Environmental Audit: Old Northern Road Report* (RW Corkery & Co, February 2026, Document No. 1021/03) was issued to Dixon Sand on 2nd February 2026.

The *Response and Action Plan for the 2025 Independent Environmental Audit, Old Northern Road Quarry* document was prepared to provide Dixon Sand's response and proposed actions addressing the IEA findings, recommendations for non-compliances and suggested improvements as identified in *the Independent Environmental Audit: Old Northern Road Report* (RW Corkery & Co, February 2026, Document No. 1021/03).

The IEA report and Response and Action Plan report were submitted to the DPHI on 4th February 2026.

The status of the proposed actions to address the 2025 IEA's recommendations and suggested improvements are detailed in Tables 38 and 39.

The next IEA is scheduled to be undertaken late 2028.

Table 38: Status of Proposed Actions in response to the 2025 IEA Recommendations

ID	Consent Condition(s) relevant to Non-Compliance	IEA Comments and Recommended Action	Dixon Sand's Proposed Action, Implementation Timeframe and Status
ONR R1/25	Sch 3 Cond 16(d)	The survey marker on the northern wall of the extraction area within Lot 1 (or suitable alternative) should be reinstated to ensure that the process for ensuring approved extraction depth is not exceeded. *It is advised that the previously established marker was removed during works to establish Silt Pond No. 6. This survey marker forms part of the approved monitoring program (Section 5.2.2.1 of the SWMP) to ensure extraction does not exceed the extraction limits and is therefore required to be reinstated to enable continued implementation of the SWMP.*	**Proposed Action:** A new survey marker will be installed to replace the old survey marker **Implementation Timeframe:** Actioned on 27 January 2026. **Status - Closed** New survey benchmark installed on 27 January 2026.
ONR R2/25	Sch 3 Cond 16(d)	Surveys of the completed extraction depth should be overlain over the maximum extraction depth mapping to demonstrate the final extraction depth is compliant with the approved maximum extraction depth. *Whilst a process is in place (Section 5.2.2.1 of the SWMP) to guide extraction to remain at or above the maximum extraction depth, the survey information provided was not in a form that could definitively confirm compliance with approved extraction depths. It is noted that additional surveys are not suggested, rather the existing survey data be presented in a manner to assist interpretation.* *For example, approved maximum extraction contours could be displayed in blue, final extraction depths in green and in progress contours in black, all with elevations in m AHD.*	**Proposed Action:** Surveys of the completed extraction depth to be overlain over the maximum extraction depth map. **Implementation Timeframe:** At the completion of each extraction stage / areas **Status - Open**
ONR R3/25	EPL Condition U1.4	The EPA should be requested to vary the conditions of EPL 3916 to update special Condition U1 regarding the air quality monitoring and assessment to reflect the agreed actions and update implementation timeframes as appropriate. (see also **Improvement ONR I7/25**). *A special condition was included in EPL 3916 12 September 2024 requiring a range of actions to assess air quality, implement a monitoring program and prepare an assessment report on the*	**Proposed Action:** Request an EPA EPL variation to remove/amend the condition wording to reflect the correct timing stipulated by the condition. Discussion with the EPA will confirm the appropriate condition wording. **Implementation Timeframe:** At the conclusion of the air quality impact assessment required under Condition U1, or as initiated at the next EPL variation.

ID	Consent Condition(s) relevant to Non-Compliance	IEA Comments and Recommended Action	Dixon Sand's Proposed Action, Implementation Timeframe and Status
		outcomes of the monitoring. Whilst the Company and its consultants submitted an assessment and program justifying alternative monitoring for EPA's review (in compliance with the requirements) EPA has not responded for >12months. This has resulted in an administrative non-compliance. In the event that EPA agree to the revised monitoring approach, this should also be reflected in the conditional requirements.	**Status - Closed** EPA issued an EPL3916 variation on 15 April 2026. Condition U1 has been removed.
ONR R4/25	Sch 3 Cond 21	DPHI should be consulted to confirm the requirement to record the unladen truck movement entry/exit times and, if required, an appropriate system implemented. *The current ClearWeigh system provides for recording of laden truck movements times as they cross the weighbridge, however, it does not provide for recording of the unladen movement time. Whilst the intent of DA Schedule 3 Condition 21 is to maintain accurate records of all laden movements it also specifies the requirement to record time of arrival and dispatch indicating the time of the unladen movement is also required to be recorded. In this case further upgrades to the current system will be required.*	**Proposed Action:** DPHI will be contacted the confirm the requirement to record unladen truck movement entry/exit times. **Implementation Timeframe:** Contact DPHI by 28 February 2026 **Status - Open** Following the IEA, Dixon Sand emailed DPHI on 28 February 2026. On 2nd June 2026 DPHI Compliance Officers undertook a site inspection. Dixon Sand and DPHI Compliance Officers discussed the requirement of Condition 21 of Schedule 3 which concluded that the consent condition only requires times for 'laden' trucks to be recorded. Awaiting formal response from DPHI.
ONR R5/25	Sch 3 Cond 25(c)	Continue to follow up with the DPHI to ensure that the Positive Public Covenant to provide long-term security of the Haerses Road Biodiversity Offset Area is fully processed to enable it to be implemented. *Dixon Sand has submitted all required information regarding the Positive Public Covenant to DPHI and awaits the Department's response in order for this matter to be finalised.*	**Proposed Action:** Contact DPHI to follow up on the status of their review. **Implementation Timeframe:** Contact DPHI by 28 February 2026 **Status - Open** Following the IEA, Dixon Sand emailed DPHI on 26 February 2026. Another follow up email was sent on 18 June 2026.

ID	Consent Condition(s) relevant to Non-Compliance	IEA Comments and Recommended Action	Dixon Sand's Proposed Action, Implementation Timeframe and Status
ONR R6/25	Sch 5 Cond 5(a)	The Department should be formally notified of all reviews of the Environmental Management Strategy and associated management plans in accordance with DA *Schedule 5 Condition 5*. *A total of 29 'incident' reports were submitted during the audit period. Review of the plans was formally submitted on one occasion (in conjunction with the review triggered by the Annual Review). Incident reports from 11 June 2024 onwards also included a note that the AQMP was under review and revision in consultation with EPA. However, previous reports did not include this, and it would be preferable to clearly identify that the review has been completed in accordance with Schedule 5 Condition 5.* *It is acknowledged that the incidents were not caused by Quarry activities and updates to the EMS and associated management plans were not likely required.*	**Proposed Action:** Notify DPHI that a review of the EMS and management plans have been reviewed following an incident. If any revision is required, ensure the revised document(s) is submitted within the required timeframe. **Implementation Timeframe:** From 4 February 2026 onwards (date in which this response is submitted to DPHI) **Status - Closed**
ONR R7/25	Sch 5 Cond 9	The Department should be notified immediately (in the manner agreed with the Department) of incidents and incident reports should specify when the Company became aware of the incident. *During the audit period a total of 29 'incident' reports were submitted during the audit period. Whilst incident reports were submitted as relevant these were submitted "to provide the specific details of the dust deposition exceedance as required by Conditions 9 and 10, Schedule 5". Whilst it is acknowledged that the reports were likely provided the same day as becoming aware of the exceedance* this does not technically meet the requirement to immediately notify.	**Proposed Action:** Notify DPHI of an incident immediately upon becoming aware of the incident. Record and include the date the incident was made aware of in the submission of the incident report. **Implementation Timeframe:** From 4 February 2026 onwards (date in which this response is submitted to DPHI) **Status - Closed**

Table 39: Status of Proposed Actions in response to the 2025 IEA Suggested Improvements

ID	IEA Comments and Suggested Improvement	Dixon Sand's Proposed Action, Implementation Timeframe and Status
ONR I1/25	A review should be undertaken of opportunities to reduce tracking / visible deposition of fines on the Quarry access road and intersection and identified actions implemented. *Whilst issues with sediments on Old Northern Road appear to be principally a result of the build-up of materials on the road shoulders which is to be addressed through TfNSW maintenance, minor tracking / deposition was observed on the northern (exit) side of the access road indicating the source is from Quarry activities (Photos E1021C_100, 101, 103 to 106).*	**Proposed Action:** The quarry will endeavour to ensure measures are undertaken to reduce tracking / visible deposition of fines on the Quarry access road and intersection, as reasonably practicable. Please note the Quarry access road traverses through active farmland which occupy both sides of the road which generate dust and contribute to dust settlement on the Quarry access road. **Implementation Timeframe:** From 4 February 2026 onwards (date in which this response is submitted to DPHI) **Status - Closed** Pull out bay on Quarry access road outside the front gate was sealed with rota mill on 19 February 2026
ONR I2/25	The dust diary, recording actions during dry and windy conditions, should be implemented as soon as practicable. *Whilst the draft updated Air Quality Management Plan remains with EPA for review, the Company advises that the dust diary procedure is planned to be incorporated into the daily and end of shift procedure/record keeping. This action is supported and this improvement included to provide a means to track implementation.*	**Proposed Action:** Dust diary will be utilised to record adverse weather especially during dry and windy conditions, together with any modifications of quarry operations prior to or as a result of the adverse weather condition. **Implementation Timeframe:** From 4 February 2026 onwards (date in which this response is submitted to DPHI) **Status - Closed** Commenced implementation of Dust diary post EPL variation (dated 15 April 2026) being issued.

ID	IEA Comments and Suggested Improvement	Dixon Sand's Proposed Action, Implementation Timeframe and Status
ONR I3/25	A survey should be undertaken at completion (or completion of sections) of the 5m bunding within Lots 1 and 2 to confirm the final bund height meets the requirement. *Construction of the bunding on the eastern extent of Lots 1 and 2 commenced during the audit period. Whilst it appears to be compliant this should be* confirmed through measurement.	**Proposed Action:** Survey will be undertaken at the completion of the bund to confirm the height requirement. **Implementation Timeframe:** At the completion of the bund construction. **Status - Open**
ONR I4/25	The Noise Management Plan should be updated to include management measures for the introduction of new and potentially noisy items of equipment or undertaking new tasks where operating circumstances are different to those previously encountered. Measures should include review of the sound power level (either supplied by the manufacturer or measured on-site) and, where appropriate, testing of equipment / operational circumstances within a shielded location or at a time when all other equipment is not operating. *These measures were previously recommended in response to measured noise exceedances recorded in December 2019 and June 2021. Whilst introduction of new items of equipment or processes is not a common practice, inclusion of relevant measures within the NMP will act as a prompt in the future should this occur.*	**Proposed Action:** Update the Noise Management (and any relevant internal protocol) to include a procedure to review the noise specifications of any new equipment against the Maximum operating sound power level. **Implementation Timeframe:** Post IEA - review of the EMS and Management plan. **Status - Closed** Dixon Sand submitted the revised Noise Management Plan (V4, dated 11 June 2026) on 15 June 2026. DPHI approved the Plan on 31 July 2026.
ONR I5/25	During the next review and update of the Environmental Management Strategy and associated management plans updated figures should be prepared showing the latest aerial photography. *The current EMS and management plans principally include figures with aerial photography dated 2016. Whilst not required for compliance, as a management tool it is helpful to see approved boundaries and monitoring locations etc in the* context of the current site status.	**Proposed Action:** Figures to be updated in the next review and revision of the EMS and relevant management plans. **Implementation Timeframe:** Post IEA - review of the EMS and Management plan. **Status - Closed**

ID	IEA Comments and Suggested Improvement	Dixon Sand's Proposed Action, Implementation Timeframe and Status
		Dixon Sand submitted the revised EMS (V6, dated 12 June 2026) on 15 June 2026. DPHI approved the EMS on 31 July 2026.
ONR I6/25	During the next period of bund construction, consideration should be given spreading of topsoil material over all parts of the completed bund that have not yet revegetated. Alternatively, spreading of appropriate seed, mulch/cuttings may be undertaken. *It was advised that the new bunding on the eastern limit of extraction within Lot 1 and 2 will self-seed from the adjacent vegetation. Whilst there is some evidence of self-seeding this remains limited despite a substantial period of time since formation (Photos E1021C_030 and 031).*	**Proposed Action:** At the next bund construction phase, appropriate cover crop seeds to be spread where it is deemed safe to undertake seed spreading operation. There may be areas that are deemed unsafe due to the location and height of the bund, relative to the extraction pit face. **Implementation Timeframe:** During the next bund construction phase **Status - Open**
ONR I7/25	The AQMP should be updated as appropriate to reflect relevant outcomes / updates to air quality management and monitoring arising from the assessment and monitoring program required by EPL 3916 Condition U1. If required, EPA should be requested to reference the AQMP required by DA 250-09-01 rather than requiring a separate document be prepared for ongoing management / monitoring. *Whilst EPA have requested the assessment and monitoring program, the management and monitoring outcomes should ideally be managed through a single document to remove redundancy and potential for inconsistencies. It is noted that updates to the AQMP required by DA 250-09-01 are required to be undertaken in consultation with EPA and therefore this should be a streamlined process.*	**Proposed Action:** The AQMP will be updated following the outcome of the review of the Air Quality Monitoring Program by EPA **Implementation Timeframe:** Post review of Air Quality Monitoring Program by EPA **Status - Closed** Dixon Sand submitted the revised Air Quality Management Plan (V5, dated 12 June 2026) on 15 June 2026. DPHI approved the EMS on 31 July 2026.
ONR I8/25	All monuments above the groundwater piezometers should be identified with a more permanent reference to the monitoring number.	**Proposed Action:** A more permanent labelling system will be implemented **Implementation Timeframe:**

ID	IEA Comments and Suggested Improvement	Dixon Sand's Proposed Action, Implementation Timeframe and Status
	Whilst all monuments inspected during the audit were observed to be labelled, some were labelled with felt pen, some of which were fading/wearing. A more permanent marking, such as engraving as per MW2, would be preferable.	30 June 2026 **Status - Closed** Borehole monument ID marking completed on 24 March 2026
ONR I9/25	The permitting requirements for relocating aquatic fauna and turtles from the onsite dams should be reflected in the appropriate documentation and Section 5.1.1 of the SWMP updated to cross reference this documentation. For example, this could be achieved through updating the pre-clearance protocols within the Biodiversity and Rehabilitation Management Plan. *The Company has appropriately consulted with DPI Fisheries to confirm the permitting requirements under the Fisheries Management Act 1994. To ensure that compliance is achieved in the future these requirements should be reflected in the appropriate documentation.*	**Proposed Action:** Section 5.1.1 of the SWMP will be updated to reflect the appropriate permitting requirements for relocating aquatic fauna and turtles, and include the outcome of the correspondence with DPHI Fisheries. A new procedure will be included in the Pre-clearance Permit to ensure consideration is given to the specific requirements when Quarry operation is impacting on dams and aquatic fauna. **Implementation Timeframe:** At the next review and revision of the EMS and Management Plans **Status - Open** Dixon Sand submitted the revised Soil and Water Management Plan (V6, dated 12 June 2026) on 15 June 2026. SWMP still in review with DPHI.
ONR I10/25	A review of the Company's system for reviewing / managing compliance items should be undertaken and updates made as needed that provide for practical system implementation. This may involve updates to the Monthly Site Condition Check List and/or utilisation of other internal systems. *Whilst the 2020 Monthly Site Condition Check List (forming part of the current EMS and provided on the Dixon Sand website) was updated 22 June 2023 the items and wording in the updated checklist remain the same as per the 2020 checklist.* *Whilst the checklist is comprehensive additional operational management commitments and/or details could be included / clarified (e.g. around*	**Proposed Action:** A review will be undertaken on the current effectiveness of the Monthly Site Checklist including potentially separating field-based versus a desktop-based. This may be incorporated into other internal system. **Implementation Timeframe:** 30 June 2026. **Status - Open**

ID	IEA Comments and Suggested Improvement	Dixon Sand's Proposed Action, Implementation Timeframe and Status
	maximum extraction depth checks which cannot simply be confirmed through visual inspection) or alternatively managed through a separate system. It is noted that some aspects of the checklist are more appropriately completed as a desktop exercise (which may not be required monthly) whilst others require on-ground confirmation. Notwithstanding this suggested improvement, the Company's efforts through the existing system are commendable.	
ONR I11/25	All documentation referred to in the Driver's Code of Conduct should be reviewed and updated, where appropriate. These include: • the Maroota Local Traffic Management Policy; • the Site Induction for Drivers; and • the Site Traffic Control Plan. Section 4 of the TMP, and the Table of Contents of the TMP, should also be updated to correctly identify appendices which form part of the Code and Section 5 updated to reflect the process for reinductions (and the records to be retained). Following the next update to the Code and subsequent re-induction program, a copy of the Code should be signed by a representative of the Company and the nominated driver, with a copy of the Code and all attachments held by both the Company and the driver. *The TMP has not been updated since the 2022 Independent Environmental Audit recommended improvement for review and update. It is important that all drivers sign a copy of the Site Induction and are given a full set of all documents.*	**Proposed Action:** The Driver's Code of Conduct forms part of both the TMP and Truck Driver Induction Package. A review of the Driver's Code of Conduct will be undertaken. Any changes will require a re-induction for Truck Drivers. Note it is company policy that if the Driver's Code of Conduct has not changed following a review then a re-induction is not required. **Implementation Timeframe:** 31 December 2026 **Status - Closed** Review of Driver's Code of Conduct undertaken on 12 June 2026 as part of the review of the Traffic Management Plan. No changes required.
ONR I12/25	The Biodiversity and Rehabilitation Management Plan should be reviewed and updated as required, in particular Section 7.1 which outlines the management measures to be implemented over the next 3 years. Where these measures remain consistent for the next 3 years this should be noted in the formal management plan review correspondence with DPHI.	**Proposed Action:** BRMP will be reviewed and Section 7.1 updated **Implementation Timeframe:** At the next review and revision of the EMS and Management Plans

ID	IEA Comments and Suggested Improvement	Dixon Sand's Proposed Action, Implementation Timeframe and Status
	The currently approved BRMP is dated 2020. Whilst the key rehabilitation and management measures specified in Section 7.2 appear to be generally appropriate they do not reflect the current area of operations and should be reviewed and updated as necessary. This would include items such as placement of topsoil on the 250m buffer bund (see Improvement ONR I6/25).	**Status - Open** The revised BRMP (V5, dated 12 June 2026) was submitted to DPHI on 15 June 2026 and currently in review.
ONR I13/25	Section 7.0 of the Environmental Management Strategy should be updated to include guidance regarding the review of the Environmental Management Strategy and management plans following submission of an incident report. Alternatively, the Incident Register Form could be updated to include additional prompts or checklists. *Whilst the EMS notes the requirement to review the EMS and management plans within other sections, Section 7.0 which addresses incidents, does not include a component specifying the process to review and formally notify the Department of this review following submission of an incident report.*	**Proposed Action:** A review of the EMS will be undertaken and may include a procedure to review the EMS and management plans following an incident report OR a separate checklist/protocol will be developed to ensure compliance. **Implementation Timeframe:** At the next review and revision of the EMS and Management Plans **Status - Closed** Dixon Sand submitted the revised EMS (V6, dated 12 June 2026) on 15 June 2026. DPHI approved the EMS on 31 July 2026.
ONR I14/25	Areas with equipment containing hydrocarbons / hydrocarbon residues should be inspected as part of the monthly site inspection checklist and any hydrocarbon staining cleaned up and material appropriately disposed of. *Several areas of minor hydrocarbon staining were observed on unsealed surfaces. These appeared to be the result of rain washing hydrocarbons off stored equipment (Photos E1021C_059, 068).*	**Proposed Action:** Monthly Site Checklist to be updated to include inspection, cleanup and disposal. **Implementation Timeframe:** 30 June 2026. **Status - Closed** The Monthly Checklist forms part of the EMS (Appendix 12). The revised Monthly Checklist was submitted with the EMS (V6, dated 12 June 2026) on 15 June 2026. DPHI approved the EMS on 31 July 2026.

ID	IEA Comments and Suggested Improvement	Dixon Sand's Proposed Action, Implementation Timeframe and Status
ONR I15/25	Where reporting is undertaken against the EPL PM10 criteria of 42µg/m3 this should be compared to the rolling 24hr average PM10 in accordance with Condition M2.4. *The CBased monitoring reports appended to the Annual Review appear to report against daily PM10 results rather than rolling 24-hour average PM10 results. This has resulted in reporting of compliance with the criteria when it was actually exceeded.*	**Proposed Action:** Contact CBased and amend the PM10 reporting variables to ensure compliance. **Implementation Timeframe:** 30 June 2026. **Status - Closed** Report variables amended from March 2026 reporting onwards.
ONR I16/25	CBased should be requested to include additional tabs in the monthly monitoring data summary spread sheet which include: • each 15 minute PM10 result; and • each rolling 24-hour average PM10 results (each 15 minutes). Tabs including the meteorological data averaged at the time intervals outlined in EPL Condition M2.4 should also be preferentially provided so that the Company does not need to generate these for compliance. *The monitoring data supplied by CBased on a monthly basis provides a useful summary. The raw data collected by the TEOM and Meteorological Station collect the information required for compliance, however, data is not provided to the Company in the format / with averaging periods required by EPL 3916.*	**Proposed Action:** Contact CBased and amend the PM10 reporting variables to ensure compliance. **Implementation Timeframe:** 30 June 2026. **Status - Closed** Additional tabs of relevant data and interval included from March 2026 reporting
ONR I17/25	All documentation relied upon on site with respect to environmental and other matters should include relevant document control information including the computer file path, date created and review date. *Most of the documentation sighted during the audit didn't include sufficient document control information to assist in locating the document on the Company's server, whether it is the current version and when it should be reviewed. The progressive introduction of document control will assist in*	**Proposed Action:** The Quarry actively takes measures to improve its quality management system as far as reasonably practicable. **Implementation Timeframe:** Ongoing

ID	IEA Comments and Suggested Improvement	Dixon Sand's Proposed Action, Implementation Timeframe and Status
	improved management of documentation on site. It is important to clarify differences for documentation for either Old Northern Road Quarry or Haerses Road Quarry.	**Status – Open (ongoing)**
ONR I18/25	Consideration should be given to providing a monthly update of all environmental monitoring data collected (for that month) in accordance the management plans approved for DA 250-09-01. *Currently PM10 data is provided on a monthly basis, however, other data is only provided / summarised annually within the Annual Review. Whilst DA Condition 5(15) does not specify the period that monitoring summaries must be provided, it is considered best practice to make relevant results available at suitable intervals (e.g. monthly).*	**Proposed Action:** Contact CBased and amend the PM10 reporting variables to ensure compliance. **Implementation Timeframe:** 30 June 2026. **Status - Closed** Monthly complete Dust Deposition Results and TEOM published on website from January 2026 onwards.

13. Proposed Actions to be completed in the next Reporting Period

13.1 Air Quality Monitoring

Following confirmation from EPA, install the PM2.5 monitor in accordance with EPL3916.

13.2 Vegetation Clearing and Extraction

Vegetation clearing will be undertaken in accordance with the pre-clearing procedures.

13.3 Rehabilitation and Bush Regeneration

Old Northern Road NVC Rehabilitation Area

- Continue to monitor and manage competitive native species and trees by culling to optimise growth of native species including the planted and translocated threatened species.
- Continue with routine weed control (particularly perennial grass such as Cynodon dactylon – Couch grass),
- Once new areas of NVC are suitable to commence revegetation, spread brush matt material from the stockpiled site and supplementary plant canopy species.

Old Northern Road Lots 1 and 2

- Continued management of *Lantana camera* and review techniques recommended in the Ecological Monitoring Report (South East Environmental, 2026),
- Continued management of other weed species including exotic grasses, and

Old Northern Road Lot 196 (now Lot 1 DP1288211)

- Continue with routine weed management along the southern boundary of Cons Hill (Lot 196) and carry out direct seeding or supplementary planting of remnant canopy species and competitive native grasses (such as *Imperata cylindrica*) to revegetate compacted areas, exposed areas and edge areas as required.

Haerses Road Biodiversity Offset Area

- Continue with management of invasive grass and annual species along the western border of the HRBOA.

Front Gate Embankment

- Supplementary planting to be undertaken to occupy bare areas prone to the spread of invasive grasses

14. Conclusion

A number of recommendations and change in environmental procedures have been proposed throughout this Annual Review covering the 2025 – 2026 reporting period.

In general, Dixon Sand has maintained acceptable environmental performance outcomes throughout the reporting period. The company has committed to ongoing endeavours to minimise environmental impacts and potential exceedances related to quarry operations.

Appendix A – Dust Deposition Reports

VGT Laboratories Pty Ltd.
ABN 77 621 943 600
NATA Accreditation 20375
Unit 4, 30 Glenwood Drive Thornton NSW 2322|
P: (02) 4028 6412 | **E:** lab@vgt.com.au | **www.vgt.com.au**

Report Number: 18445

Date Issued: 30/07/2025 Revision Number: 00

Site/Job: Dixon Maroota - Dusts

Client: Dixon Sand (No.1) Pty Ltd
Address PO Box 4019
PITT TOWN NSW 2756
Contact David Dixon

The following Dust Deposition sample(s) were received on 23/07/2025

Client Sample Reference	Date On	Date Off	Lab ID	Matrix	Comments or Non-Compliances
D08&9 Hitchcock Rd Olive Grove	25/06/2025 12:38	23/07/2025 12:43	18445/1	Dust	
D10 Hearses Rd	25/06/2025 13:05	23/07/2025 13:10	18445/2	Dust	
D06 School	25/06/2025 11:27	23/07/2025 11:33	18445/3	Dust	
D05 Bund	25/06/2025 11:41	23/07/2025 11:47	18445/4	Dust	
D04 Rehab	25/06/2025 12:03	23/07/2025 12:11	18445/5	Dust	
D07 Mullock	25/06/2025 12:17	23/07/2025 12:26	18445/6	Dust	
D01(A) Front Gate	25/06/2025 11:49	23/07/2025 11:55	18445/7	Dust	
D11 Goldstien	25/06/2025 13:22	23/07/2025 13:43	18445/8	Dust	
D12 Ram	25/06/2025 12:51	23/07/2025 12:57	18445/9	Dust	

The sample(s) have been tested as received and results relate specifically to the samples tested.
The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)



Authorised by: Anthony Crane
Laboratory Manager

Results have been approved and report finalised on 30/07/2025.

Test Report Number: 18445

Date Issued: 30/07/2025 Revision No: 00

Results

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	18445/1 23/07/2025 D08&9 Hitchcock Rd Olive Grove	18445/2 23/07/2025 D10 Hearses Rd	18445/3 23/07/2025 D06 School	18445/4 23/07/2025 D05 Bund	18445/5 23/07/2025 D04 Rehab
Date Tested	AS 3580.10.1	--	24/07/2025	24/07/2025	24/07/2025	24/07/2025	24/07/2025
Number of Days	AS 3580.10.1	days	28	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.6	2.7	0.5	1.0	0.1
Ash	AS 3580.10.1	g/m2/mth	0.4	1.8	0.3	0.8	<0.1
Combustible Matter	AS 3580.10.1	g/m2/mth	0.2	0.9	0.2	0.2	0.1
Calculated Rain	AS 3580.10.1	mm	87	88	95	73	81

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	18445/6 23/07/2025 D07 Mullock	18445/7 23/07/2025 D01(A) Front Gate	18445/8 23/07/2025 D11 Goldstien	18445/9 23/07/2025 D12 Ram
Date Tested	AS 3580.10.1	--	24/07/2025	24/07/2025	24/07/2025	24/07/2025
Number of Days	AS 3580.10.1	days	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	1.5	2.6	0.4	0.4
Ash	AS 3580.10.1	g/m2/mth	0.9	2.6	0.2	0.2
Combustible Matter	AS 3580.10.1	g/m2/mth	0.6	<0.1	0.2	0.2
Calculated Rain	AS 3580.10.1	mm	83	72	79	84

Report Comments:

Where present, indicates NATA accreditation does not cover the performance of this service.

Guideline applied - EPL Dust Limits.
Results in **bold** indicate an exceedance of the applied guideline.
When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.
https://www.vgt.com.au/measurement-uncertainty

[NT]: Not tested

Location Analysed : 4/30 Glenwood Dr Thornton NSW 2322.

Sampling Report Number: 18445

Date Issued: 30/07/2025 Revision No: 00

Sampling Conditions: Cloudy, 18 - 20 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
18445/1	D08&9 Hitchcock Rd Olive Grove		T & D.Walker	23/07/2025 12:43	AS3580.10.1	CuSO4
18445/2	D10 Hearses Rd		T & D.Walker	23/07/2025 13:10	AS3580.10.1	CuSO4
18445/3	D06 School		T & D.Walker	23/07/2025 11:33	AS3580.10.1	CuSO4
18445/4	D05 Bund		T & D.Walker	23/07/2025 11:47	AS3580.10.1	CuSO4
18445/5	D04 Rehab		T & D.Walker	23/07/2025 12:11	AS3580.10.1	CuSO4
18445/6	D07 Mullock		T & D.Walker	23/07/2025 12:26	AS3580.10.1	CuSO4
18445/7	D01(A) Front Gate		T & D.Walker	23/07/2025 11:55	AS3580.10.1	CuSO4
18445/8	D11 Goldstien		T & D.Walker	23/07/2025 13:43	AS3580.10.1	CuSO4
18445/9	D12 Ram		T & D.Walker	23/07/2025 12:57	AS3580.10.1	CuSO4

Lab ID	Client Sample Reference	GPS-Easting	GPS-Northing	Sampling Observations
18445/1	D08&9 Hitchcock Rd Olive Grove	313058	6295137	Minor sand
18445/2	D10 Hearses Rd	312538	6294576	Minor sand, minor bird droppings
18445/3	D06 School	313518	6296537	
18445/4	D05 Bund	313160	6296838	
18445/5	D04 Rehab	312385	6296932	Minor vegetation
18445/6	D07 Mullock	312579	6296676	Minor sand, minor rubber fragments
18445/7	D01(A) Front Gate	313290	6297176	Minor sand
18445/8	D11 Goldstien	312034	6294213	Minor vegetation
18445/9	D12 Ram	311750	6294159	

Sampling procedures have been approved and report finalised on 30/07/2025.
Where method is "unknown" sampling procedures are not endorsed

VGT Laboratories Pty Ltd.
ABN 77 621 943 600
NATA Accreditation 20375
Unit 4, 30 Glenwood Drive Thornton NSW 2322|
P: (02) 4028 6412 | **E:** lab@vgt.com.au | **www.vgt.com.au**

Report Number: 18702

Date Issued: 27/08/2025 Revision Number: 00

Site/Job: Dixon Maroota - Dusts

Client: Dixon Sand (No.1) Pty Ltd
Address PO Box 4019
PITT TOWN NSW 2756
Contact David Dixon

The following Dust Deposition sample(s) were received on 20/08/2025

Client Sample Reference	Date On	Date Off	Lab ID	Matrix	Comments or Non-Compliances
D08&9 Hitchcock Rd Olive Grove	23/07/2025 12:43	20/08/2025 11:47	18702/1	Dust	
D10 Hearses Rd	23/07/2025 13:10	20/08/2025 12:15	18702/2	Dust	
D06 School	23/07/2025 11:33	20/08/2025 10:36	18702/3	Dust	
D05 Bund	23/07/2025 11:47	20/08/2025 10:49	18702/4	Dust	
D04 Rehab	23/07/2025 12:11	20/08/2025 11:14	18702/5	Dust	
D07 Mullock	23/07/2025 12:26	20/08/2025 11:28	18702/6	Dust	
D01(A) Front Gate	23/07/2025 11:55	20/08/2025 10:58	18702/7	Dust	
D11 Goldstien	23/07/2025 13:43	20/08/2025 13:35	18702/8	Dust	
D12 Ram	23/07/2025 12:57	20/08/2025 12:01	18702/9	Dust	

The sample(s) have been tested as received and results relate specifically to the samples tested.
The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:

Anthony Crane
Laboratory Manager

Liane Peyra
Technical Officer

Results have been approved and report finalised on 27/08/2025.

Test Report Number: 18702

Date Issued: 27/08/2025 Revision No: 00

Results

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	18702/1 20/08/2025 D08&9 Hitchcock Rd Olive Grove	18702/2 20/08/2025 D10 Hearses Rd	18702/3 20/08/2025 D06 School	18702/4 20/08/2025 D05 Bund	18702/5 20/08/2025 D04 Rehab
Date Tested	AS 3580.10.1	--	26/08/2025	26/08/2025	26/08/2025	26/08/2025	26/08/2025
Number of Days	AS 3580.10.1	days	28	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.3	**5.7**	**43.7**	2.5	0.4
Ash	AS 3580.10.1	g/m2/mth	0.3	3.3	41.1	2.3	0.1
Combustible Matter	AS 3580.10.1	g/m2/mth	<0.1	2.4	2.6	0.2	0.3
Calculated Rain	AS 3580.10.1	mm	176	168	172	158	170

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	18702/6 20/08/2025 D07 Mullock	18702/7 20/08/2025 D01(A) Front Gate	18702/8 20/08/2025 D11 Goldstien	18702/9 20/08/2025 D12 Ram
Date Tested	AS 3580.10.1	--	26/08/2025	26/08/2025	26/08/2025	26/08/2025
Number of Days	AS 3580.10.1	days	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.3	**6.3**	1.2	0.3
Ash	AS 3580.10.1	g/m2/mth	0.1	6.1	0.5	<0.1
Combustible Matter	AS 3580.10.1	g/m2/mth	0.2	0.2	0.7	0.3
Calculated Rain	AS 3580.10.1	mm	178	116	149	188

Report Comments:

Where present, indicates NATA accreditation does not cover the performance of this service.

Guideline applied - EPL Dust Limits.
Results in **bold** indicate an exceedance of the applied guideline.
When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.
https://www.vgt.com.au/measurement-uncertainty

[NT]: Not tested

Location Analysed : 4/30 Glenwood Dr Thornton NSW 2322.

Sampling Report Number: 18702

Date Issued: 27/08/2025 Revision No: 00

Sampling Conditions: Rain, 13 °C. Recent heavy rain.

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
18702/1	D08&9 Hitchcock Rd Olive Grove		T & D.Walker	20/08/2025 11:47	AS3580.10.1	CuSO4
18702/2	D10 Hearses Rd		T & D.Walker	20/08/2025 12:15	AS3580.10.1	CuSO4
18702/3	D06 School		T & D.Walker	20/08/2025 10:36	AS3580.10.1	CuSO4
18702/4	D05 Bund		T & D.Walker	20/08/2025 10:49	AS3580.10.1	CuSO4
18702/5	D04 Rehab		T & D.Walker	20/08/2025 11:14	AS3580.10.1	CuSO4
18702/6	D07 Mullock		T & D.Walker	20/08/2025 11:28	AS3580.10.1	CuSO4
18702/7	D01(A) Front Gate		T & D.Walker	20/08/2025 10:58	AS3580.10.1	CuSO4
18702/8	D11 Goldstien		T & D.Walker	20/08/2025 13:35	AS3580.10.1	CuSO4
18702/9	D12 Ram		T & D.Walker	20/08/2025 12:01	AS3580.10.1	CuSO4

Lab ID	Client Sample Reference	GPS-Easting	GPS-Northing	Sampling Observations
18702/1	D08&9 Hitchcock Rd Olive Grove	313058	6295137	
18702/2	D10 Hearses Rd	312538	6294576	Minor sand, major bird droppings, algae. Bird droppings in funnel.
18702/3	D06 School	313518	6296537	Major sand, vegetation. Paddock recently slashed.
18702/4	D05 Bund	313160	6296838	Minor sand
18702/5	D04 Rehab	312385	6296932	
18702/6	D07 Mullock	312579	6296676	
18702/7	D01(A) Front Gate	313290	6297176	Full, sand. Soil turned over on adjacent crop farm.
18702/8	D11 Goldstien	312034	6294213	Full
18702/9	D12 Ram	311750	6294159	

Sampling procedures have been approved and report finalised on 27/08/2025.
Where method is "unknown" sampling procedures are not endorsed

VGT Laboratories Pty Ltd.
ABN 77 621 943 600
NATA Accreditation 20375
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Report Number: 18849

Date Issued: 23/09/2025 Revision Number: 00

Site/Job: Dixon Maroota - Dusts

Client: Dixon Sand (No.1) Pty Ltd
Address PO Box 4019
PITT TOWN NSW 2756
Contact David Dixon

The following Dust Deposition sample(s) were received on 17/09/2025

Client Sample Reference	Date On	Date Off	Lab ID	Matrix	Comments or Non-Compliances
D08&9 Hitchcock Rd Olive Grove	20/08/2025 11:47	17/09/2025 11:49	18849/1	Dust	
D10 Hearses Rd	20/08/2025 12:15	17/09/2025 12:18	18849/2	Dust	
D06 School	20/08/2025 10:36	17/09/2025 10:38	18849/3	Dust	
D05 Bund	20/08/2025 10:49	17/09/2025 10:51	18849/4	Dust	
D04 Rehab	20/08/2025 11:14	17/09/2025 11:23	18849/5	Dust	
D07 Mullock	20/08/2025 11:28	17/09/2025 11:36	18849/6	Dust	
D01(A) Front Gate	20/08/2025 10:58	17/09/2025 11:03	18849/7	Dust	
D11 Goldstien	20/08/2025 13:35	17/09/2025 13:14	18849/8	Dust	
D12 Ram	20/08/2025 12:01	17/09/2025 12:02	18849/9	Dust	

The sample(s) have been tested as received and results relate specifically to the samples tested.

The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:

Anthony Crane
Laboratory Manager

Results have been approved and report finalised on 23/09/2025.

Test Report Number: 18849

Date Issued: 23/09/2025 Revision No: 00

Results

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	18849/1 17/09/2025 D08&9 Hitchcock Rd Olive Grove	18849/2 17/09/2025 D10 Hearses Rd	18849/3 17/09/2025 D06 School	18849/4 17/09/2025 D05 Bund	18849/5 17/09/2025 D04 Rehab
Date Tested	AS 3580.10.1	--	18/09/2025	18/09/2025	18/09/2025	18/09/2025	18/09/2025
Number of Days	AS 3580.10.1	days	28	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.6	**5.7**	0.7	1.5	0.4
Ash	AS 3580.10.1	g/m2/mth	0.3	2.2	0.4	1.1	0.1
Combustible Matter	AS 3580.10.1	g/m2/mth	0.3	3.5	0.3	0.4	0.3
Calculated Rain	AS 3580.10.1	mm	91	93	91	83	90

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	18849/6 17/09/2025 D07 Mullock	18849/7 17/09/2025 D01(A) Front Gate	18849/8 17/09/2025 D11 Goldstien	18849/9 17/09/2025 D12 Ram
Date Tested	AS 3580.10.1	--	18/09/2025	18/09/2025	18/09/2025	18/09/2025
Number of Days	AS 3580.10.1	days	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.2	1.3	2.8	0.3
Ash	AS 3580.10.1	g/m2/mth	0.2	1.1	2.1	0.1
Combustible Matter	AS 3580.10.1	g/m2/mth	<0.1	0.2	0.7	0.2
Calculated Rain	AS 3580.10.1	mm	90	89	96	96

Report Comments:

Guideline applied - **EPL Dust Limits.**

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Location Analysed : 4/30 Glenwood Dr Thornton NSW 2322.

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 18849

Date Issued: 23/09/2025 Revision No: 00

Sampling Conditions: Fine, 22 - 26 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
18849/1	D08&9 Hitchcock Rd Olive Grove		T & D.Walker	17/09/2025 11:49	AS3580.10.1	CuSO4
18849/2	D10 Hearses Rd		T & D.Walker	17/09/2025 12:18	AS3580.10.1	CuSO4
18849/3	D06 School		T & D.Walker	17/09/2025 10:38	AS3580.10.1	CuSO4
18849/4	D05 Bund		T & D.Walker	17/09/2025 10:51	AS3580.10.1	CuSO4
18849/5	D04 Rehab		T & D.Walker	17/09/2025 11:23	AS3580.10.1	CuSO4
18849/6	D07 Mullock		T & D.Walker	17/09/2025 11:36	AS3580.10.1	CuSO4
18849/7	D01(A) Front Gate		T & D.Walker	17/09/2025 11:03	AS3580.10.1	CuSO4
18849/8	D11 Goldstien		T & D.Walker	17/09/2025 13:14	AS3580.10.1	CuSO4
18849/9	D12 Ram		T & D.Walker	17/09/2025 12:02	AS3580.10.1	CuSO4

Lab ID	Client Sample Reference	GPS-Easting	GPS-Northing	Sampling Observations
18849/1	D08&9 Hitchcock Rd Olive Grove	313058	6295137	Minor insects
18849/2	D10 Hearses Rd	312538	6294576	Minor sand, minor bird droppings, minor vegetation
18849/3	D06 School	313518	6296537	Minor vegetation
18849/4	D05 Bund	313160	6296838	Minor sand, insects
18849/5	D04 Rehab	312385	6296932	Minor insects
18849/6	D07 Mullock	312579	6296676	
18849/7	D01(A) Front Gate	313290	6297176	Minor insects
18849/8	D11 Goldstien	312034	6294213	Minor sand, minor vegetation
18849/9	D12 Ram	311750	6294159	Minor insects

Sampling procedures have been approved and report finalised on 23/09/2025.
Where method is "unknown" sampling procedures are not endorsed

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Report Number: 18993

Date Issued: 21/10/2025 Revision Number: 00

Site/Job: Dixon Maroota - Dusts

Client: Dixon Sand (No.1) Pty Ltd
Address PO Box 4019
PITT TOWN NSW 2756
Contact David Dixon

The following Dust Deposition sample(s) were received on 15/10/2025

Client Sample Reference	Date On	Date Off	Lab ID	Matrix	Comments or Non-Compliances
D08&9 Hitchcock Rd Olive Grove	17/09/2025 11:49	15/10/2025 11:38	18993/1	Dust	
D10 Hearses Rd	17/09/2025 12:18	15/10/2025 12:06	18993/2	Dust	
D06 School	17/09/2025 10:38	15/10/2025 10:29	18993/3	Dust	
D05 Bund	17/09/2025 10:51	15/10/2025 10:46	18993/4	Dust	
D04 Rehab	17/09/2025 11:23	15/10/2025 11:10	18993/5	Dust	
D07 Mullock	17/09/2025 11:36	15/10/2025 11:22	18993/6	Dust	
D01(A) Front Gate	17/09/2025 11:03	15/10/2025 10:56	18993/7	Dust	
D11 Goldstien	17/09/2025 13:14	15/10/2025 13:08	18993/8	Dust	
D12 Ram	17/09/2025 12:02	15/10/2025 11:54	18993/9	Dust	

The sample(s) have been tested as received and results relate specifically to the samples tested.

The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:

Anthony Crane
Laboratory Manager

Liane Peyra
Technical Officer

Results have been approved and report finalised on 21/10/2025.

Accredited for compliance with ISO/IEC 17025 – Testing.

Test Report Number: 18993

Date Issued: 21/10/2025 Revision No: 00

Results

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	18993/1 15/10/2025 D08&9 Hitchcock Rd Olive Grove	18993/2 15/10/2025 D10 Hearses Rd	18993/3 15/10/2025 D06 School	18993/4 15/10/2025 D05 Bund	18993/5 15/10/2025 D04 Rehab
Date Tested	AS 3580.10.1	--	17/10/2025	17/10/2025	17/10/2025	17/10/2025	17/10/2025
Number of Days	AS 3580.10.1	days	28	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.6	1.4	**12.2**	3.6	0.2
Ash	AS 3580.10.1	g/m2/mth	0.3	0.7	9.8	3.2	0.1
Combustible Matter	AS 3580.10.1	g/m2/mth	0.3	0.7	2.4	0.4	0.1
Calculated Rain	AS 3580.10.1	mm	10	9	10	8	9

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	18993/6 15/10/2025 D07 Mullock	18993/7 15/10/2025 D01(A) Front Gate	18993/8 15/10/2025 D11 Goldstien	18993/9 15/10/2025 D12 Ram
Date Tested	AS 3580.10.1	--	17/10/2025	17/10/2025	17/10/2025	17/10/2025
Number of Days	AS 3580.10.1	days	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.5	3.3	0.9	0.3
Ash	AS 3580.10.1	g/m2/mth	0.2	1.3	0.4	0.2
Combustible Matter	AS 3580.10.1	g/m2/mth	0.3	2.0	0.5	0.1
Calculated Rain	AS 3580.10.1	mm	9	11	8	9

Report Comments:

Guideline applied - **EPL Dust Limits.**

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Location Analysed : 4/30 Glenwood Dr Thornton NSW 2322.

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 18993

Date Issued: 21/10/2025 Revision No: 00

Sampling Conditions: Fine, 22 - 27 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
18993/1	D08&9 Hitchcock Rd Olive Grove		T & D.Walker	15/10/2025 11:38	AS3580.10.1	CuSO4
18993/2	D10 Hearses Rd		T & D.Walker	15/10/2025 12:06	AS3580.10.1	CuSO4
18993/3	D06 School		T & D.Walker	15/10/2025 10:29	AS3580.10.1	CuSO4
18993/4	D05 Bund		T & D.Walker	15/10/2025 10:46	AS3580.10.1	CuSO4
18993/5	D04 Rehab		T & D.Walker	15/10/2025 11:10	AS3580.10.1	CuSO4
18993/6	D07 Mullock		T & D.Walker	15/10/2025 11:22	AS3580.10.1	CuSO4
18993/7	D01(A) Front Gate		T & D.Walker	15/10/2025 10:56	AS3580.10.1	CuSO4
18993/8	D11 Goldstien		T & D.Walker	15/10/2025 13:08	AS3580.10.1	CuSO4
18993/9	D12 Ram		T & D.Walker	15/10/2025 11:54	AS3580.10.1	CuSO4

Lab ID	Client Sample Reference	GPS-Easting	GPS-Northing	Sampling Observations
18993/1	D08&9 Hitchcock Rd Olive Grove	313058	6295137	Insects
18993/2	D10 Hearses Rd	312538	6294576	Minor insects
18993/3	D06 School	313518	6296537	Sand, minor vegetation, minor insects. Funnel blocked with insects & vegetation. Paddock recently slashed.
18993/4	D05 Bund	313160	6296838	Sand, insects. Adjacent crop farming paddocks tilled to bare earth.
18993/5	D04 Rehab	312385	6296932	Minor vegetation
18993/6	D07 Mullock	312579	6296676	Insects
18993/7	D01(A) Front Gate	313290	6297176	Minor sand, insects. Adjacent crop farm paddocks tilled to bare earth.
18993/8	D11 Goldstien	312034	6294213	Minor vegetation
18993/9	D12 Ram	311750	6294159	Minor insects, minor vegetation

Sampling procedures have been approved and report finalised on 21/10/2025.
Where method is "unknown" sampling procedures are not endorsed

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Report Number: 19062

Date Issued: 18/11/2025 Revision Number: 00

Site/Job: Dixon Maroota - Dusts

Client: Dixon Sand (No.1) Pty Ltd
Address PO Box 4019
PITT TOWN NSW 2756
Contact David Dixon

The following Dust Deposition sample(s) were received on 12/11/2025

Client Sample Reference	Date On	Date Off	Lab ID	Matrix	Comments or Non-Compliances
D08&9 Hitchcock Rd Olive Grove	15/10/2025 11:38	12/11/2025 11:45	19062/1	Dust	
D10 Hearses Rd	15/10/2025 12:06	12/11/2025 12:15	19062/2	Dust	
D06 School	15/10/2025 10:29	12/11/2025 10:43	19062/3	Dust	
D05 Bund	15/10/2025 10:46	12/11/2025 10:58	19062/4	Dust	
D04 Rehab	15/10/2025 11:10	12/11/2025 11:21	19062/5	Dust	
D07 Mullock	15/10/2025 11:22	12/11/2025 11:33	19062/6	Dust	
D01(A) Front Gate	15/10/2025 10:56	12/11/2025 11:08	19062/7	Dust	
D11 Goldstien	15/10/2025 13:08	12/11/2025 13:10	19062/8	Dust	
D12 Ram	15/10/2025 11:54	12/11/2025 12:01	19062/9	Dust	

The sample(s) have been tested as received and results relate specifically to the samples tested.

The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:

Liane Peyra
Technical Officer

Anthony Crane
Laboratory Manager

Results have been approved and report finalised on 18/11/2025.

Accredited for compliance with ISO/IEC 17025 – Testing.

Test Report Number: 19062

Date Issued: 18/11/2025 Revision No: 00

Results

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19062/1 12/11/2025 D08&9 Hitchcock Rd Olive Grove	19062/2 12/11/2025 D10 Hearses Rd	19062/3 12/11/2025 D06 School	19062/4 12/11/2025 D05 Bund	19062/5 12/11/2025 D04 Rehab
Date Tested	AS 3580.10.1	--	13/11/2025	13/11/2025	13/11/2025	13/11/2025	13/11/2025
Number of Days	AS 3580.10.1	days	28	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	**5.3**	1.5	2.3	**4.6**	1.2
Ash	AS 3580.10.1	g/m2/mth	4.5	0.8	1.8	4.2	0.7
Combustible Matter	AS 3580.10.1	g/m2/mth	0.8	0.7	0.5	0.4	0.5
Calculated Rain	AS 3580.10.1	mm	28	24	32	27	30

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19062/6 12/11/2025 D07 Mullock	19062/7 12/11/2025 D01(A) Front Gate	19062/8 12/11/2025 D11 Goldstien	19062/9 12/11/2025 D12 Ram
Date Tested	AS 3580.10.1	--	13/11/2025	13/11/2025	13/11/2025	13/11/2025
Number of Days	AS 3580.10.1	days	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.5	1.5	2.2	0.5
Ash	AS 3580.10.1	g/m2/mth	0.4	1.3	1.0	0.4
Combustible Matter	AS 3580.10.1	g/m2/mth	0.1	0.2	1.2	0.1
Calculated Rain	AS 3580.10.1	mm	30	27	25	27

Report Comments:

Guideline applied - **EPL Dust Limits.**

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Location Analysed : 4/30 Glenwood Dr Thornton NSW 2322.

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 19062

Date Issued: 18/11/2025 Revision No: 00

Sampling Conditions: Fine, 18 - 22 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
19062/1	D08&9 Hitchcock Rd Olive Grove		T & D.Walker	12/11/2025 11:45	AS3580.10.1	CuSO4
19062/2	D10 Hearses Rd		T & D.Walker	12/11/2025 12:15	AS3580.10.1	CuSO4
19062/3	D06 School		T & D.Walker	12/11/2025 10:43	AS3580.10.1	CuSO4
19062/4	D05 Bund		T & D.Walker	12/11/2025 10:58	AS3580.10.1	CuSO4
19062/5	D04 Rehab		T & D.Walker	12/11/2025 11:21	AS3580.10.1	CuSO4
19062/6	D07 Mullock		T & D.Walker	12/11/2025 11:33	AS3580.10.1	CuSO4
19062/7	D01(A) Front Gate		T & D.Walker	12/11/2025 11:08	AS3580.10.1	CuSO4
19062/8	D11 Goldstien		T & D.Walker	12/11/2025 13:10	AS3580.10.1	CuSO4
19062/9	D12 Ram		T & D.Walker	12/11/2025 12:01	AS3580.10.1	CuSO4

Lab ID	Client Sample Reference	GPS-Easting	GPS-Northing	Sampling Observations
19062/1	D08&9 Hitchcock Rd Olive Grove	313058	6295137	Major sand, minor vegetation
19062/2	D10 Hearses Rd	312538	6294576	Insects
19062/3	D06 School	313518	6296537	Sand, minor insects
19062/4	D05 Bund	313160	6296838	Sand, minor insects
19062/5	D04 Rehab	312385	6296932	Minor insects, minor vegetation
19062/6	D07 Mullock	312579	6296676	
19062/7	D01(A) Front Gate	313290	6297176	Minor sand
19062/8	D11 Goldstien	312034	6294213	Vegetation, minor bird droppings, minor algae
19062/9	D12 Ram	311750	6294159	

Sampling procedures have been approved and report finalised on 18/11/2025.
Where method is "unknown" sampling procedures are not endorsed

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Report Number: 19193

Date Issued: 16/12/2025 Revision Number: 00

Site/Job: Dixon Maroota - Dusts

Client: Dixon Sand (No.1) Pty Ltd
Address PO Box 4019
PITT TOWN NSW 2756
Contact David Dixon

The following Dust Deposition sample(s) were received on 10/12/2025

Client Sample Reference	Date On	Date Off	Lab ID	Matrix	Comments or Non-Compliances
D08&9 Hitchcock Rd Olive Grove	12/11/2025 11:45	10/12/2025 13:28	19193/1	Dust	
D10 Hearses Rd	12/11/2025 12:15	10/12/2025 14:17	19193/2	Dust	
D06 School	12/11/2025 10:43	10/12/2025 13:17	19193/3	Dust	
D05 Bund	12/11/2025 10:58	10/12/2025 11:27	19193/4	Dust	
D04 Rehab	12/11/2025 11:21	10/12/2025 09:16	19193/5	Dust	
D07 Mullock	12/11/2025 11:33	10/12/2025 10:02	19193/6	Dust	
D01(A) Front Gate	12/11/2025 11:08	10/12/2025 08:57	19193/7	Dust	
D11 Goldstien	12/11/2025 13:10	10/12/2025 14:02	19193/8	Dust	
D12 Ram	12/11/2025 12:01	10/12/2025 13:42	19193/9	Dust	

The sample(s) have been tested as received and results relate specifically to the samples tested.

The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:



Anthony Crane
Laboratory Manager

Results have been approved and report finalised on 16/12/2025.

Test Report Number: 19193

Date Issued: 16/12/2025 Revision No: 00

Results

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19193/1 10/12/2025 D08&9 Hitchcock Rd Olive Grove	19193/2 10/12/2025 D10 Hearses Rd	19193/3 10/12/2025 D06 School	19193/4 10/12/2025 D05 Bund	19193/5 10/12/2025 D04 Rehab
Date Tested	AS 3580.10.1	--	12/12/2025	12/12/2025	12/12/2025	12/12/2025	12/12/2025
Number of Days	AS 3580.10.1	days	28	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	1.5	1.1	3.0	**44.2**	3.0
Ash	AS 3580.10.1	g/m2/mth	1.0	0.6	2.0	11.5	2.1
Combustible Matter	AS 3580.10.1	g/m2/mth	0.5	0.5	1.0	32.7	0.9
Calculated Rain	AS 3580.10.1	mm	25	24	28	27	29

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19193/6 10/12/2025 D07 Mullock	19193/7 10/12/2025 D01(A) Front Gate	19193/8 10/12/2025 D11 Goldstien	19193/9 10/12/2025 D12 Ram
Date Tested	AS 3580.10.1	--	12/12/2025	12/12/2025	12/12/2025	12/12/2025
Number of Days	AS 3580.10.1	days	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	1.5	3.6	1.5	0.6
Ash	AS 3580.10.1	g/m2/mth	1.2	3.0	0.7	0.5
Combustible Matter	AS 3580.10.1	g/m2/mth	0.3	0.6	0.8	0.1
Calculated Rain	AS 3580.10.1	mm	28	32	23	25

Report Comments:

Guideline applied - **EPL Dust Limits.**

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Location Analysed : 4/30 Glenwood Dr Thornton NSW 2322.

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 19193

Date Issued: 16/12/2025 Revision No: 00

Sampling Conditions: Cloudy, 22-28°C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
19193/1	D08&9 Hitchcock Rd Olive Grove		T & D.Walker	10/12/2025 13:28	AS3580.10.1	CuSO4
19193/2	D10 Hearses Rd		T & D.Walker	10/12/2025 14:17	AS3580.10.1	CuSO4
19193/3	D06 School		T & D.Walker	10/12/2025 13:17	AS3580.10.1	CuSO4
19193/4	D05 Bund		T & D.Walker	10/12/2025 11:27	AS3580.10.1	CuSO4
19193/5	D04 Rehab		T & D.Walker	10/12/2025 09:16	AS3580.10.1	CuSO4
19193/6	D07 Mullock		T & D.Walker	10/12/2025 10:02	AS3580.10.1	CuSO4
19193/7	D01(A) Front Gate		T & D.Walker	10/12/2025 08:57	AS3580.10.1	CuSO4
19193/8	D11 Goldstien		T & D.Walker	10/12/2025 14:02	AS3580.10.1	CuSO4
19193/9	D12 Ram		T & D.Walker	10/12/2025 13:42	AS3580.10.1	CuSO4

Lab ID	Client Sample Reference	GPS-Easting	GPS-Northing	Sampling Observations
19193/1	D08&9 Hitchcock Rd Olive Grove	313058	6295137	
19193/2	D10 Hearses Rd	312538	6294576	
19193/3	D06 School	313518	6296537	Minor sand, minor vegetation
19193/4	D05 Bund	313160	6296838	Sand, insects
19193/5	D04 Rehab	312385	6296932	Minor insects, minor vegetation
19193/6	D07 Mullock	312579	6296676	Minor insects
19193/7	D01(A) Front Gate	313290	6297176	Minor dust, minor insects
19193/8	D11 Goldstien	312034	6294213	Minor insects, vegetation
19193/9	D12 Ram	311750	6294159	Minor insects

Sampling procedures have been approved and report finalised on 16/12/2025.
Where method is "unknown" sampling procedures are not endorsed

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NATA Accreditation 20375
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Report Number: 19292

Date Issued: 13/01/2026 Revision Number: 00

Site/Job: Dixon Maroota - Dusts

Client: Dixon Sand (No.1) Pty Ltd
Address PO Box 4019
PITT TOWN NSW 2756
Contact David Dixon

The following Dust Deposition sample(s) were received on 7/01/2026

Client Sample Reference	Date On	Date Off	Lab ID	Matrix	Comments or Non-Compliances
D08&9 Hitchcock Rd Olive Grove	10/12/2025 13:28	7/1/2026 11:41	19292/1	Dust	
D10 Hearses Rd	10/12/2025 14:17	7/1/2026 12:10	19292/2	Dust	
D06 School	10/12/2025 13:17	7/1/2026 10:30	19292/3	Dust	
D05 Bund	10/12/2025 11:27	7/1/2026 10:48	19292/4	Dust	
D04 Rehab	10/12/2025 9:16	7/1/2026 11:13	19292/5	Dust	
D07 Mullock	10/12/2025 10:02	7/1/2026 11:25	19292/6	Dust	
D01(A) Front Gate	10/12/2025 8:57	7/1/2026 10:59	19292/7	Dust	
D11 Goldstien	10/12/2025 14:02	7/1/2026 13:10	19292/8	Dust	
D12 Ram	10/12/2025 13:42	7/1/2026 11:58	19292/9	Dust	

The sample(s) have been tested as received and results relate specifically to the samples tested.

The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:



Anthony Crane
Laboratory Manager

Results have been approved and report finalised on 13/01/2026.

Accredited for compliance with ISO/IEC 17025 – Testing.

Test Report Number: 19292

Date Issued: 13/01/2026 Revision No: 00

Results

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19292/1 7/01/2026 D08&9 Hitchcock Rd Olive Grove	19292/2 7/01/2026 D10 Hearses Rd	19292/3 7/01/2026 D06 School	19292/4 7/01/2026 D05 Bund	19292/5 7/01/2026 D04 Rehab
Date Tested	AS 3580.10.1	--	09/01/2026	09/01/2026	09/01/2026	09/01/2026	09/01/2026
Number of Days	AS 3580.10.1	days	28	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	1.1	**14.4**	2.2	**8.7**	1.2
Ash	AS 3580.10.1	g/m2/mth	0.7	10.2	1.5	7.6	0.5
Combustible Matter	AS 3580.10.1	g/m2/mth	0.4	4.2	0.7	1.1	0.7
Calculated Rain	AS 3580.10.1	mm	101	101	100	85	87

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19292/6 7/01/2026 D07 Mullock	19292/7 7/01/2026 D01(A) Front Gate	19292/8 7/01/2026 D11 Goldstien	19292/9 7/01/2026 D12 Ram
Date Tested	AS 3580.10.1	--	09/01/2026	09/01/2026	09/01/2026	09/01/2026
Number of Days	AS 3580.10.1	days	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.7	2.1	1.9	0.9
Ash	AS 3580.10.1	g/m2/mth	0.5	1.0	0.8	0.5
Combustible Matter	AS 3580.10.1	g/m2/mth	0.2	1.1	1.1	0.4
Calculated Rain	AS 3580.10.1	mm	86	94	102	104

Report Comments:

Guideline applied - **EPL Dust Limits.**

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Location Analysed : 4/30 Glenwood Dr Thornton NSW 2322.

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 19292

Date Issued: 13/01/2026 Revision No: 00

Sampling Conditions: Fine, 28 - 34 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
19292/1	D08&9 Hitchcock Rd Olive Grove		T & D.Walker	7/1/2026 11:41	AS3580.10.1	CuSO4
19292/2	D10 Hearses Rd		T & D.Walker	7/1/2026 12:10	AS3580.10.1	CuSO4
19292/3	D06 School		T & D.Walker	7/1/2026 10:30	AS3580.10.1	CuSO4
19292/4	D05 Bund		T & D.Walker	7/1/2026 10:48	AS3580.10.1	CuSO4
19292/5	D04 Rehab		T & D.Walker	7/1/2026 11:13	AS3580.10.1	CuSO4
19292/6	D07 Mullock		T & D.Walker	7/1/2026 11:25	AS3580.10.1	CuSO4
19292/7	D01(A) Front Gate		T & D.Walker	7/1/2026 10:59	AS3580.10.1	CuSO4
19292/8	D11 Goldstien		T & D.Walker	7/1/2026 13:10	AS3580.10.1	CuSO4
19292/9	D12 Ram		T & D.Walker	7/1/2026 11:58	AS3580.10.1	CuSO4

Lab ID	Client Sample Reference	GPS-Easting	GPS-Northing	Sampling Observations
19292/1	D08&9 Hitchcock Rd Olive Grove	313058	6295137	Minor insects
19292/2	D10 Hearses Rd	312538	6294576	Sand, vegetation, algae. Adjacent paddock stripped bare.
19292/3	D06 School	313518	6296537	Minor dust, insects, minor vegetation
19292/4	D05 Bund	313160	6296838	Sand, minor insects
19292/5	D04 Rehab	312385	6296932	Minor vegetation
19292/6	D07 Mullock	312579	6296676	
19292/7	D01(A) Front Gate	313290	6297176	Minor vegetation
19292/8	D11 Goldstien	312034	6294213	Minor insects, minor vegetation
19292/9	D12 Ram	311750	6294159	Minor insects

Sampling procedures have been approved and report finalised on 13/01/2026.
Where method is "unknown" sampling procedures are not endorsed

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Report Number: 19467

Date Issued: 9/02/2026 Revision Number: 00

Site/Job: Dixon Maroota - Dusts

Client: Dixon Sand (No.1) Pty Ltd
Address PO Box 4019
PITT TOWN NSW 2756
Contact David Dixon

The following Dust Deposition sample(s) were received on 4/02/2026

Client Sample Reference	Date On	Date Off	Lab ID	Matrix	Comments or Non-Compliances
D08&9 Hitchcock Rd Olive Grove	7/1/2026 11:41	4/2/2026 11:46	19467/1	Dust	
D10 Hearses Rd	7/1/2026 12:10	4/2/2026 12:10	19467/2	Dust	
D06 School	7/1/2026 10:30	4/2/2026 10:45	19467/3	Dust	
D05 Bund	7/1/2026 10:48	4/2/2026 10:55	19467/4	Dust	
D04 Rehab	7/1/2026 11:13	4/2/2026 11:18	19467/5	Dust	
D07 Mullock	7/1/2026 11:25	4/2/2026 11:30	19467/6	Dust	
D01(A) Front Gate	7/1/2026 10:59	4/2/2026 11:04	19467/7	Dust	
D11 Goldstien	7/1/2026 13:10	4/2/2026 13:10	19467/8	Dust	
D12 Ram	7/1/2026 11:58	4/2/2026 11:58	19467/9	Dust	

The sample(s) have been tested as received and results relate specifically to the samples tested.

The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:

Anthony Crane
Laboratory Manager

Liane Peyra
Technical Officer

Results have been approved and report finalised on 9/02/2026.

Accredited for compliance with ISO/IEC 17025 – Testing.

Test Report Number: 19467

Date Issued: 9/02/2026 Revision No: 00

Results

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19467/1 4/02/2026 D08&9 Hitchcock Rd Olive Grove	19467/2 4/02/2026 D10 Hearses Rd	19467/3 4/02/2026 D06 School	19467/4 4/02/2026 D05 Bund	19467/5 4/02/2026 D04 Rehab
Date Tested	AS 3580.10.1	--	5/02/2026	5/02/2026	5/02/2026	5/02/2026	5/02/2026
Number of Days	AS 3580.10.1	days	28	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.9	**4.9**	2.9	1.0	0.8
Ash	AS 3580.10.1	g/m2/mth	0.7	2.2	1.6	0.9	0.5
Combustible Matter	AS 3580.10.1	g/m2/mth	0.2	2.7	1.3	0.1	0.3
Calculated Rain	AS 3580.10.1	mm	150	132	155	146	148

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19467/6 4/02/2026 D07 Mullock	19467/7 4/02/2026 D01(A) Front Gate	19467/8 4/02/2026 D11 Goldstien	19467/9 4/02/2026 D12 Ram
Date Tested	AS 3580.10.1	--	5/02/2026	5/02/2026	5/02/2026	5/02/2026
Number of Days	AS 3580.10.1	days	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.5	1.1	0.9	3.1
Ash	AS 3580.10.1	g/m2/mth	0.4	1.1	0.4	1.4
Combustible Matter	AS 3580.10.1	g/m2/mth	0.1	<0.1	0.5	1.7
Calculated Rain	AS 3580.10.1	mm	148	116	129	129

Report Comments:

Guideline applied - **EPL Dust Limits.**

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Location Analysed : 4/30 Glenwood Dr Thornton NSW 2322.

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 19467

Date Issued: 9/02/2026 Revision No: 00

Sampling Conditions: Fine, 23 - 28 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
19467/1	D08&9 Hitchcock Rd Olive Grove		T & D.Walker	4/2/2026 11:46	AS3580.10.1	CuSO4
19467/2	D10 Hearses Rd		T & D.Walker	4/2/2026 12:10	AS3580.10.1	CuSO4
19467/3	D06 School		T & D.Walker	4/2/2026 10:45	AS3580.10.1	CuSO4
19467/4	D05 Bund		T & D.Walker	4/2/2026 10:55	AS3580.10.1	CuSO4
19467/5	D04 Rehab		T & D.Walker	4/2/2026 11:18	AS3580.10.1	CuSO4
19467/6	D07 Mullock		T & D.Walker	4/2/2026 11:30	AS3580.10.1	CuSO4
19467/7	D01(A) Front Gate		T & D.Walker	4/2/2026 11:04	AS3580.10.1	CuSO4
19467/8	D11 Goldstien		T & D.Walker	4/2/2026 13:10	AS3580.10.1	CuSO4
19467/9	D12 Ram		T & D.Walker	4/2/2026 11:58	AS3580.10.1	CuSO4

Lab ID	Client Sample Reference	GPS-Easting	GPS-Northing	Sampling Observations
19467/1	D08&9 Hitchcock Rd Olive Grove	313058	6295137	Minor insects
19467/2	D10 Hearses Rd	312538	6294576	Minor insects, minor bird droppings
19467/3	D06 School	313518	6296537	Minor vegetation
19467/4	D05 Bund	313160	6296838	Minor sand, minor insects
19467/5	D04 Rehab	312385	6296932	Minor insects
19467/6	D07 Mullock	312579	6296676	
19467/7	D01(A) Front Gate	313290	6297176	Full
19467/8	D11 Goldstien	312034	6294213	Minor vegetation
19467/9	D12 Ram	311750	6294159	

Sampling procedures have been approved and report finalised on 9/02/2026.
Where method is "unknown" sampling procedures are not endorsed

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Report Number: 19562

Date Issued: 11/03/2026 Revision Number: 00

Site/Job: Dixon Maroota - Dusts

Client: Dixon Sand (No.1) Pty Ltd
Address PO Box 4019
PITT TOWN NSW 2756
Contact David Dixon

The following Dust Deposition sample(s) were received on 4/03/2026

Client Sample Reference	Date On	Date Off	Lab ID	Matrix	Comments or Non-Compliances
D08&9 Hitchcock Rd Olive Grove	4/2/2026 11:46	4/3/2026 12:00	19562/1	Dust	
D10 Hearses Rd	4/2/2026 12:10	4/3/2026 12:33	19562/2	Dust	
D06 School	4/2/2026 10:45	4/3/2026 10:31	19562/3	Dust	
D05 Bund	4/2/2026 10:55	4/3/2026 10:49	19562/4	Dust	
D04 Rehab	4/2/2026 11:18	4/3/2026 11:30	19562/5	Dust	
D07 Mullock	4/2/2026 11:30	4/3/2026 11:42	19562/6	Dust	
D01(A) Front Gate	4/2/2026 11:04	4/3/2026 11:01	19562/7	Dust	
D11 Goldstien	4/2/2026 13:10	4/3/2026 13:42	19562/8	Dust	
D12 Ram	4/2/2026 11:58	4/3/2026 12:12	19562/9	Dust	

The sample(s) have been tested as received and results relate specifically to the samples tested.

The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:

Liane Peyra
Technical Officer

Results have been approved and report finalised on 11/03/2026.

Test Report Number: 19562

Date Issued: 11/03/2026 Revision No: 00

Results

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19562/1 4/03/2026 D08&9 Hitchcock Rd Olive Grove	19562/2 4/03/2026 D10 Hearses Rd	19562/3 4/03/2026 D06 School	19562/4 4/03/2026 D05 Bund	19562/5 4/03/2026 D04 Rehab
Date Tested	AS 3580.10.1	--	6/03/2026	6/03/2026	6/03/2026	6/03/2026	6/03/2026
Number of Days	AS 3580.10.1	days	28	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.8	**9.1**	2.1	1.3	0.9
Ash	AS 3580.10.1	g/m2/mth	0.4	3.6	1.2	0.8	0.4
Combustible Matter	AS 3580.10.1	g/m2/mth	0.4	5.5	0.9	0.5	0.5
Calculated Rain	AS 3580.10.1	mm	132	130	138	132	141

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19562/6 4/03/2026 D07 Mullock	19562/7 4/03/2026 D01(A) Front Gate	19562/8 4/03/2026 D11 Goldstien	19562/9 4/03/2026 D12 Ram
Date Tested	AS 3580.10.1	--	6/03/2026	6/03/2026	6/03/2026	6/03/2026
Number of Days	AS 3580.10.1	days	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	1.7	2.1	1.1	0.5
Ash	AS 3580.10.1	g/m2/mth	1.4	1.6	0.5	0.3
Combustible Matter	AS 3580.10.1	g/m2/mth	0.3	0.5	0.6	0.2
Calculated Rain	AS 3580.10.1	mm	140	116	140	136

Report Comments:

Guideline applied - **EPL Dust Limits.**

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Location Analysed : 4/30 Glenwood Dr Thornton NSW 2322.

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 19562

Date Issued: 11/03/2026 Revision No: 00

Sampling Conditions: Cloudy, 24 - 30 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
19562/1	D08&9 Hitchcock Rd Olive Grove		T & D.Walker	4/3/2026 12:00	AS3580.10.1	CuSO4
19562/2	D10 Hearses Rd		T & D.Walker	4/3/2026 12:33	AS3580.10.1	CuSO4
19562/3	D06 School		T & D.Walker	4/3/2026 10:31	AS3580.10.1	CuSO4
19562/4	D05 Bund		T & D.Walker	4/3/2026 10:49	AS3580.10.1	CuSO4
19562/5	D04 Rehab		T & D.Walker	4/3/2026 11:30	AS3580.10.1	CuSO4
19562/6	D07 Mullock		T & D.Walker	4/3/2026 11:42	AS3580.10.1	CuSO4
19562/7	D01(A) Front Gate		T & D.Walker	4/3/2026 11:01	AS3580.10.1	CuSO4
19562/8	D11 Goldstien		T & D.Walker	4/3/2026 13:42	AS3580.10.1	CuSO4
19562/9	D12 Ram		T & D.Walker	4/3/2026 12:12	AS3580.10.1	CuSO4

Lab ID	Client Sample Reference	GPS-Easting	GPS-Northing	Sampling Observations
19562/1	D08&9 Hitchcock Rd Olive Grove	313058	6295137	
19562/2	D10 Hearses Rd	312538	6294576	Insects, seeds, bird droppings, vegetation
19562/3	D06 School	313518	6296537	Very minor sand
19562/4	D05 Bund	313160	6296838	Minor insects
19562/5	D04 Rehab	312385	6296932	
19562/6	D07 Mullock	312579	6296676	
19562/7	D01(A) Front Gate	313290	6297176	Full
19562/8	D11 Goldstien	312034	6294213	Minor vegetation
19562/9	D12 Ram	311750	6294159	

Sampling procedures have been approved and report finalised on 11/03/2026.
Where method is "unknown" sampling procedures are not endorsed

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Report Number: 19780

Date Issued: 9/04/2026 Revision Number: 00

Site/Job: Dixon Maroota - Dusts

Client: Dixon Sand (No.1) Pty Ltd
Address PO Box 4019
PITT TOWN NSW 2756
Contact David Dixon

The following Dust Deposition sample(s) were received on 1/04/2026

Client Sample Reference	Date On	Date Off	Lab ID	Matrix	Comments or Non-Compliances
D08&9 Hitchcock Rd Olive Grove	4/3/2026 12:00	1/4/2026 13:17	19780/1	Dust	
D10 Hearses Rd	4/3/2026 12:33	1/4/2026 13:52	19780/2	Dust	
D06 School	4/3/2026 10:31	1/4/2026 10:53	19780/3	Dust	
D05 Bund	4/3/2026 10:49	1/4/2026 11:23	19780/4	Dust	
D04 Rehab	4/3/2026 11:30	1/4/2026 11:54	19780/5	Dust	
D07 Mullock	4/3/2026 11:42	1/4/2026 12:04	19780/6	Dust	
D01(A) Front Gate	4/3/2026 11:01	1/4/2026 11:40	19780/7	Dust	
D11 Goldstien	4/3/2026 13:42	1/4/2026 14:48	19780/8	Dust	
D12 Ram	4/3/2026 12:12	1/4/2026 13:31	19780/9	Dust	

The sample(s) have been tested as received and results relate specifically to the samples tested.

The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:

Liane Peyra
Technical Officer

Anthony Crane
Laboratory Manager

Results have been approved and report finalised on 9/04/2026.

Accredited for compliance with ISO/IEC 17025 – Testing.

Test Report Number: 19780

Date Issued: 9/04/2026 Revision No: 00

Results

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19780/1 1/04/2026 D08&9 Hitchcock Rd Olive Grove	19780/2 1/04/2026 D10 Hearses Rd	19780/3 1/04/2026 D06 School	19780/4 1/04/2026 D05 Bund	19780/5 1/04/2026 D04 Rehab
Date Tested	AS 3580.10.1	--	7/04/2026	7/04/2026	7/04/2026	7/04/2026	7/04/2026
Number of Days	AS 3580.10.1	days	28	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.6	4.0	1.9	0.9	0.5
Ash	AS 3580.10.1	g/m2/mth	0.4	1.6	1.3	0.7	0.2
Combustible Matter	AS 3580.10.1	g/m2/mth	0.2	2.4	0.6	0.2	0.3
Calculated Rain	AS 3580.10.1	mm	92	86	108	98	91

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19780/6 1/04/2026 D07 Mullock	19780/7 1/04/2026 D01(A) Front Gate	19780/8 1/04/2026 D11 Goldstien	19780/9 1/04/2026 D12 Ram
Date Tested	AS 3580.10.1	--	7/04/2026	7/04/2026	7/04/2026	7/04/2026
Number of Days	AS 3580.10.1	days	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.8	3.0	0.9	0.4
Ash	AS 3580.10.1	g/m2/mth	0.6	2.8	0.4	0.2
Combustible Matter	AS 3580.10.1	g/m2/mth	0.2	0.2	0.5	0.2
Calculated Rain	AS 3580.10.1	mm	93	106	97	104

Report Comments:

Guideline applied - **EPL Dust Limits.**

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Location Analysed : 4/30 Glenwood Dr Thornton NSW 2322.

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 19780

Date Issued: 9/04/2026 Revision No: 00

Sampling Conditions: Partly cloudy, 21 - 27 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
19780/1	D08&9 Hitchcock Rd Olive Grove		T & D.Walker	1/4/2026 13:17	AS3580.10.1	CuSO4
19780/2	D10 Hearses Rd		T & D.Walker	1/4/2026 13:52	AS3580.10.1	CuSO4
19780/3	D06 School		T & D.Walker	1/4/2026 10:53	AS3580.10.1	CuSO4
19780/4	D05 Bund		T & D.Walker	1/4/2026 11:23	AS3580.10.1	CuSO4
19780/5	D04 Rehab		T & D.Walker	1/4/2026 11:54	AS3580.10.1	CuSO4
19780/6	D07 Mullock		T & D.Walker	1/4/2026 12:04	AS3580.10.1	CuSO4
19780/7	D01(A) Front Gate		T & D.Walker	1/4/2026 11:40	AS3580.10.1	CuSO4
19780/8	D11 Goldstien		T & D.Walker	1/4/2026 14:48	AS3580.10.1	CuSO4
19780/9	D12 Ram		T & D.Walker	1/4/2026 13:31	AS3580.10.1	CuSO4

Lab ID	Client Sample Reference	GPS-Easting	GPS-Northing	Sampling Observations
19780/1	D08&9 Hitchcock Rd Olive Grove	313058	6295137	Minor insects
19780/2	D10 Hearses Rd	312538	6294576	Minor sand, vegetation, algae. Bird droppings in funnel.
19780/3	D06 School	313518	6296537	Minor sand, minor vegetation
19780/4	D05 Bund	313160	6296838	Minor sand, minor insects
19780/5	D04 Rehab	312385	6296932	Minor insects
19780/6	D07 Mullock	312579	6296676	Minor sand
19780/7	D01(A) Front Gate	313290	6297176	Minor sand
19780/8	D11 Goldstien	312034	6294213	Minor vegetation
19780/9	D12 Ram	311750	6294159	

Sampling procedures have been approved and report finalised on 9/04/2026.
Where method is "unknown" sampling procedures are not endorsed

VGT Laboratories Pty Ltd.
ABN 77 621 943 600
NATA Accreditation 20375
Unit 4, 30 Glenwood Drive Thornton NSW 2322
P: (02) 4028 6412 | **E:** lab@vgt.com.au | **www.vgt.com.au**

Report Number: 19897

Date Issued: 7/05/2026 Revision Number: 00

Site/Job: Dixon Maroota - Dusts

Client: Dixon Sand (No.1) Pty Ltd
Address PO Box 4019
PITT TOWN NSW 2756
Contact David Dixon

The following Dust Deposition sample(s) were received on 29/04/2026

Client Sample Reference	Date On	Date Off	Lab ID	Matrix	Comments or Non-Compliances
D08&9 Hitchcock Rd Olive Grove	1/4/2026 13:17	29/4/2026 11:42	19897/1	Dust	
D10 Hearses Rd	1/4/2026 13:52	29/4/2026 12:08	19897/2	Dust	
D06 School	1/4/2026 10:53	29/4/2026 10:41	19897/3	Dust	
D05 Bund	1/4/2026 11:23	29/4/2026 10:56	19897/4	Dust	
D04 Rehab	1/4/2026 11:54	29/4/2026 11:18	19897/5	Dust	
D07 Mullock	1/4/2026 12:04	29/4/2026 11:30	19897/6	Dust	
D01(A) Front Gate	1/4/2026 11:40	29/4/2026 11:06	19897/7	Dust	
D11 Goldstien	1/4/2026 14:48	29/4/2026 13:04	19897/8	Dust	
D12 Ram	1/4/2026 13:31	29/4/2026 11:56	19897/9	Dust	

The sample(s) have been tested as received and results relate specifically to the samples tested.

The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:

Liane Peyra
Technical Officer

Results have been approved and report finalised on 7/05/2026.

Accredited for compliance with ISO/IEC 17025 – Testing.

Test Report Number: 19897

Date Issued: 7/05/2026 Revision No: 00

Results

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19897/1 29/04/2026 D08&9 Hitchcock Rd Olive Grove	19897/2 29/04/2026 D10 Hearses Rd	19897/3 29/04/2026 D06 School	19897/4 29/04/2026 D05 Bund	19897/5 29/04/2026 D04 Rehab
Date Tested	AS 3580.10.1	--	5/05/2026	5/05/2026	5/05/2026	5/05/2026	5/05/2026
Number of Days	AS 3580.10.1	days	28	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.6	2.5	2.6	0.7	0.3
Ash	AS 3580.10.1	g/m2/mth	0.5	1.4	0.9	0.6	0.2
Combustible Matter	AS 3580.10.1	g/m2/mth	0.1	1.1	1.7	0.1	0.1
Calculated Rain	AS 3580.10.1	mm	18	15	17	14	16

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19897/6 29/04/2026 D07 Mullock	19897/7 29/04/2026 D01(A) Front Gate	19897/8 29/04/2026 D11 Goldstien	19897/9 29/04/2026 D12 Ram
Date Tested	AS 3580.10.1	--	5/05/2026	5/05/2026	5/05/2026	5/05/2026
Number of Days	AS 3580.10.1	days	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.2	2.7	0.6	0.2
Ash	AS 3580.10.1	g/m2/mth	0.2	2.5	0.4	0.2
Combustible Matter	AS 3580.10.1	g/m2/mth	<0.1	0.2	0.2	<0.1
Calculated Rain	AS 3580.10.1	mm	16	18	13	18

Report Comments:

Guideline applied - **EPL Dust Limits.**

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Location Analysed : 4/30 Glenwood Dr Thornton NSW 2322.

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 19897

Date Issued: 7/05/2026 Revision No: 00

Sampling Conditions: Cloudy, 19 - 24 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
19897/1	D08&9 Hitchcock Rd Olive Grove		T & D.Walker	29/4/2026 11:42	AS3580.10.1	CuSO4
19897/2	D10 Hearses Rd		T & D.Walker	29/4/2026 12:08	AS3580.10.1	CuSO4
19897/3	D06 School		T & D.Walker	29/4/2026 10:41	AS3580.10.1	CuSO4
19897/4	D05 Bund		T & D.Walker	29/4/2026 10:56	AS3580.10.1	CuSO4
19897/5	D04 Rehab		T & D.Walker	29/4/2026 11:18	AS3580.10.1	CuSO4
19897/6	D07 Mullock		T & D.Walker	29/4/2026 11:30	AS3580.10.1	CuSO4
19897/7	D01(A) Front Gate		T & D.Walker	29/4/2026 11:06	AS3580.10.1	CuSO4
19897/8	D11 Goldstien		T & D.Walker	29/4/2026 13:04	AS3580.10.1	CuSO4
19897/9	D12 Ram		T & D.Walker	29/4/2026 11:56	AS3580.10.1	CuSO4

Lab ID	Client Sample Reference	GPS-Easting	GPS-Northing	Sampling Observations
19897/1	D08&9 Hitchcock Rd Olive Grove	313058	6295137	
19897/2	D10 Hearses Rd	312538	6294576	Minor sand, bird droppings
19897/3	D06 School	313518	6296537	Insects
19897/4	D05 Bund	313160	6296838	
19897/5	D04 Rehab	312385	6296932	Minor insects
19897/6	D07 Mullock	312579	6296676	
19897/7	D01(A) Front Gate	313290	6297176	Minor sand, minor insects
19897/8	D11 Goldstien	312034	6294213	Vegetation
19897/9	D12 Ram	311750	6294159	

Sampling procedures have been approved and report finalised on 7/05/2026.
Where method is "unknown" sampling procedures are not endorsed

VGT Laboratories Pty Ltd.
ABN 77 621 943 600
NATA Accreditation 20375
Unit 4, 30 Glenwood Drive Thornton NSW 2322
P: (02) 4028 6412 | **E:** lab@vgt.com.au | **www.vgt.com.au**

Report Number: 19984

Date Issued: 3/06/2026 Revision Number: 00

Site/Job: Dixon Maroota - Dusts

Client: Dixon Sand (No.1) Pty Ltd
Address PO Box 4019
PITT TOWN NSW 2756
Contact David Dixon

The following Dust Deposition sample(s) were received on 27/05/2026

Client Sample Reference	Date On	Date Off	Lab ID	Matrix	Comments or Non-Compliances
D08&9 Hitchcock Rd Olive Grove	29/4/2026 11:42	27/5/2026 13:36	19984/1	Dust	
D10 Hearses Rd	29/4/2026 12:08	27/5/2026 14:10	19984/2	Dust	
D06 School	29/4/2026 10:41	27/5/2026 08:14	19984/3	Dust	
D05 Bund	29/4/2026 10:56	27/5/2026 11:53	19984/4	Dust	
D04 Rehab	29/4/2026 11:18	27/5/2026 08:39	19984/5	Dust	
D07 Mullock	29/4/2026 11:30	27/5/2026 09:16	19984/6	Dust	
D01(A) Front Gate	29/4/2026 11:06	27/5/2026 08:22	19984/7	Dust	
D11 Goldstien	29/4/2026 13:04	27/5/2026 13:49	19984/8	Dust	
D12 Ram	29/4/2026 11:56	27/5/2026 14:36	19984/9	Dust	

The sample(s) have been tested as received and results relate specifically to the samples tested.

The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:

Anthony Crane
Laboratory Manager

Liane Peyra
Technical Officer

Results have been approved and report finalised on 3/06/2026.

Accredited for compliance with ISO/IEC 17025 – Testing.

Test Report Number: 19984

Date Issued: 3/06/2026 Revision No: 00

Results

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19984/1 27/05/2026 D08&9 Hitchcock Rd Olive Grove	19984/2 27/05/2026 D10 Hearses Rd	19984/3 27/05/2026 D06 School	19984/4 27/05/2026 D05 Bund	19984/5 27/05/2026 D04 Rehab
Date Tested	AS 3580.10.1	--	29/05/2026	29/05/2026	29/05/2026	29/05/2026	29/05/2026
Number of Days	AS 3580.10.1	days	28	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.3	1.9	0.5	1.8	0.2
Ash	AS 3580.10.1	g/m2/mth	0.2	1.4	0.4	1.6	0.1
Combustible Matter	AS 3580.10.1	g/m2/mth	0.1	0.5	0.1	0.2	0.1
Calculated Rain	AS 3580.10.1	mm	79	78	82	72	74

Deposited Matter	Method	Lab ID Sample Date Sample ID Units	19984/6 27/05/2026 D07 Mullock	19984/7 27/05/2026 D01(A) Front Gate	19984/8 27/05/2026 D11 Goldstien	19984/9 27/05/2026 D12 Ram
Date Tested	AS 3580.10.1	--	29/05/2026	29/05/2026	29/05/2026	29/05/2026
Number of Days	AS 3580.10.1	days	28	28	28	28
Insoluble Solids	AS 3580.10.1	g/m2/mth	0.2	0.6	0.5	0.2
Ash	AS 3580.10.1	g/m2/mth	0.2	0.5	0.3	0.1
Combustible Matter	AS 3580.10.1	g/m2/mth	<0.1	0.1	0.2	0.1
Calculated Rain	AS 3580.10.1	mm	77	80	83	89

Report Comments:

Guideline applied - **EPL Dust Limits.**

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Location Analysed : 4/30 Glenwood Dr Thornton NSW 2322.

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 19984

Date Issued: 3/06/2026 Revision No: 00

Sampling Conditions: Cloudy, 16 - 22 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
19984/1	D08&9 Hitchcock Rd Olive Grove		T & D.Walker	27/5/2026 13:36	AS3580.10.1	CuSO4
19984/2	D10 Hearses Rd		T & D.Walker	27/5/2026 14:10	AS3580.10.1	CuSO4
19984/3	D06 School		T & D.Walker	27/5/2026 08:14	AS3580.10.1	CuSO4
19984/4	D05 Bund		T & D.Walker	27/5/2026 11:53	AS3580.10.1	CuSO4
19984/5	D04 Rehab		T & D.Walker	27/5/2026 08:39	AS3580.10.1	CuSO4
19984/6	D07 Mullock		T & D.Walker	27/5/2026 09:16	AS3580.10.1	CuSO4
19984/7	D01(A) Front Gate		T & D.Walker	27/5/2026 08:22	AS3580.10.1	CuSO4
19984/8	D11 Goldstien		T & D.Walker	27/5/2026 13:49	AS3580.10.1	CuSO4
19984/9	D12 Ram		T & D.Walker	27/5/2026 14:36	AS3580.10.1	CuSO4

Lab ID	Client Sample Reference	GPS-Easting	GPS-Northing	Sampling Observations
19984/1	D08&9 Hitchcock Rd Olive Grove	313058	6295137	
19984/2	D10 Hearses Rd	312538	6294576	Minor bird droppings, minor algae
19984/3	D06 School	313518	6296537	Minor vegetation
19984/4	D05 Bund	313160	6296838	Minor insects
19984/5	D04 Rehab	312385	6296932	Minor vegetation. Adjacent trees require trimming
19984/6	D07 Mullock	312579	6296676	
19984/7	D01(A) Front Gate	313290	6297176	
19984/8	D11 Goldstien	312034	6294213	Minor vegetation
19984/9	D12 Ram	311750	6294159	Minor insects

Sampling procedures have been approved and report finalised on 3/06/2026.
Where method is "unknown" sampling procedures are not endorsed

Appendix B – PM10, TSP and Weather Station Reports

CBased Environmental Pty Limited
ABN 62 611 924 264

Dixon Sand Quarry

Environmental Monitoring
Air Quality

Tapered Element Oscillating Microbalance (TEOM) (PM_{10}) and Meteorological Data

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July 2025

Colin Davies BSc MEIA CENVP
Environmental Scientist
Date 29 August 2025

CBased Environmental Pty Ltd
Unit 3, 2 Enterprise Crescent SINGLETON NSW 2330
☎ (02) 65713334

1.0 Summary

CBased Environmental Pty Limited is contracted by Dixon Sand to conduct continuous Tapered Element Oscillating Microbalance (TEOM) for fine particulates (PM_{10}) and meteorological monitoring for the Dixon Sand Quarry. The information is required to assess air quality levels. The results for the TEOM and meteorological site are included in this report.

The monitoring programme includes:

- One continuous TEOM PM_{10} monitor; and
- One continuous meteorological station.

This monthly report for July 2025 was prepared by CBased Environmental and includes the following:

- TEOM (PM_{10}) monitoring results; and
- Meteorological results.

In accordance with Schedule 3, Condition 7 of the Dixon Sand development Consent and the Dixon Sand EPL;

- 24-hour average PM_{10} results were below the NEPM 24-hour maximum criteria of 50ug/m^3;
- 24-hour average PM_{10} results were below the Dixon Sand Quarry EPL limit of 42ug/m^3
- The PM_{10} annual average is below the Dixon Sand Quarry consent annual average criteria of 30ug/m^3; and
- The calculated TSP is below the Dixon Sand Quarry annual average criteria of 90ug/m^3.

Note: Based on the available data, statements in green indicate current conformance to Dixon Sand Quarry Air Quality Impact Assessment criteria, statements in red indicate possible non-conformance. Year to date annual average for PM_{10} is calculated from 1 July 2024 for TEOM's coinciding with the Dixon Sand project year.

Approximately 81.9% of valid meteorological data was recorded for July 2025

Approximately 81% of valid TEOM data was available for July 2025.

Please note: A fault with a communications protocol was identified which resulted in loss of meteorological and TEOM data from the 16th to the 22nd July 2025. Rainfall data was unaffected during this period.

2.0 Sampling Programme

The TEOM is sited and operated to the applicable Australian Standard and/or NSW EPA approved methods. The following Australian Standards were used:

- AS3580.9.8 - "*Methods for Sampling and Analysis of Ambient Air. Determination of Suspended Particulates—PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*"; and
- AS/NZS 3580.1.1 - "*Methods for Sampling and Analysis of Ambient Air Part 1.1 Guide to Siting Air Monitoring Equipment*".

TEOM PM_{10} results are 24-hour averages at midnight and are reported as $\mu g/m^3$ corrected to 0 degrees C and 101.3kPa.

All laboratory analysis was conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Air Quality monitoring site descriptions and locations are provided in **Table 1**.

Table 1: Dixon Sand Air Quality Monitoring Description and Locations

Monitor	Site Code	Location Description
TEOM PM_{10}	TEOM	Old North Road, Maroota NSW
Meteorological Station	MET	Old North Road, Maroota NSW

3.0 Results

3.1 TEOM PM_{10}

24-hour average TEOM PM_{10} results from the AQMS data collection software are provided in **Table 2** and a chart of the data is provided in **Figure 1**.

During the July 2025 monitoring period, individual 24-hour TEOM PM_{10} results were below the National Environmental Protection Measure (NEPM) short-term (24hr) impact criteria of 50ug/m3 and the Dixon Sand Quarry EPL limit of 42ug/m3.

Approximately 81% of valid TEOM data was available for July 2025.

At present, the current TEOM PM_{10} annual average is below the Dixon Sand Quarry annual average PM_{10} criteria of 30ug/m^3. The current annual average for calculated Total Suspended Particulates (TSP) is below the annual average criterion of 90ug/m^3. The TSP is calculated by multiplying the PM_{10} by 2.5. Note: the annual average is calculated from 1 July 2025 and therefore an annual amount of data has not been collected.

The quarterly TEOM calibration was conducted in July 2025 (for June). The next calibration is due to be completed in September 2025. The calibration certificate is provided in **Appendix 1** (when required).

Table 2: Average Daily 24-hr TEOM PM_{10} and TSP Results for July 2025 from AQMS and Annual Average PM_{10} calculated from 1 July 2024.

Date	PM_{10} 24-hr Average ($\mu g/m^3$)	PM_{10} Annual Average ($\mu g/m^3$)	24-hr Average TSP* ($\mu g/m^3$)	Annual Average TSP** ($\mu g/m^3$)
1/07/2025	4.9	4.9	12.3	12.3
2/07/2025	5.7	5.3	14.3	13.3
3/07/2025	8.7	6.4	21.8	16.1
4/07/2025	11.4	7.7	28.5	19.2
5/07/2025	8.8	7.9	22.0	19.8
6/07/2025	8.5	8.0	21.3	20.0
7/07/2025	15.0	9.0	37.5	22.5
8/07/2025	8.4	8.9	21.0	22.3
9/07/2025	14.3	9.5	35.8	23.8
10/07/2025	16.8	10.3	42.0	25.6
11/07/2025	9.1	10.1	22.8	25.4
12/07/2025	8.9	10.0	22.3	25.1
13/07/2025	6.8	9.8	17.0	24.5
14/07/2025	13.8	10.1	34.5	25.2
15/07/2025	13.5	10.3	33.8	25.8
16/07/2025	13.4	10.5	33.4	26.2
17/07/2025	ND	10.5	ND	26.2
18/07/2025	ND	10.5	ND	26.2
19/07/2025	ND	10.5	ND	26.2
20/07/2025	ND	10.5	ND	26.2
21/07/2025	ND	10.5	ND	26.2
22/07/2025	ND	10.5	ND	26.2
23/07/2025	8.0	10.4	20.0	25.9
24/07/2025	8.7	10.3	21.8	25.6
25/07/2025	16.4	10.6	41.0	26.5
26/07/2025	6.8	10.4	17.0	26.0
27/07/2025	4.2	10.1	10.5	25.2
28/07/2025	9.6	10.1	24.0	25.2
29/07/2025	13.7	10.2	34.3	25.6
30/07/2025	9.7	10.2	24.3	25.5
31/07/2025	8.9	10.2	22.3	25.4

*Calculated from PM10

**Calculated from PM10 Annual Average

Note: results above the Dixon Sand EPL criteria limit of 42 ug/m^3 are highlighted in yellow

No Data (ND) - <18hrs hour of valid data to calculate a 24hr average

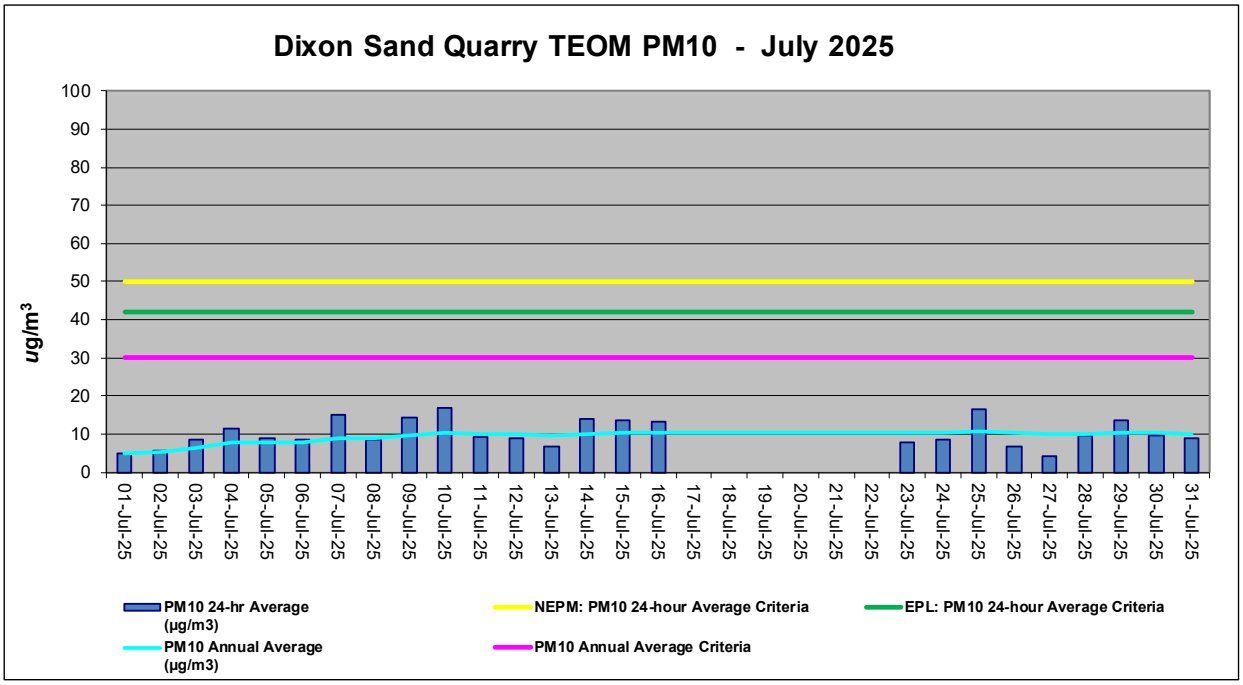


Figure 1: *TEOM PM_{10} 24 hr, Annual Average and Criteria*

3.2 Meteorological Data

The weather station logs data at 5-minute intervals and sends the data to a web database by NextG telemetry. The data is accessible from the web site http://console.teledata.com.au/index.html.

A summary of monthly results is presented in **Table 3**. Charts of meteorological parameters are presented in **Figures 2** and **3**. A Windrose is provided in **Figure 4**.

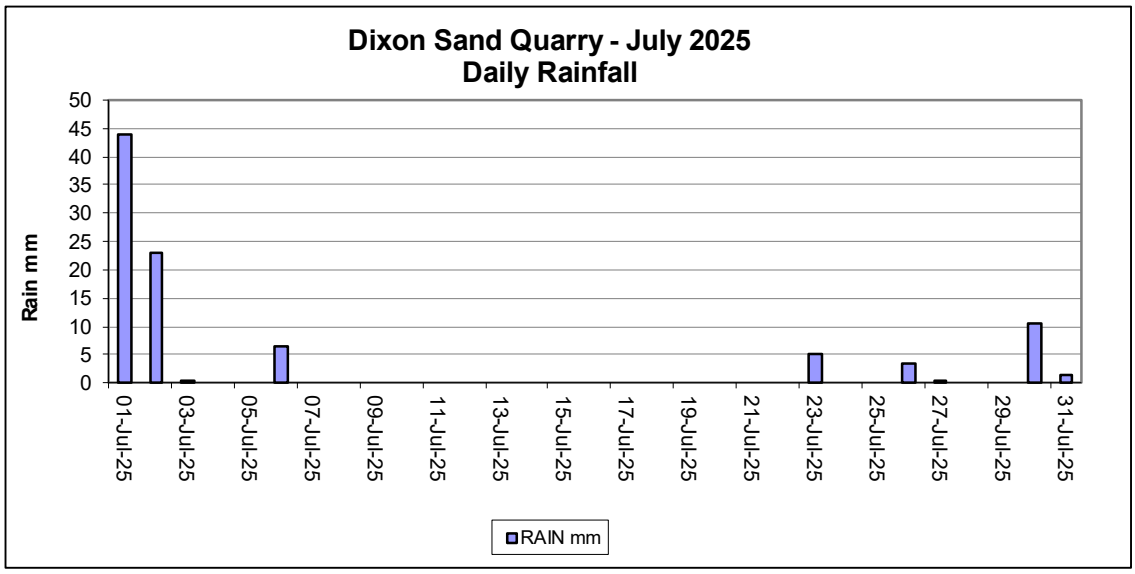
A 6-monthly physical screening and system check of the meteorological station was conducted in July 2025 (for June). The next physical screening and system check is currently scheduled for December 2025. The screening and system check certificates are provided in **Appendix 1** (when required).

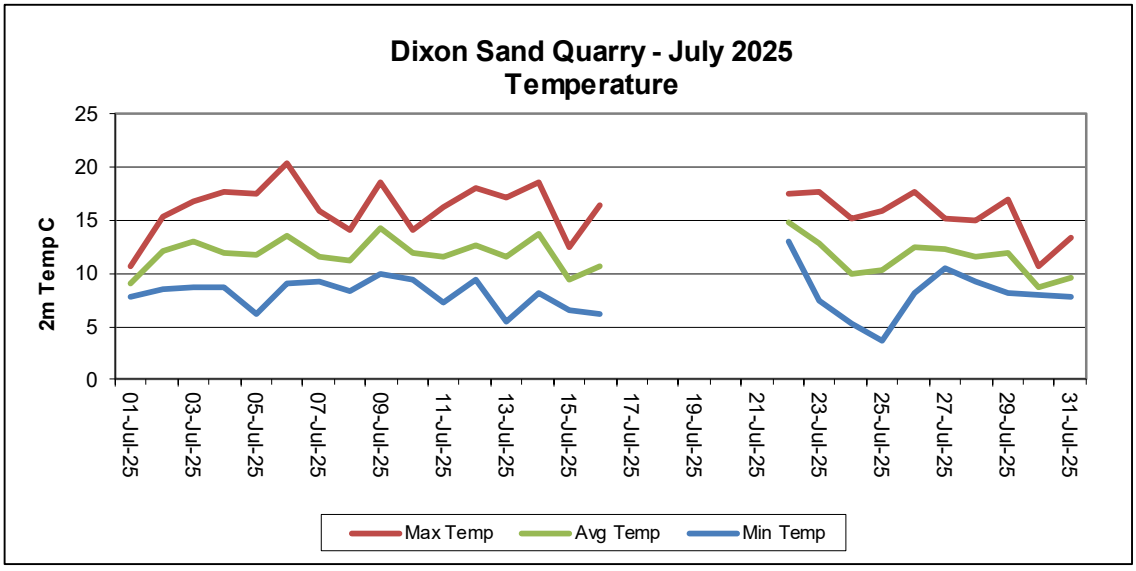
Approximately 81.9% of valid meteorological data was recorded for July 2025.

Table 3: Meteorological Data Summary for July 2025

Date	Min Temp	Avg Temp	Max Temp	RAIN mm	Min WS	Avg WS	Max WS	Min Humidity	Avg Humidity	Max Humidity	Min Pressure	Avg Pressure	Max Pressure
1/07/2025	7.8	9.0	10.6	43.8	1.0	8.9	23.0	79.6	92.6	95.9	970.6	981.1	992.4
2/07/2025	8.5	12.2	15.4	23.0	0.6	8.9	26.4	59.3	84.1	96.1	968.5	973.9	978.6
3/07/2025	8.7	13.0	16.7	0.2	0.0	5.8	26.1	49.6	65.1	78.6	978.2	983.0	988.2
4/07/2025	8.6	12.0	17.6	0.0	0.0	2.7	9.5	47.6	68.2	86.9	988.1	992.2	995.8
5/07/2025	6.1	11.7	17.4	0.0	0.1	2.3	10.2	62.1	78.1	91.1	993.7	995.2	997.7
6/07/2025	9.0	13.5	20.4	6.4	0.0	4.6	15.5	57.8	76.7	93.4	985.8	989.6	993.9
7/07/2025	9.3	11.6	15.9	0.0	0.1	3.2	13.6	51.5	69.9	82.1	986.5	988.1	989.3
8/07/2025	8.4	11.2	14.0	0.0	0.2	5.5	19.5	51.8	66.4	78.0	980.2	984.0	988.1
9/07/2025	10.0	14.2	18.6	0.0	0.2	5.8	16.4	46.9	55.9	68.1	977.7	980.7	983.1
10/07/2025	9.4	11.9	14.1	0.0	0.0	7.2	39.5	40.7	52.1	60.2	975.9	979.4	986.0
11/07/2025	7.2	11.5	16.2	0.0	0.2	5.0	16.7	43.4	57.3	67.6	985.9	990.1	993.5
12/07/2025	9.4	12.7	18.1	0.0	0.2	2.6	10.2	44.7	60.7	70.0	993.3	995.4	996.7
13/07/2025	5.5	11.5	17.1	0.0	0.2	4.1	13.1	35.0	58.8	82.7	983.9	990.5	996.4
14/07/2025	8.1	13.8	18.6	0.0	0.0	3.2	30.3	27.8	44.5	60.1	981.5	984.6	986.3
15/07/2025	6.6	9.3	12.4	0.0	0.2	3.2	12.4	53.9	64.1	76.1	982.8	984.9	988.2
16/07/2025	6.1	10.6	16.4	0.0	0.0	3.3	12.4	37.1	58.0	71.2	987.8	989.5	991.8
17/07/2025				0.0									
18/07/2025				0.0									
19/07/2025				0.0									
20/07/2025				0.0									
21/07/2025				0.0									
22/07/2025	13.0	14.8	17.4	0.0	0.2	4.1	10.9	65.4	75.2	84.6	985.1	986.8	991.6
23/07/2025	7.4	12.8	17.7	5.2	0.2	4.1	18.2	44.2	71.9	93.4	984.1	986.2	989.6
24/07/2025	5.3	9.9	15.2	0.0	0.1	2.6	8.7	35.8	56.7	76.0	989.4	992.4	995.0
25/07/2025	3.7	10.2	15.8	0.0	0.1	3.1	12.3	47.6	63.7	81.9	987.2	993.0	996.7
26/07/2025	8.2	12.5	17.7	3.4	0.0	5.6	20.9	58.3	74.1	90.8	978.2	981.9	987.2
27/07/2025	10.4	12.4	15.2	0.2	0.1	6.3	27.6	55.9	65.7	72.9	976.5	978.0	979.5
28/07/2025	9.2	11.6	15.0	0.0	0.2	5.6	30.4	51.4	62.9	71.6	978.4	981.1	984.6
29/07/2025	8.1	12.0	17.0	0.0	0.1	3.2	14.2	39.2	60.8	77.4	984.4	986.2	988.3
30/07/2025	7.9	8.7	10.6	10.4	0.1	4.8	11.8	70.6	89.5	95.8	984.5	986.3	988.0
31/07/2025	7.8	9.6	13.3	1.4	0.6	6.9	25.5	63.0	83.4	94.5	987.8	992.0	995.1
Monthly	**3.7**	**11.7**	**20.4**	**94.0**	**0.0**	**4.7**	**39.5**	**27.8**	**67.6**	**96.1**	**968.5**	**986.4**	**997.7**

No data available due to communication error resulting in data loss





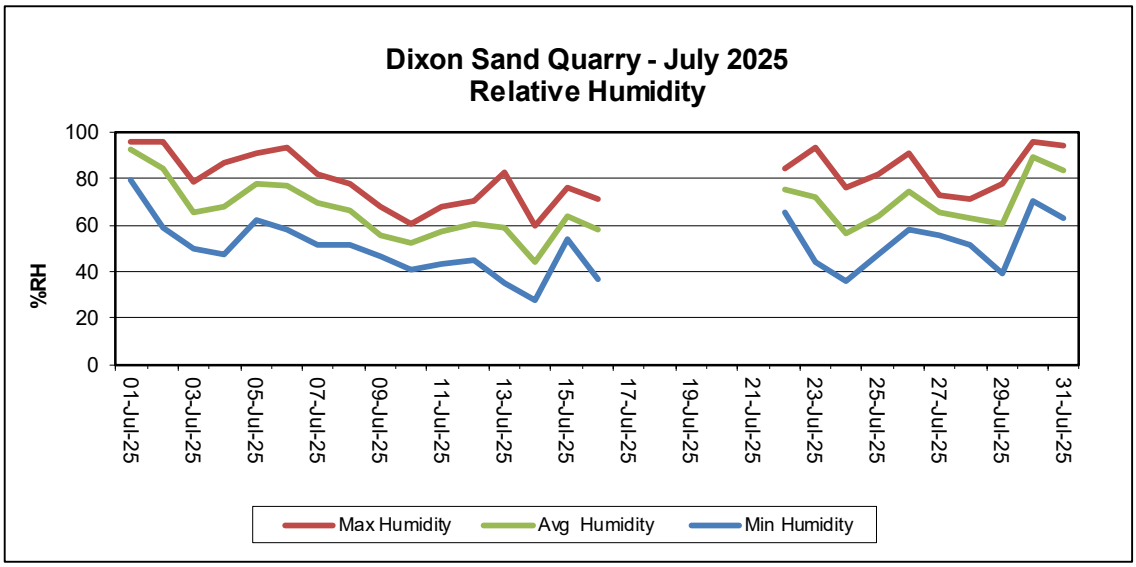


Figure 2: *Daily Rainfall, Temperature and Relative Humidity Charts*

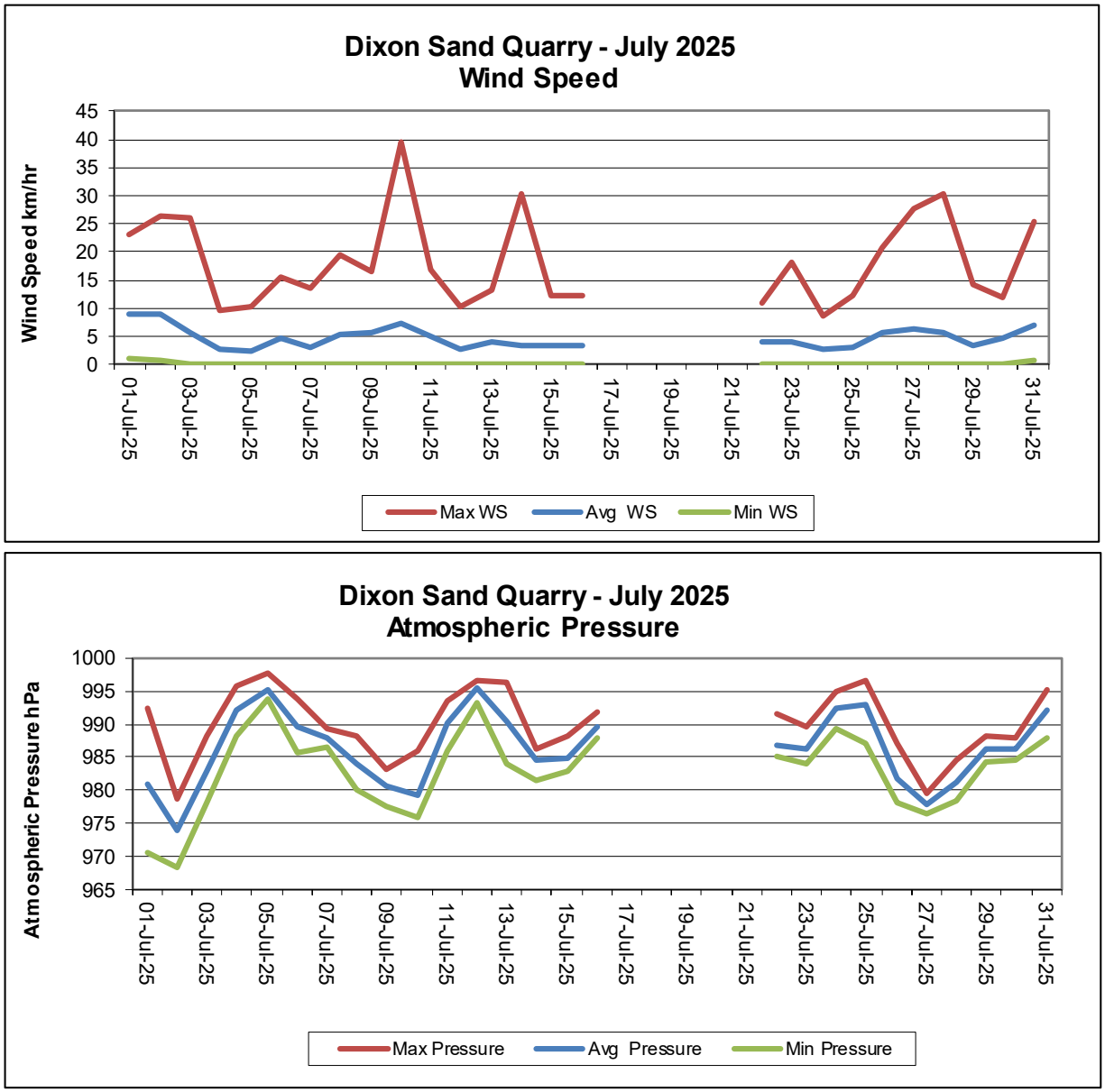


Figure 3: *Wind Speed and Atmospheric Pressure Chart*

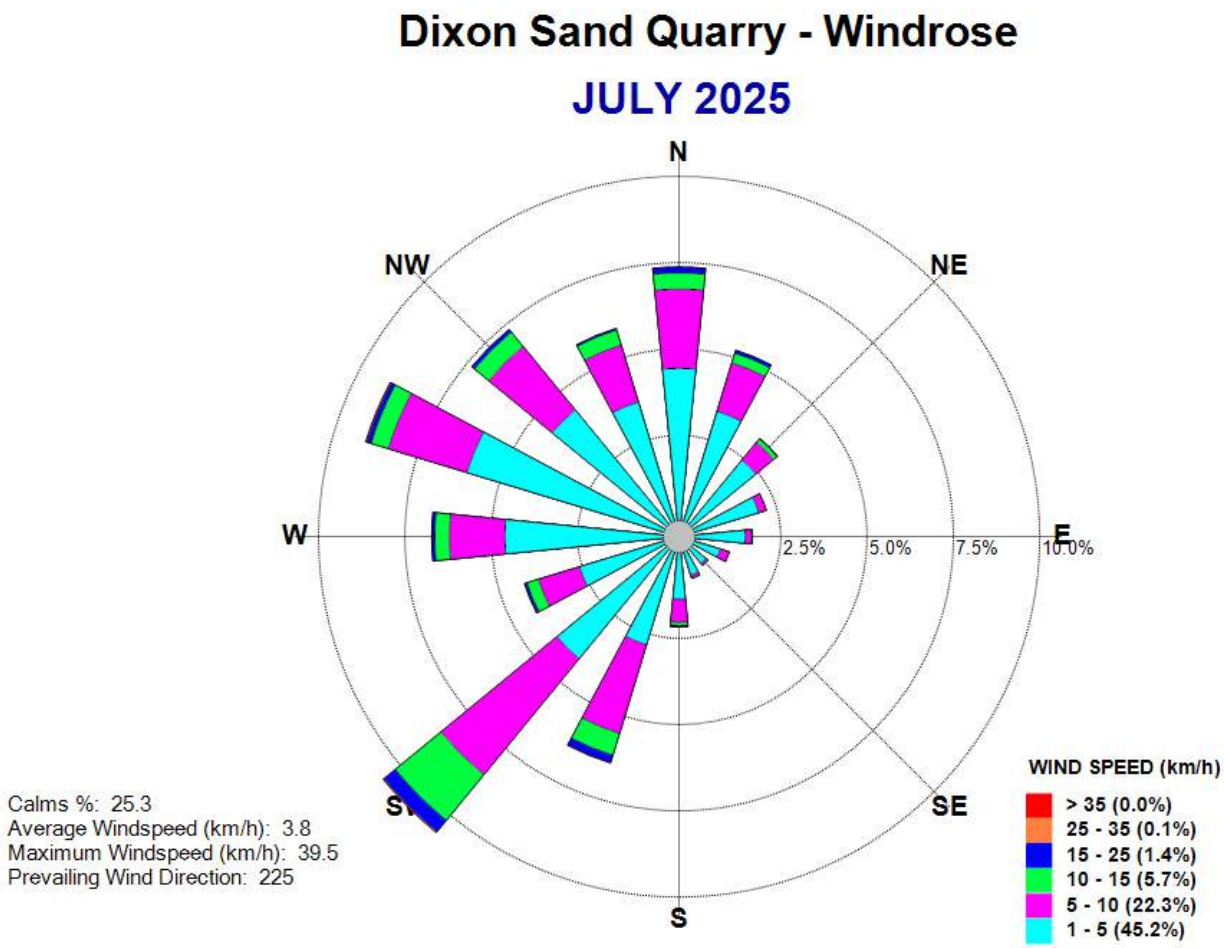


Figure 4: *Windrose*

Appendix 1

Calibration Documents (when required)

CBased Environmental Pty Limited
ABN 62 611 924 264

Dixon Sand Quarry

Environmental Monitoring
Air Quality

Tapered Element Oscillating Microbalance (TEOM) (PM_{10}) and Meteorological Data

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August 2025

Colin Davies BSc MEIA CENVP
Environmental Scientist
Date 29 September 2025

CBased Environmental Pty Ltd
Unit 3, 2 Enterprise Crescent SINGLETON NSW 2330
☎ (02) 65713334

1.0 Summary

CBased Environmental Pty Limited is contracted by Dixon Sand to conduct continuous Tapered Element Oscillating Microbalance (TEOM) for fine particulates (PM_{10}) and meteorological monitoring for the Dixon Sand Quarry. The information is required to assess air quality levels. The results for the TEOM and meteorological site are included in this report.

The monitoring programme includes:

- One continuous TEOM PM_{10} monitor; and
- One continuous meteorological station.

This monthly report for August 2025 was prepared by CBased Environmental and includes the following:

- TEOM (PM_{10}) monitoring results; and
- Meteorological results.

In accordance with Schedule 3, Condition 7 of the Dixon Sand development Consent and the Dixon Sand EPL;

- 24-hour average PM_{10} results were below the NEPM 24-hour maximum criteria of 50ug/m^3;
- 24-hour average PM_{10} results were below the Dixon Sand Quarry EPL limit of 42ug/m^3
- The PM_{10} annual average is below the Dixon Sand Quarry consent annual average criteria of 30ug/m^3; and
- The calculated TSP is below the Dixon Sand Quarry annual average criteria of 90ug/m^3.

Note: Based on the available data, statements in green indicate current conformance to Dixon Sand Quarry Air Quality Impact Assessment criteria, statements in red indicate possible non-conformance. Year to date annual average for PM_{10} is calculated from 1 July 2024 for TEOM's coinciding with the Dixon Sand project year.

Approximately 91.1% of valid meteorological data was recorded for August 2025

Approximately 86.8% of valid TEOM data was available for August 2025.

Please note: A loss of meteorological and TEOM data was observed between **21st and 25th August 2025**, likely due to a power outage caused by a storm-related rain event affecting the monitoring equipment during this period.

Additionally, the automatic data reset for rainfall at 00:00 hr:min was disrupted from 22nd to 25th August. Manual intervention was required to reset and adjust the rainfall data entries in the monitoring spreadsheet at 00:00 hr:min on each affected day to ensure data continuity and accuracy.

2.0 Sampling Programme

The TEOM is sited and operated to the applicable Australian Standard and/or NSW EPA approved methods. The following Australian Standards were used:

- AS3580.9.8 - "*Methods for Sampling and Analysis of Ambient Air. Determination of Suspended Particulates—PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*"; and
- AS/NZS 3580.1.1 - "*Methods for Sampling and Analysis of Ambient Air Part 1.1 Guide to Siting Air Monitoring Equipment*".

TEOM PM_{10} results are 24-hour averages at midnight and are reported as $\mu g/m^3$ corrected to 0 degrees C and 101.3kPa.

All laboratory analysis was conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Air Quality monitoring site descriptions and locations are provided in **Table 1**.

Table 1: Dixon Sand Air Quality Monitoring Description and Locations

Monitor	Site Code	Location Description
TEOM PM_{10}	TEOM	Old North Road, Maroota NSW
Meteorological Station	MET	Old North Road, Maroota NSW

3.0 Results

3.1 TEOM PM_{10}

24-hour average TEOM PM_{10} results from the AQMS data collection software are provided in **Table 2** and a chart of the data is provided in **Figure 1**.

During the August 2025 monitoring period, individual 24-hour TEOM PM_{10} results were below the National Environmental Protection Measure (NEPM) short-term (24hr) impact criteria of 50ug/m3 and the Dixon Sand Quarry EPL limit of 42ug/m3.

Approximately 86.8% of valid TEOM data was available for August 2025.

At present, the current TEOM PM_{10} annual average is below the Dixon Sand Quarry annual average PM_{10} criteria of 30ug/m^3. The current annual average for calculated Total Suspended Particulates (TSP) is below the annual average criterion of 90ug/m^3. The TSP is calculated by multiplying the PM_{10} by 2.5. Note: the annual average is calculated from 1 July 2025 and therefore an annual amount of data has not been collected.

The quarterly TEOM calibration was conducted in July 2025 (for June). The next calibration is due to be completed in September 2025. The calibration certificate is provided in **Appendix 1** (when required).

Table 2: Average Daily 24-hr TEOM PM_{10} and TSP Results for August 2025 from AQMS and Annual Average PM_{10} calculated from 1 July 2025.

Date	PM_{10} 24-hr Average ($\mu g/m^3$)	PM_{10} Annual Average ($\mu g/m^3$)	24-hr Average TSP* ($\mu g/m^3$)	Annual Average TSP** ($\mu g/m^3$)
1/08/2025	7.1	10.0	17.8	25.1
2/08/2025	6.6	9.9	16.5	24.8
3/08/2025	8.5	9.9	21.3	24.7
4/08/2025	10.2	9.9	25.5	24.7
5/08/2025	9.8	9.9	24.5	24.7
6/08/2025	12.1	9.9	30.3	24.9
7/08/2025	15.3	10.1	38.3	25.3
8/08/2025	16.5	10.3	41.3	25.8
9/08/2025	8.0	10.2	20.0	25.6
10/08/2025	6.3	10.1	15.8	25.3
11/08/2025	8.2	10.1	20.5	25.2
12/08/2025	7.8	10.0	19.5	25.0
13/08/2025	14.2	10.1	35.5	25.3
14/08/2025	10.7	10.1	26.8	25.3
15/08/2025	9.3	10.1	23.3	25.3
16/08/2025	7.4	10.0	18.5	25.1
17/08/2025	8.4	10.0	21.0	25.0
18/08/2025	10.9	10.0	27.3	25.1
19/08/2025	10.0	10.0	25.0	25.1
20/08/2025	5.7	9.9	14.3	24.8
21/08/2025	6.5	9.9	16.2	24.6
22/08/2025	ND	9.9	ND	24.6
23/08/2025	ND	9.9	ND	24.6
24/08/2025	ND	9.9	ND	24.6
25/08/2025	ND	9.9	ND	24.6
26/08/2025	10.5	9.9	26.3	24.7
27/08/2025	9.2	9.9	23.0	24.6
28/08/2025	14.1	9.9	35.3	24.9
29/08/2025	15.4	10.1	38.5	25.1
30/08/2025	10.2	10.1	25.5	25.1
31/08/2025	8.0	10.0	20.0	25.0

*Calculated from PM10

**Calculated from PM10 Annual Average

Note: results above the Dixon Sand EPL criteria limit of 42 ug/m^3 are highlighted in yellow

No Data (ND) - <18hrs hour of valid data to calculate a 24hr average

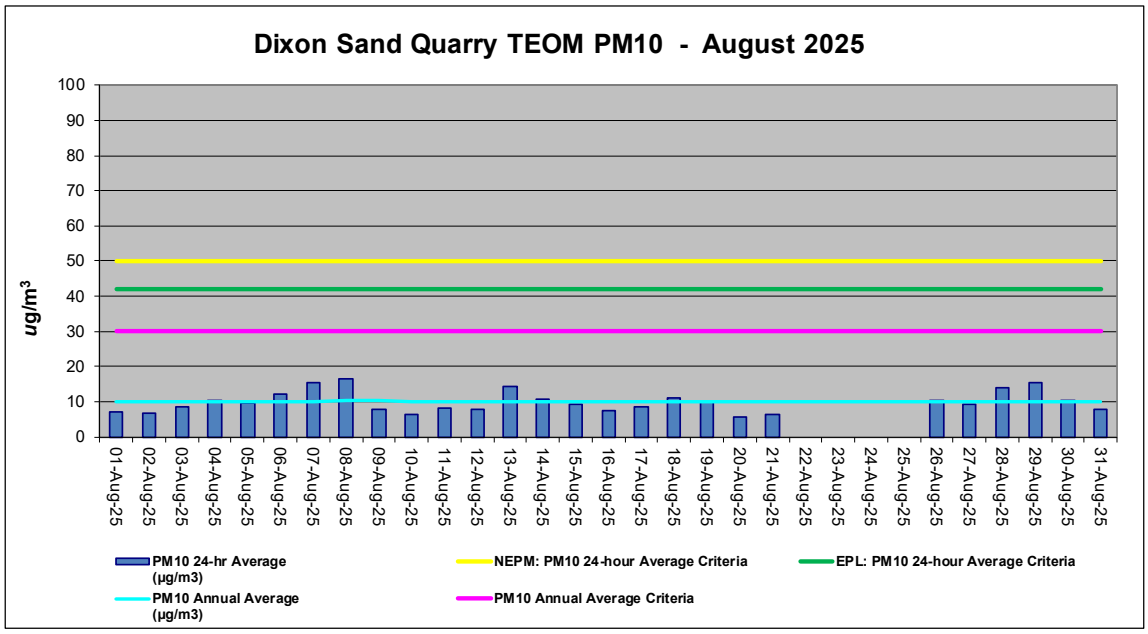


Figure 1: *TEOM PM_{10} 24 hr, Annual Average and Criteria*

3.2 Meteorological Data

The weather station logs data at 5-minute intervals and sends the data to a web database by NextG telemetry. The data is accessible from the web site http://console.teledata.com.au/index.html.

A summary of monthly results is presented in **Table 3**. Charts of meteorological parameters are presented in **Figures 2** and **3**. A Windrose is provided in **Figure 4**.

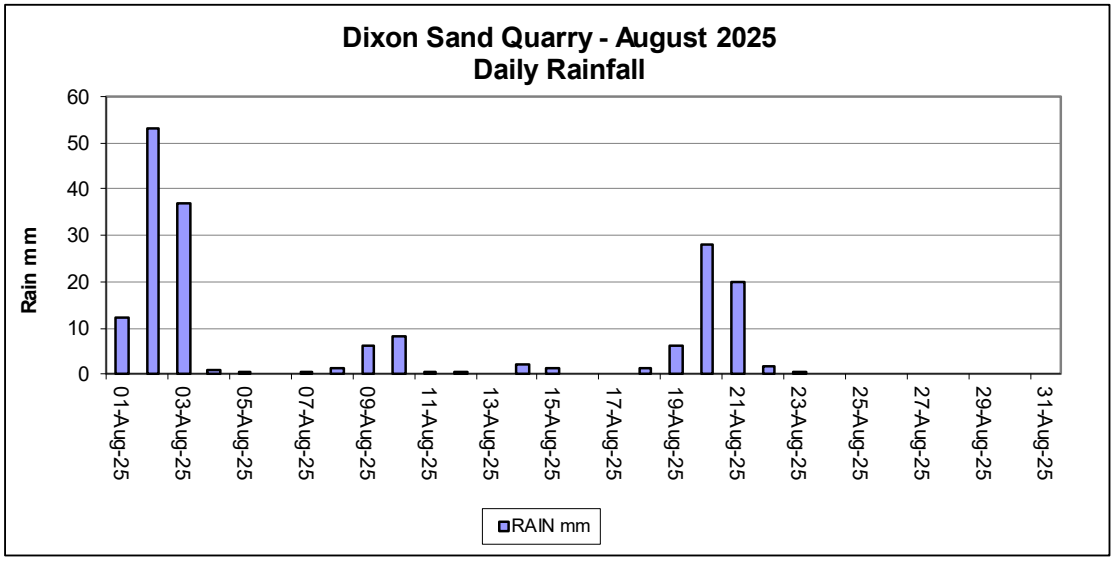
A 6-monthly physical screening and system check of the meteorological station was conducted in July 2025 (for June). The next physical screening and system check is currently scheduled for December 2025. The screening and system check certificates are provided in **Appendix 1** (when required).

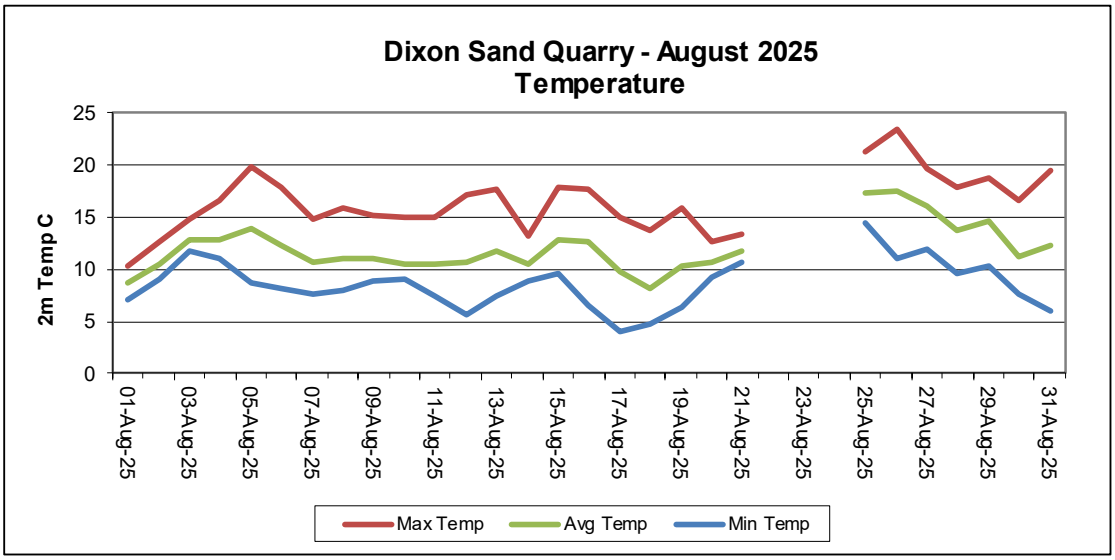
Approximately 91.1% of valid meteorological data was recorded for August 2025.

Table 3: Meteorological Data Summary for August 2025

Date	Min Temp	Avg Temp	Max Temp	RAIN mm	Min WS	Avg WS	Max WS	Min Humidity	Avg Humidity	Max Humidity	Min Pressure	Avg Pressure	Max Pressure
1/08/2025	7.0	8.7	10.3	12.4	0.4	4.6	11.7	80.0	88.9	95.9	992.7	994.3	996.2
2/08/2025	9.1	10.6	12.7	53.0	0.6	5.0	16.0	85.1	93.8	96.5	988.5	990.9	992.6
3/08/2025	11.7	12.8	14.8	36.8	0.4	5.4	16.8	90.5	94.3	96.9	990.5	993.2	995.4
4/08/2025	11.1	12.8	16.6	0.8	0.0	3.5	10.4	78.8	92.2	97.1	992.0	994.0	996.0
5/08/2025	8.7	13.9	19.8	0.2	0.2	3.5	13.0	55.3	78.3	96.5	988.1	990.3	992.1
6/08/2025	8.2	12.3	17.9	0.0	0.2	3.1	10.8	43.5	62.7	81.8	990.8	993.1	996.4
7/08/2025	7.7	10.6	14.8	0.2	0.3	4.2	11.1	60.6	75.7	92.7	996.3	1000.1	1003.7
8/08/2025	8.0	11.0	15.9	1.2	1.0	4.6	9.8	56.2	77.8	92.0	1002.9	1003.9	1005.4
9/08/2025	8.8	10.9	15.1	6.0	0.7	4.7	19.1	73.4	91.3	95.6	1000.9	1003.1	1005.2
10/08/2025	9.0	10.5	14.9	8.4	0.4	4.5	14.2	73.3	92.7	96.4	999.0	1000.6	1002.2
11/08/2025	7.4	10.4	14.9	0.2	0.4	4.2	11.6	65.0	84.9	95.8	997.5	999.1	1000.7
12/08/2025	5.6	10.7	17.1	0.2	0.1	2.5	8.2	47.4	79.0	96.1	995.9	997.8	999.2
13/08/2025	7.5	11.8	17.6	0.0	0.0	2.8	10.9	46.7	74.3	90.6	995.5	996.9	998.1
14/08/2025	8.8	10.5	13.2	2.0	0.3	4.7	12.0	71.9	86.1	94.8	996.7	997.6	998.5
15/08/2025	9.6	12.9	17.8	1.2	0.0	3.2	13.6	59.9	80.6	95.5	987.7	991.8	996.8
16/08/2025	6.5	12.7	17.6	0.0	0.2	4.5	16.1	36.9	58.8	73.5	983.0	985.9	988.8
17/08/2025	4.0	9.7	14.9	0.0	0.2	3.0	11.8	36.2	56.0	79.9	988.5	990.8	994.2
18/08/2025	4.8	8.1	13.8	1.4	0.1	4.9	16.1	55.6	75.1	95.2	994.0	998.2	1001.8
19/08/2025	6.4	10.3	15.9	6.2	0.0	4.0	13.0	61.9	86.7	95.4	1000.6	1002.3	1004.0
20/08/2025	9.2	10.6	12.6	28.0	0.0	3.1	15.0	83.7	93.6	96.0	1000.1	1002.1	1004.4
21/08/2025	10.7	11.8	13.4	20.0	0.2	3.6	22.9	88.3	93.4	96.3	996.1	998.5	1000.4
22/08/2025				1.6									
23/08/2025				0.2									
24/08/2025				0.0									
25/08/2025	14.4	17.2	21.2	0.0	0.5	3.7	11.5	55.2	70.0	83.0	989.2	990.8	992.4
26/08/2025	11.1	17.6	23.5	0.0	0.5	6.0	24.3	41.1	67.1	92.5	979.5	986.1	991.5
27/08/2025	12.0	16.0	19.7	0.0	0.7	7.3	24.8	45.0	58.3	65.5	974.7	977.0	979.6
28/08/2025	9.5	13.8	17.9	0.0	0.2	6.2	21.9	33.7	46.8	65.7	977.4	979.6	982.5
29/08/2025	10.3	14.6	18.7	0.0	0.2	6.6	25.3	33.7	45.0	63.5	976.9	980.2	982.9
30/08/2025	7.6	11.2	16.6	0.0	0.2	5.8	18.5	37.8	53.5	69.9	977.6	985.0	995.5
31/08/2025	6.0	12.3	19.4	0.0	0.1	2.7	12.1	38.4	56.8	75.7	994.2	996.1	998.5
Monthly	**4.0**	**12.0**	**23.5**	**180.0**	**0.0**	**4.4**	**25.3**	**33.7**	**75.5**	**97.1**	**974.7**	**993.5**	**1005.4**

No data available likely due to power outage from storm-related rain event resulting in data loss





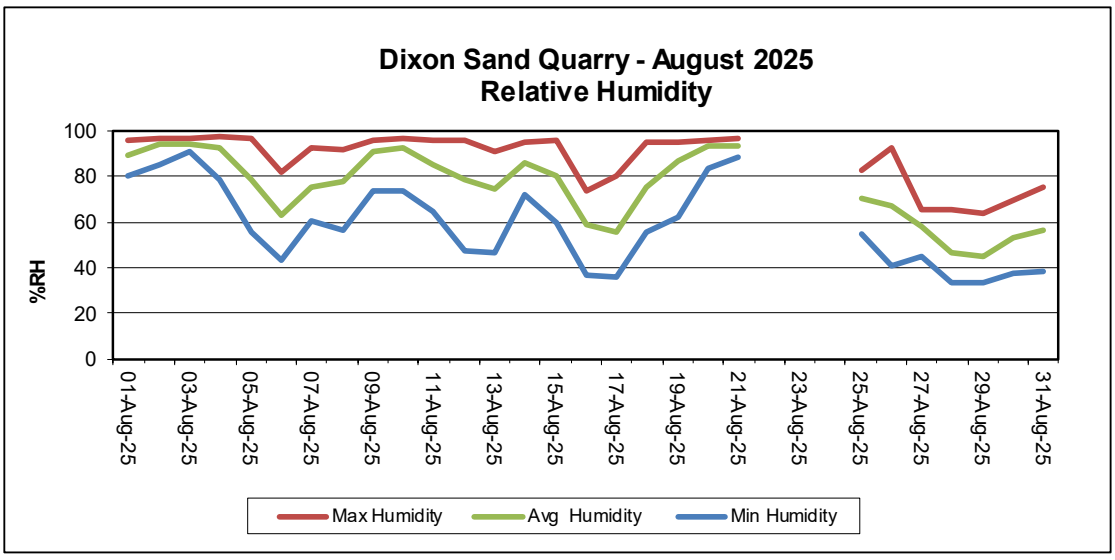


Figure 2: *Daily Rainfall, Temperature and Relative Humidity Charts*

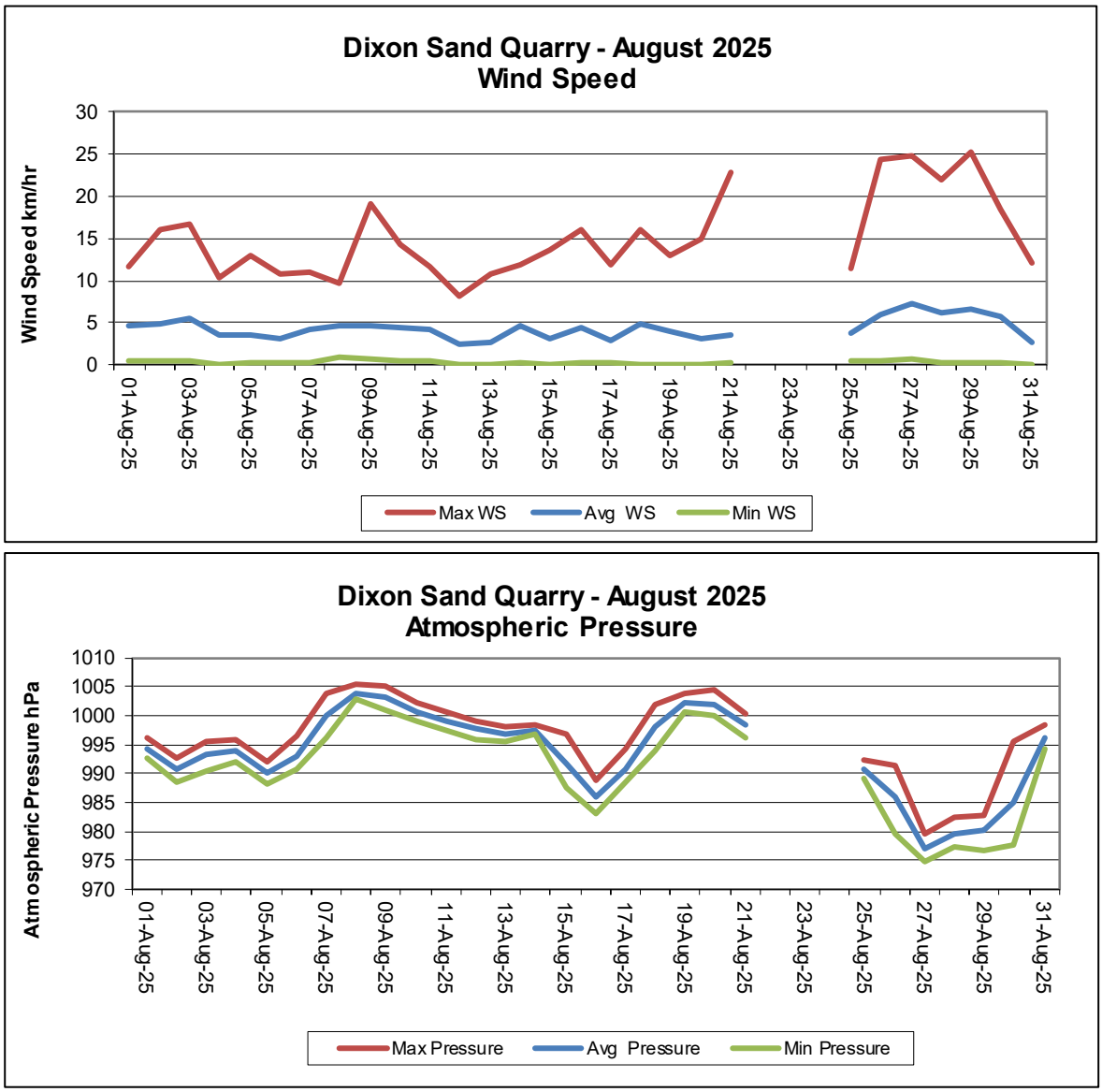


Figure 3: *Wind Speed and Atmospheric Pressure Chart*

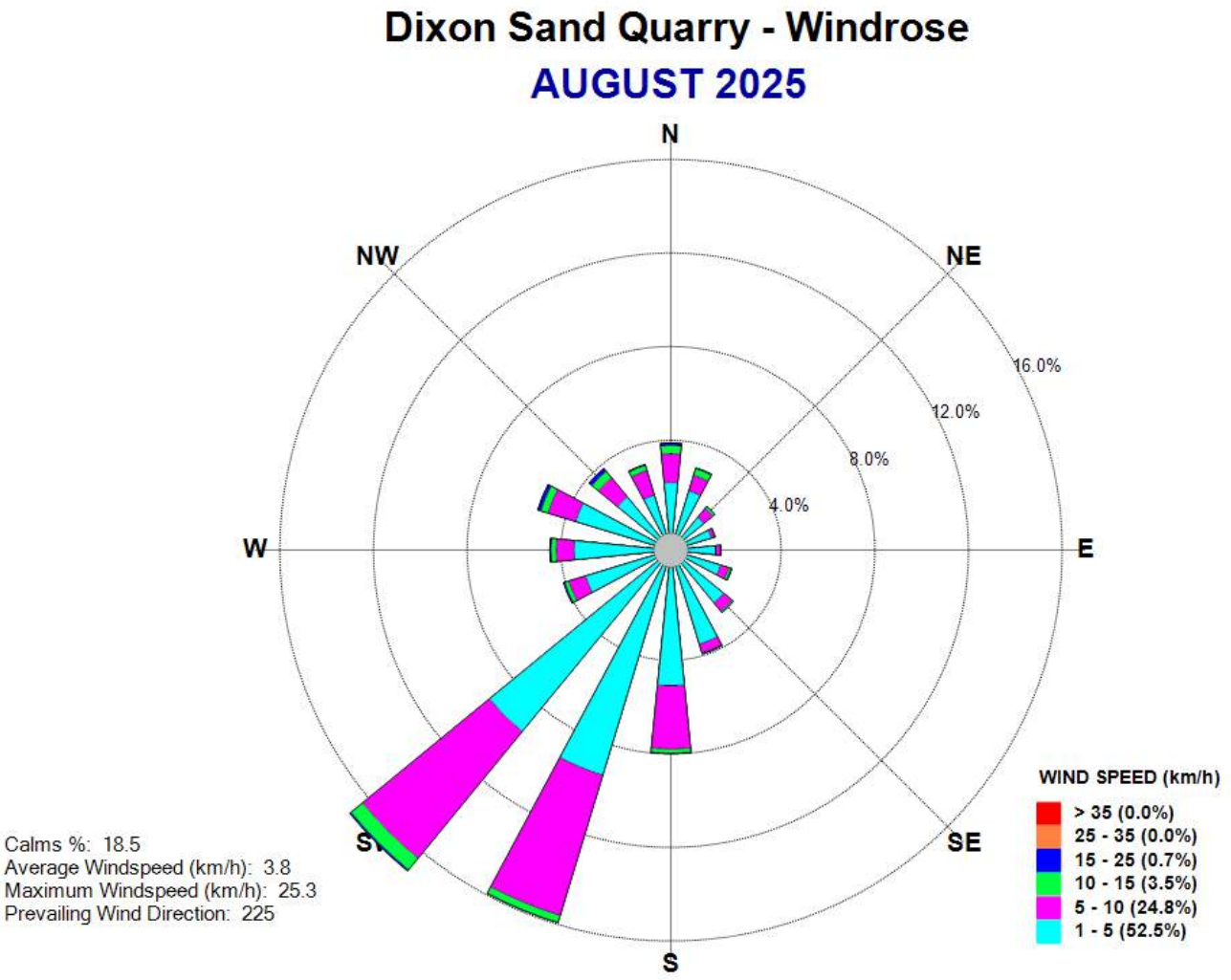


Figure 4: *Windrose*

Appendix 1

Calibration Documents (when required)

CARBON BASED ENVIRONMENTAL

Continuous Air Quality Monthly/Quarterly/Six Monthly/Annual TEOM Maintenance and Calibration – 1400AB

teledata

TEOM Client/Site: Dixon Sands TEOM1 **Date:** 15.9.25

1. TEOM Data Screen

SERIAL No: 25570 **Firmware:** AB.

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Operating Condition	4	Green - Normal	✓	
Date/time	TEOM: 15.9.25 13:26 Actual: 16.9.25 13:27	Current Date/time correct within 5 minutes	✓	
PM-10 24hr av	18.90	Positive values	✓	
Filter loading PM10	44	<80 %	✓	
Frequency PM-10	255.47622	200-300 Hz	✓	
Noise PM-10	0.042	<0.100ug	✓	

Comment: If filter load >80% but <90% and if flows Ok then data is OK

Comments:

2. System Status

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Vacuum pump pressure	0.35	<0.50 atm	✓	
Warnings	NIL	No Warnings	✓	
If any warnings list:				

Comments:

Data Downloaded: YES/NO (circle)

Technician Name : COLIN DAVIES **Signed**

3. Instrument Conditions Ambient Conditions and Temperatures

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Ambient Temperature	26.2	-10 to 50 C	✓	
Ambient Dew Point	~~0.969~~ NA	-10 to 50 C	NA	
Ambient Pressure	0-969	0.9-1.1 atm	✓	
Ambient Relative Humidity	NA	10-100 %RH	NA	
Cap temperature	50.00	50.00 +/- 0.10 C	✓	
Case temperature	50.00	50.00 +/- 0.10 C	✓	
Main (PM-10) Air Tube temp	50.00	50.00 +/- 0.10 C	✓	

Comments:

4. Instrument Conditions – Flows

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Main (PM-10) Flow rate	3.00	2.82 – 3.18 lpm	✓	
Bypass Flow rate	13.67	12.95 – 14.39 lpm	✓	
Total Flow rate	16.67	15.67 – 17.67 lpm	✓	

Comments:

Results: (Tick box)

☑ There were NO equipment faults found. No action required – (file report)

☐ There were faults found (Fails) – Were these fixed on site: YES/NO (circle)
Any Fails that cannot be repaired on site must be reported to CBased:
Office: 65713334 or email cbased@bigpond.com
Date faults notified to CBased: _____

Comments/Action Required:

Calibration/Maintenance

1. 1405A: Were Filters replaced (YES/NO)
2. PM10 Inlet head cleaned (YES/NO)
3. If measurement filters were replaced, confirm stable results after change. Stable particulate results confirmed (YES/NO)

Channel	Filter Load %	Frequency Hz initial	Frequency check 1min	Frequency check 3min	Frequency check 5min
PM10	9	255.82081	255.82095	255.82125	255.82130

✓ OK

Frequency should not drift by more than 0.0010 between readings (if instrument is thermodynamically stable)
Pass/Fail – if Fail – install new filter and redo stability test.

Noise: 0.073 ✓ OK.

4. Instrument clock verified (Refer Section 1) (YES/NO.)
If Time changed – clock reset OK YES/NO or (NA) (not changed)
Comments: checked later and all OK.

5. Were TEOM in line and rear TEOM filters checked for cleanliness and replaced if necessary. (YES/NO.)
Comments if changed:

6. TEOM Cleaned and Air Conditioner checked (YES/NO. Air Conditioner settings or operational status: as left ✓

Tetracal Flow/Temp/Pressure Calibrator Serial No: TET005 **Refer to calibration corrections for Temperature/Pressure and Flows and apply to all readings.**

Quarterly or Six Monthly Calibration

1. Flow Verification – Conducted (YES/NO)

PM10 Flow verified Flow l/min 2.95 Error % 1.7 (allowed error <6%) (PASS/FAIL)

Bypass Flow verified Flow l/min 13.65 Error % 0.1 (allowed error <6%) (PASS/FAIL)
If fail then complete a full multipoint recalibration and review previous data from last good flow check. **Comments if Flows recalibrated:** Recalibrated from PM10 Main 3.01 L/min Bypass 13.68 L/min

2. Leak Check – Conducted YES/NO

PM10 actual 0.14 < Limit 0.15

Bypass actual 0.12 < Limit 0.60

Leak check (PASS/FAIL – If fail then find leak and retest.
Comments:
Slight leak in Mass transducer OK for now.

Annual Calibration/Maintenance

1. Temperature and Pressure Calibration – Conducted YES/NO
Reference Temperature: _____C TEOM Temperature_____C
if difference +/- 1 C recalibrate sensor. Sensor recalibrated YES/NO

Reference Pressure: _____atm TEOM Pressure_____atm
if difference +/- 0.010 atm recalibrate sensor. Sensor recalibrated YES/NO

Note: Tetracal measures Atmospheric Pressure in mm Hg or mb or hPa
For mb or hPa divide tetracal result by 1013.25 to change units to atm.
For mmHg divide tetracal result by 760 to change units to atm.

2. Flow Calibration – Conducted YES/NO
PM10
Set point 2.4 Actual:_____
Set point 3.6 Actual:_____
Set point 3.0 Actual:_____ After calibration Final:_____l/min

BYPASS
Set point 10.9 Actual:_____
Set point 16.4 Actual:_____
Set point 13.67 Actual:_____ After calibration Final:_____l/min

3. Mass calibration (K0) Verification – Conducted YES/NO
Actual measured KO = _____ TEOM stated K0_____ Error %:_____
Allowed Error +/- 2.5%. PASS/FAIL
If Error +/- 2.5% repeat. If confirmed consult manufacturer.
Second Error % =_____ PASS/FAIL. Comments:
If second test fails consult manufacturer.

4. Annual Noise check - Conducted YES/NO
Zero filter applied to TEOM and TEOM operated for at least 12 hours:
Start date/time: _____Finish date/time:_____
Standard deviation of all recorded data (min 30 min averages) = _____ug/m^3
Noise was less than 5ug/m^3 YES/NO

5. Maintenance
Air Inlet system cleaned YES/NO
Pump Reconditioned YES/NO
Check Waterproofing YES/NO
Comments:

CBased Environmental Pty Limited
ABN 62 611 924 264

Dixon Sand Quarry

Environmental Monitoring
Air Quality

Tapered Element Oscillating Microbalance (TEOM) (PM_{10}) and Meteorological Data

---

September 2025

Colin Davies BSc MEIA CENVP
Environmental Scientist
Date 21 October 2025

CBased Environmental Pty Ltd
Unit 3, 2 Enterprise Crescent SINGLETON NSW 2330
☎ (02) 65713334

1.0 Summary

CBased Environmental Pty Limited is contracted by Dixon Sand to conduct continuous Tapered Element Oscillating Microbalance (TEOM) for fine particulates (PM_{10}) and meteorological monitoring for the Dixon Sand Quarry. The information is required to assess air quality levels. The results for the TEOM and meteorological site are included in this report.

The monitoring programme includes:

- One continuous TEOM PM_{10} monitor; and
- One continuous meteorological station.

This monthly report for September 2025 was prepared by CBased Environmental and includes the following:

- TEOM (PM_{10}) monitoring results; and
- Meteorological results.

In accordance with Schedule 3, Condition 7 of the Dixon Sand development Consent and the Dixon Sand EPL;

- 24-hour average PM_{10} results were below the NEPM 24-hour maximum criteria of 50ug/m^3;
- 24-hour average PM_{10} results were below the Dixon Sand Quarry EPL limit of 42ug/m^3
- The PM_{10} annual average is below the Dixon Sand Quarry consent annual average criteria of 30ug/m^3; and
- The calculated TSP is below the Dixon Sand Quarry annual average criteria of 90ug/m^3.

Note: Based on the available data, statements in green indicate current conformance to Dixon Sand Quarry Air Quality Impact Assessment criteria, statements in red indicate possible non-conformance. Year to date annual average for PM_{10} is calculated from 1 July 2024 for TEOM's coinciding with the Dixon Sand project year.

Approximately 100% of valid meteorological data was recorded for September 2025

Approximately 99.7% of valid TEOM data was available for September 2025.

2.0 Sampling Programme

The TEOM is sited and operated to the applicable Australian Standard and/or NSW EPA approved methods. The following Australian Standards were used:

- AS3580.9.8 - "*Methods for Sampling and Analysis of Ambient Air. Determination of Suspended Particulates—PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*"; and
- AS/NZS 3580.1.1 - "*Methods for Sampling and Analysis of Ambient Air Part 1.1 Guide to Siting Air Monitoring Equipment*".

TEOM PM_{10} results are 24-hour averages at midnight and are reported as $\mu g/m^3$ corrected to 0 degrees C and 101.3kPa.

All laboratory analysis was conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Air Quality monitoring site descriptions and locations are provided in **Table 1**.

Table 1: Dixon Sand Air Quality Monitoring Description and Locations

Monitor	Site Code	Location Description
TEOM PM_{10}	TEOM	Old North Road, Maroota NSW
Meteorological Station	MET	Old North Road, Maroota NSW

3.0 Results

3.1 TEOM PM_{10}

24-hour average TEOM PM_{10} results from the AQMS data collection software are provided in **Table 2** and a chart of the data is provided in **Figure 1**.

During the September 2025 monitoring period, individual 24-hour TEOM PM_{10} results were below the National Environmental Protection Measure (NEPM) short-term (24hr) impact criteria of 50ug/m3 and the Dixon Sand Quarry EPL limit of 42ug/m3.

Approximately 99.7% of valid TEOM data was available for September 2025.

At present, the current TEOM PM_{10} annual average is below the Dixon Sand Quarry annual average PM_{10} criteria of 30ug/m^3. The current annual average for calculated Total Suspended Particulates (TSP) is below the annual average criterion of 90ug/m^3. The TSP is calculated by multiplying the PM_{10} by 2.5. Note: the annual average is calculated from 1 July 2025 and therefore an annual amount of data has not been collected.

The quarterly TEOM calibration was conducted on the 16th September 2025. The next calibration is due to be completed in December 2025. The calibration certificate is provided in **Appendix 1** (when required).

Table 2: Average Daily 24-hr TEOM PM_{10} and TSP Results for September 2025 from AQMS and Annual Average PM_{10} calculated from 1 July 2025.

Date	PM_{10} 24-hr Average ($\mu g/m^3$)	PM_{10} Annual Average ($\mu g/m^3$)	24-hr Average TSP* ($\mu g/m^3$)	Annual Average TSP** ($\mu g/m^3$)
1/09/2025	16.9	10.1	42.3	25.4
2/09/2025	16.8	10.3	42.0	25.7
3/09/2025	15.3	10.4	38.3	25.9
4/09/2025	15.0	10.4	37.5	26.1
5/09/2025	17.8	10.6	44.5	26.4
6/09/2025	19.2	10.7	48.0	26.8
7/09/2025	14.2	10.8	35.5	27.0
8/09/2025	25.0	11.0	62.5	27.5
9/09/2025	20.2	11.2	50.5	27.9
10/09/2025	7.8	11.1	19.5	27.8
11/09/2025	8.2	11.1	20.5	27.7
12/09/2025	10.7	11.1	26.8	27.7
13/09/2025	13.9	11.1	34.8	27.8
14/09/2025	8.1	11.1	20.3	27.6
15/09/2025	15.8	11.1	39.5	27.8
16/09/2025	24.8	11.3	61.9	28.3
17/09/2025	14.5	11.4	36.3	28.4
18/09/2025	16.0	11.4	40.0	28.6
19/09/2025	15.6	11.5	39.0	28.8
20/09/2025	9.9	11.5	24.8	28.7
21/09/2025	9.6	11.5	24.0	28.6
22/09/2025	12.7	11.5	31.8	28.7
23/09/2025	10.9	11.5	27.3	28.7
24/09/2025	12.1	11.5	30.3	28.7
25/09/2025	20.0	11.6	50.0	29.0
26/09/2025	28.7	11.8	71.8	29.5
27/09/2025	18.9	11.9	47.3	29.7
28/09/2025	27.4	12.1	68.5	30.2
29/09/2025	13.7	12.1	34.3	30.3
30/09/2025	21.8	12.2	54.5	30.6

*Calculated from PM10

**Calculated from PM10 Annual Average

Note: results above the Dixon Sand EPL criteria limit of 42 ug/m^3 are highlighted in yellow

No Data (ND) - <18hrs hour of valid data to calculate a 24hr average

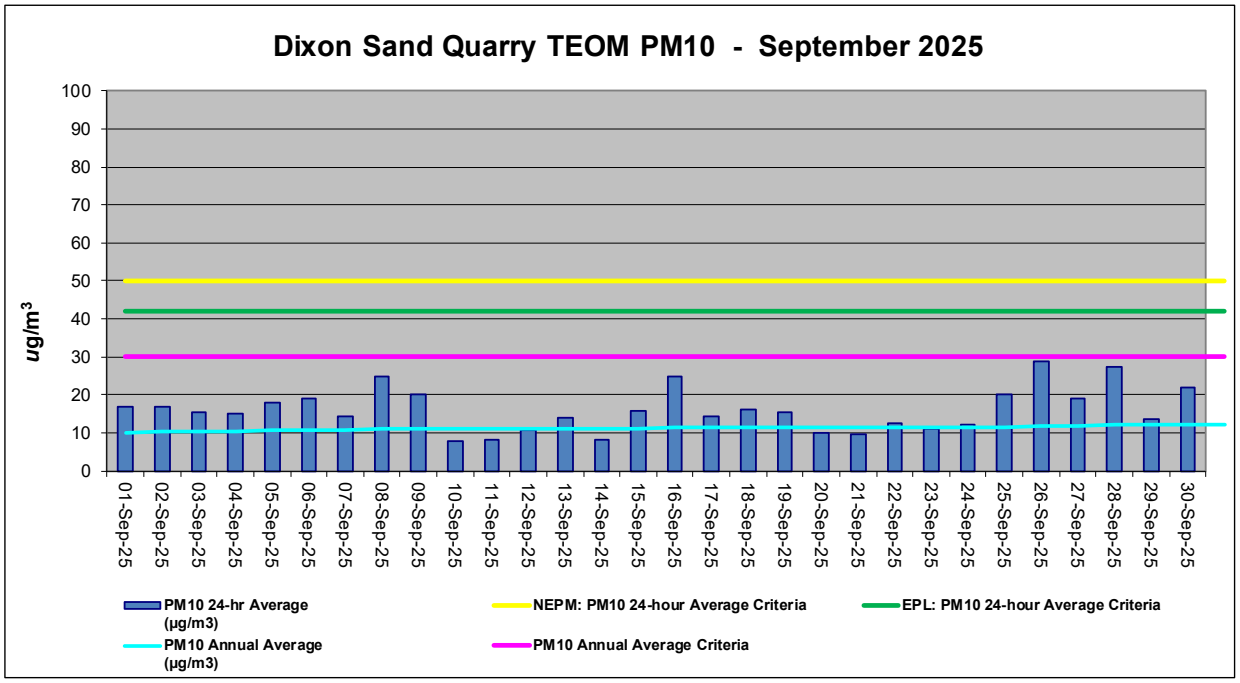


Figure 1: *TEOM PM_{10} 24 hr, Annual Average and Criteria*

3.2 Meteorological Data

The weather station logs data at 5-minute intervals and sends the data to a web database by NextG telemetry. The data is accessible from the web site http://console.teledata.com.au/index.html.

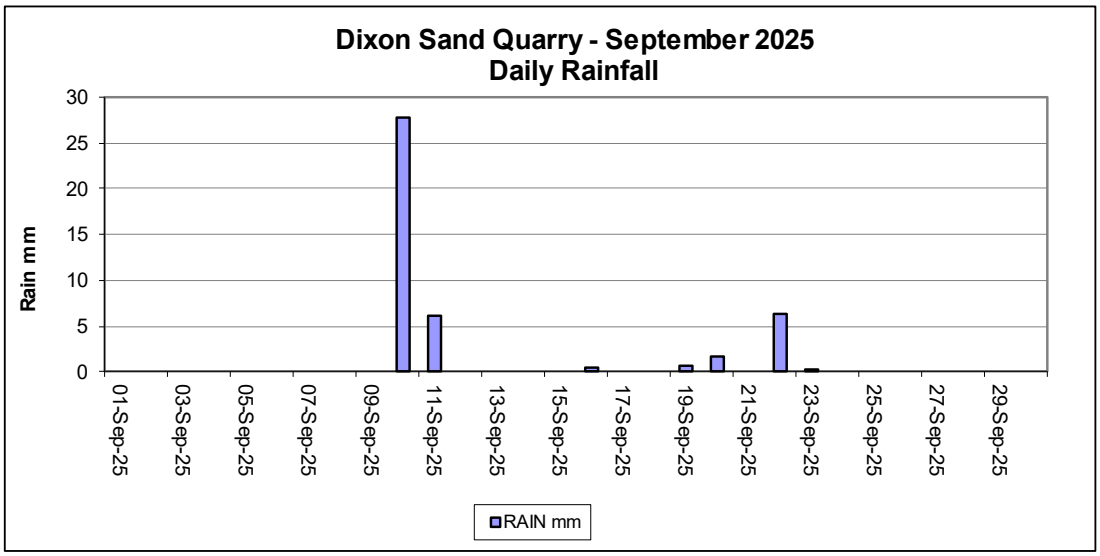
A summary of monthly results is presented in **Table 3**. Charts of meteorological parameters are presented in **Figures 2** and **3**. A Windrose is provided in **Figure 4**.

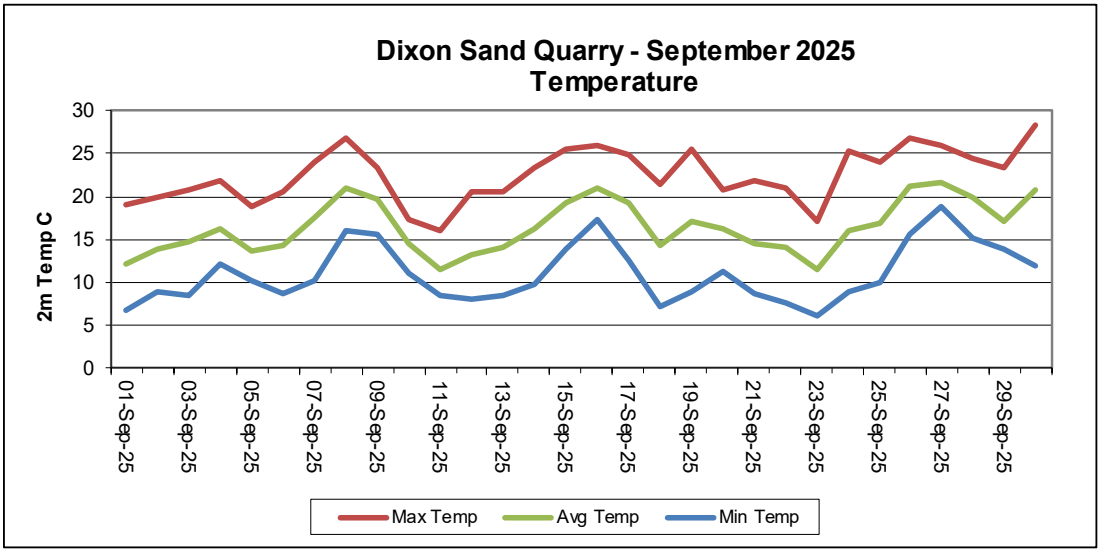
A 6-monthly physical screening and system check of the meteorological station was conducted in July 2025 (for June). The next physical screening and system check is currently scheduled for December 2025. The screening and system check certificates are provided in **Appendix 1** (when required).

Approximately 100% of valid meteorological data was recorded for September 2025.

Table 3: Meteorological Data Summary for September 2025

Date	Min Temp	Avg Temp	Max Temp	RAIN mm	Min WS	Avg WS	Max WS	Min Humidity	Avg Humidity	Max Humidity	Min Pressure	Avg Pressure	Max Pressure
1/09/2025	6.8	12.1	19.0	0.0	0.0	2.4	11.2	31.6	65.5	81.2	992.7	995.1	996.8
2/09/2025	9.0	13.8	20.0	0.0	0.1	3.4	16.7	43.4	72.4	87.6	992.1	994.6	997.2
3/09/2025	8.4	14.7	20.8	0.0	0.4	4.0	16.9	33.1	52.9	78.5	990.8	992.9	995.3
4/09/2025	12.1	16.3	21.9	0.0	0.1	5.6	18.9	26.7	43.4	59.5	989.0	991.6	993.4
5/09/2025	10.2	13.6	18.8	0.0	0.2	4.9	16.8	40.4	62.5	77.9	993.5	999.1	1003.9
6/09/2025	8.8	14.3	20.5	0.0	0.0	3.4	16.8	43.5	67.1	83.7	999.0	1001.8	1004.3
7/09/2025	10.3	17.6	24.0	0.0	1.1	6.4	21.5	37.6	59.2	87.5	992.9	996.3	1000.1
8/09/2025	16.1	21.0	26.7	0.0	0.3	7.5	32.9	35.7	48.9	60.2	986.9	989.8	993.2
9/09/2025	15.6	19.6	23.4	0.0	0.0	4.5	17.1	54.6	63.9	78.3	984.0	986.6	989.3
10/09/2025	11.1	14.6	17.4	27.8	0.2	3.4	12.1	71.7	90.8	95.9	974.8	979.7	984.8
11/09/2025	8.4	11.5	16.1	6.2	0.1	4.7	16.5	53.7	75.5	93.1	974.3	983.6	992.2
12/09/2025	8.0	13.2	20.5	0.0	0.2	3.3	15.9	38.0	66.2	84.9	991.9	994.4	997.5
13/09/2025	8.4	14.1	20.6	0.0	0.1	3.5	13.7	37.7	69.1	91.2	995.6	997.6	999.4
14/09/2025	9.8	16.3	23.3	0.0	0.1	3.8	18.6	26.5	58.0	90.2	992.2	995.4	998.2
15/09/2025	13.8	19.3	25.5	0.0	0.1	5.7	24.3	30.6	43.2	54.6	989.1	991.7	994.5
16/09/2025	17.3	21.0	25.9	0.4	0.3	8.0	23.1	40.7	49.8	56.7	984.4	987.3	990.2
17/09/2025	12.6	19.3	24.9	0.0	0.0	4.3	25.7	25.6	49.6	76.9	984.9	988.5	994.8
18/09/2025	7.3	14.3	21.4	0.0	0.0	3.9	11.9	35.3	59.7	87.2	993.0	995.1	997.5
19/09/2025	8.9	17.2	25.5	0.6	0.2	4.1	21.3	29.4	59.8	93.0	983.5	989.4	993.8
20/09/2025	11.2	16.3	20.7	1.6	0.2	5.5	18.7	28.6	55.7	87.9	979.8	982.8	988.3
21/09/2025	8.7	14.5	21.8	0.0	0.1	3.7	12.5	35.0	50.7	64.2	985.9	988.4	990.4
22/09/2025	7.7	14.2	20.9	6.4	0.1	4.9	18.5	36.9	62.7	92.3	988.4	991.2	996.7
23/09/2025	6.2	11.4	17.2	0.2	0.2	4.9	17.5	35.3	61.0	80.1	994.8	996.6	998.9
24/09/2025	8.9	16.1	25.3	0.0	0.2	3.9	10.4	20.6	51.3	73.0	987.0	990.8	994.8
25/09/2025	10.0	16.9	24.0	0.0	0.1	4.4	19.5	23.8	47.5	69.1	985.8	988.4	991.4
26/09/2025	15.5	21.2	26.9	0.0	0.5	6.4	31.5	21.1	34.6	53.1	983.8	986.0	988.1
27/09/2025	18.9	21.7	25.9	0.0	0.8	8.6	24.5	30.2	35.3	43.3	984.2	986.2	988.4
28/09/2025	15.1	19.8	24.4	0.0	0.0	6.3	21.7	40.8	59.7	84.1	984.2	986.4	990.4
29/09/2025	13.9	17.1	23.4	0.0	0.0	3.4	17.2	41.1	77.9	93.8	987.4	989.9	992.4
30/09/2025	11.9	20.7	28.4	0.0	0.2	5.8	23.7	29.0	61.9	96.3	976.5	983.1	989.2
Monthly	**6.2**	**16.4**	**28.4**	**43.2**	**0.0**	**4.8**	**32.9**	**20.6**	**58.5**	**96.3**	**974.3**	**990.7**	**1004.3**





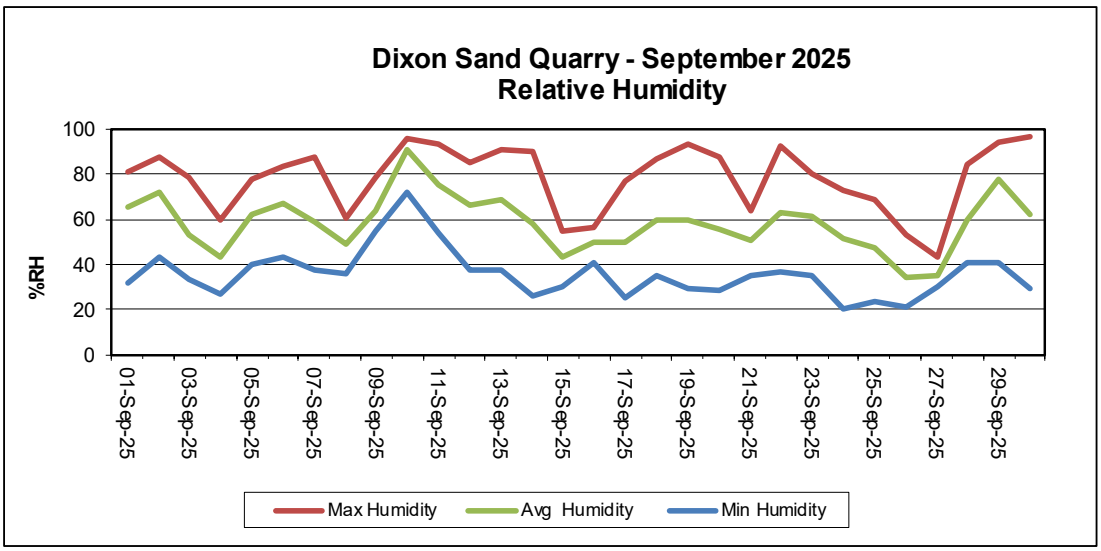


Figure 2: *Daily Rainfall, Temperature and Relative Humidity Charts*

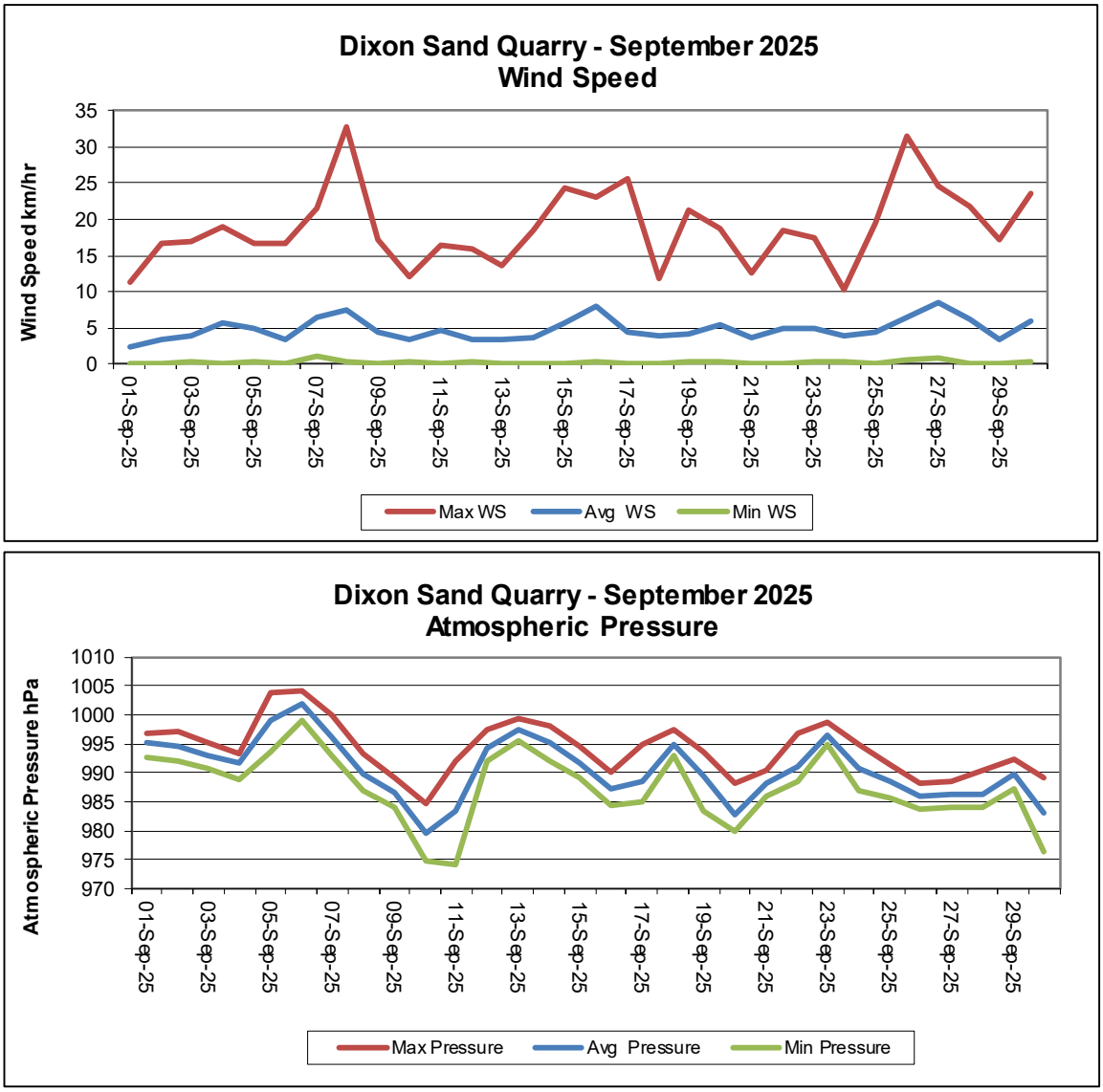


Figure 3: *Wind Speed and Atmospheric Pressure Chart*

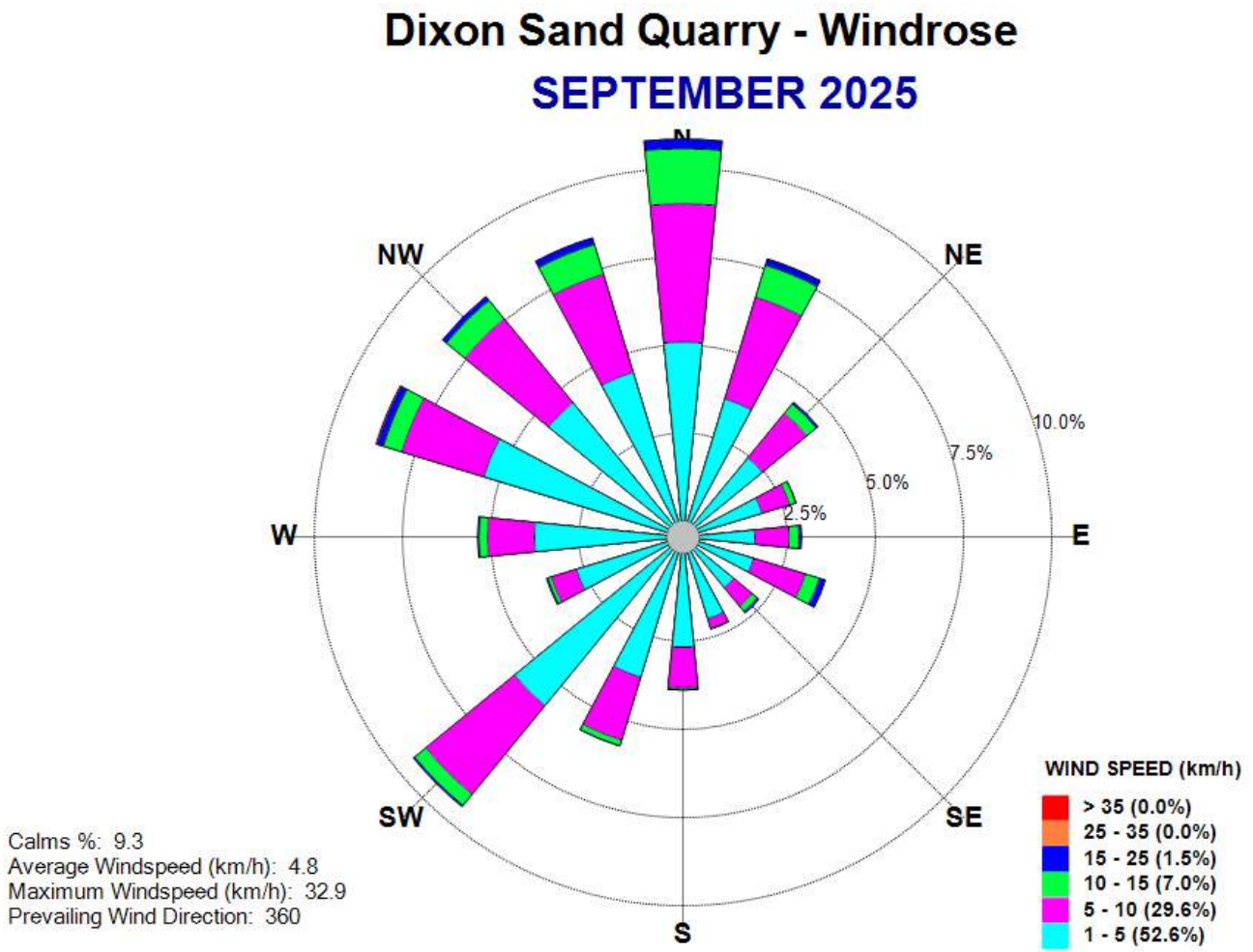


Figure 4: *Windrose*

Appendix 1

Calibration Documents (when required)

CARBON BASED ENVIRONMENTAL

Continuous Air Quality Monthly/Quarterly/Six Monthly/Annual TEOM Maintenance and Calibration – 1400AB

teledata

TEOM Client/Site: Dixon Sands TEOM1 **Date:** 15.9.25

1. TEOM Data Screen

SERIAL No: 25570 **Firmware:** AB.

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Operating Condition	4	Green - Normal	✓	
Date/time	TEOM: 15.9.25 13:26 Actual: 16.9.25 13:27	Current Date/time correct within 5 minutes	✓	
PM-10 24hr av	18.90	Positive values	✓	
Filter loading PM10	44	<80 %	✓	
Frequency PM-10	255.47622	200-300 Hz	✓	
Noise PM-10	0.042	<0.100ug	✓	

Comment: If filter load >80% but <90% and if flows Ok then data is OK

Comments:

2. System Status

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Vacuum pump pressure	0.35	<0.50 atm	✓	
Warnings	NIL	No Warnings	✓	
If any warnings list:				

Comments:

Data Downloaded: YES/NO (circle)

Technician Name : COLIN DAVIES **Signed**

3. Instrument Conditions Ambient Conditions and Temperatures

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Ambient Temperature	26.2	-10 to 50 C	✓	
Ambient Dew Point	~~0.969~~ NA	-10 to 50 C	NA	
Ambient Pressure	0-969	0.9-1.1 atm	✓	
Ambient Relative Humidity	NA	10-100 %RH	NA	
Cap temperature	50.00	50.00 +/- 0.10 C	✓	
Case temperature	50.00	50.00 +/- 0.10 C	✓	
Main (PM-10) Air Tube temp	50.00	50.00 +/- 0.10 C	✓	

Comments:

4. Instrument Conditions – Flows

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Main (PM-10) Flow rate	3.00	2.82 – 3.18 lpm	✓	
Bypass Flow rate	13.67	12.95 – 14.39 lpm	✓	
Total Flow rate	16.67	15.67 – 17.67 lpm	✓	

Comments:

Results: (Tick box)

☑ There were NO equipment faults found. No action required – (file report)

☐ There were faults found (Fails) – Were these fixed on site: YES/NO (circle)
Any Fails that cannot be repaired on site must be reported to CBased:
Office: 65713334 or email cbased@bigpond.com
Date faults notified to CBased: _____

Comments/Action Required:

Calibration/Maintenance

1. 1405A: Were Filters replaced (YES/NO)
2. PM10 Inlet head cleaned (YES/NO)
3. If measurement filters were replaced, confirm stable results after change. Stable particulate results confirmed (YES/NO)

Channel	Filter Load %	Frequency Hz initial	Frequency check 1min	Frequency check 3min	Frequency check 5min
PM10	9	255.82081	255.82095	255.82125	255.82130

✓ OK

Frequency should not drift by more than 0.0010 between readings (if instrument is thermodynamically stable)
Pass/Fail – if Fail – install new filter and redo stability test.

Noise: 0.073 ✓ OK.

4. Instrument clock verified (Refer Section 1) (YES/NO.)
If Time changed – clock reset OK YES/NO or (NA) (not changed)
Comments: checked later and all OK.

5. Were TEOM in line and rear TEOM filters checked for cleanliness and replaced if necessary. (YES/NO.)
Comments if changed:

6. TEOM Cleaned and Air Conditioner checked (YES/NO. Air Conditioner settings or operational status: as left ✓

Tetracal Flow/Temp/Pressure Calibrator Serial No: TET005 **Refer to calibration corrections for Temperature/Pressure and Flows and apply to all readings.**

Quarterly or Six Monthly Calibration

1. Flow Verification – Conducted (YES/NO)

PM10 Flow verified Flow l/min 2.95 Error % 1.7 (allowed error <6%) (PASS/FAIL)

Bypass Flow verified Flow l/min 13.65 Error % 0.1 (allowed error <6%) (PASS/FAIL)
If fail then complete a full multipoint recalibration and review previous data from last good flow check. **Comments if Flows recalibrated:** Recalibrated from PM10 Main 3.01 L/min Bypass 13.68 L/min

2. Leak Check – Conducted YES/NO

PM10 actual 0.14 < Limit 0.15

Bypass actual 0.12 < Limit 0.60

Leak check (PASS/FAIL – If fail then find leak and retest.
Comments:
Slight leak in Mass transducer OK for now.

Annual Calibration/Maintenance

1. Temperature and Pressure Calibration – Conducted YES/NO
Reference Temperature: _____C TEOM Temperature_____C
if difference +/- 1 C recalibrate sensor. Sensor recalibrated YES/NO

Reference Pressure: _____atm TEOM Pressure_____atm
if difference +/- 0.010 atm recalibrate sensor. Sensor recalibrated YES/NO

Note: Tetracal measures Atmospheric Pressure in mm Hg or mb or hPa
For mb or hPa divide tetracal result by 1013.25 to change units to atm.
For mmHg divide tetracal result by 760 to change units to atm.

2. Flow Calibration – Conducted YES/NO
PM10
Set point 2.4 Actual:_____
Set point 3.6 Actual:_____
Set point 3.0 Actual:_____ After calibration Final:_____l/min

BYPASS
Set point 10.9 Actual:_____
Set point 16.4 Actual:_____
Set point 13.67 Actual:_____ After calibration Final:_____l/min

3. Mass calibration (K0) Verification – Conducted YES/NO
Actual measured KO = _____ TEOM stated K0_____ Error %:_____
Allowed Error +/- 2.5%. PASS/FAIL
If Error +/- 2.5% repeat. If confirmed consult manufacturer.
Second Error % =_____ PASS/FAIL. Comments:
If second test fails consult manufacturer.

4. Annual Noise check - Conducted YES/NO
Zero filter applied to TEOM and TEOM operated for at least 12 hours:
Start date/time: _____Finish date/time:_____
Standard deviation of all recorded data (min 30 min averages) = _____ug/m^3
Noise was less than 5ug/m^3 YES/NO

5. Maintenance
Air Inlet system cleaned YES/NO
Pump Reconditioned YES/NO
Check Waterproofing YES/NO
Comments:

CBased Environmental Pty Limited
ABN 62 611 924 264

Dixon Sand Quarry

Environmental Monitoring
Air Quality

Tapered Element Oscillating Microbalance (TEOM) (PM_{10}) and Meteorological Data

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October 2025

Colin Davies BSc MEIA CENVP
Environmental Scientist
Date 27 November 2025

CBased Environmental Pty Ltd
Unit 3, 2 Enterprise Crescent SINGLETON NSW 2330
☎ (02) 65713334

1.0 Summary

CBased Environmental Pty Limited is contracted by Dixon Sand to conduct continuous Tapered Element Oscillating Microbalance (TEOM) for fine particulates (PM_{10}) and meteorological monitoring for the Dixon Sand Quarry. The information is required to assess air quality levels. The results for the TEOM and meteorological site are included in this report.

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- One continuous meteorological station.

This monthly report for October 2025 was prepared by CBased Environmental and includes the following:

- TEOM (PM_{10}) monitoring results; and
- Meteorological results.

In accordance with Schedule 3, Condition 7 of the Dixon Sand development Consent and the Dixon Sand EPL;

- 24-hour average PM_{10} results were below the NEPM 24-hour maximum criteria of 50ug/m^3;
- 24-hour average PM_{10} results were below the Dixon Sand Quarry EPL limit of 42ug/m^3, with the exception of one occurrence on the 22 October 2025 (47.1 ug/m^3)
- The PM_{10} annual average is below the Dixon Sand Quarry consent annual average criteria of 30ug/m^3; and
- The calculated TSP is below the Dixon Sand Quarry annual average criteria of 90ug/m^3.

Note: Based on the available data, statements in green indicate current conformance to Dixon Sand Quarry Air Quality Impact Assessment criteria, statements in red indicate possible non-conformance. Year to date annual average for PM_{10} is calculated from 1 July 2024 for TEOM's coinciding with the Dixon Sand project year.

Approximately 100% of valid meteorological data was recorded for October 2025

Approximately 99.9% of valid TEOM data was available for October 2025.

2.0 Sampling Programme

The TEOM is sited and operated to the applicable Australian Standard and/or NSW EPA approved methods. The following Australian Standards were used:

- AS3580.9.8 - "*Methods for Sampling and Analysis of Ambient Air. Determination of Suspended Particulates—PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*"; and
- AS/NZS 3580.1.1 - "*Methods for Sampling and Analysis of Ambient Air Part 1.1 Guide to Siting Air Monitoring Equipment*".

TEOM PM_{10} results are 24-hour averages at midnight and are reported as $\mu g/m^3$ corrected to 0 degrees C and 101.3kPa.

All laboratory analysis was conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Air Quality monitoring site descriptions and locations are provided in **Table 1**.

Table 1: Dixon Sand Air Quality Monitoring Description and Locations

Monitor	Site Code	Location Description
TEOM PM_{10}	TEOM	Old North Road, Maroota NSW
Meteorological Station	MET	Old North Road, Maroota NSW

3.0 Results

3.1 TEOM PM_{10}

24-hour average TEOM PM_{10} results from the AQMS data collection software are provided in **Table 2** and a chart of the data is provided in **Figure 1**.

During the October 2025 monitoring period, individual 24-hour TEOM PM_{10} results were below the National Environmental Protection Measure (NEPM) short-term (24hr) impact criteria of 50ug/m^3.

During the October 2025 monitoring period, individual 24-hour TEOM PM_{10} results were below the Dixon Sand Quarry EPL limit of 42ug/m3 with exception of one occurrence on 22 October 2025 (47.1ug/m^3) highlighted in yellow in **Table 2.**

Please Note: On 22 October 2025, the Greater Sydney Region experienced extreme weather conditions and fire activity which could have contributed to the Dixon Sand Quarry EPL TEOM PM_{10} exceedance on this day.

Approximately 99.9% of valid TEOM data was available for October 2025.

At present, the current TEOM PM_{10} annual average is below the Dixon Sand Quarry annual average PM_{10} criteria of 30ug/m^3. The current annual average for calculated Total Suspended Particulates (TSP) is below the annual average criterion of 90ug/m^3. The TSP is calculated by multiplying the PM_{10} by 2.5. Note: the annual average is calculated from 1 July 2025 and therefore an annual amount of data has not been collected.

The quarterly TEOM calibration was conducted in September 2025. The next calibration is due to be completed in December 2025. The calibration certificate is provided in **Appendix 1** (when required).

Table 2: Average Daily 24-hr TEOM PM_{10} and TSP Results for October 2025 from AQMS and Annual Average PM_{10} calculated from 1 July 2025.

Date	PM_{10} 24-hr Average ($\mu g/m^3$)	PM_{10} Annual Average ($\mu g/m^3$)	24-hr Average TSP* ($\mu g/m^3$)	Annual Average TSP** ($\mu g/m^3$)
1/10/2025	23.8	12.4	59.5	30.9
2/10/2025	25.0	12.5	62.5	31.3
3/10/2025	21.2	12.6	53.0	31.5
4/10/2025	13.1	12.6	32.8	31.6
5/10/2025	10.0	12.6	25.0	31.5
6/10/2025	20.8	12.7	52.0	31.7
7/10/2025	18.2	12.7	45.5	31.9
8/10/2025	20.4	12.8	51.0	32.1
9/10/2025	18.8	12.9	47.0	32.2
10/10/2025	18.0	13.0	45.0	32.4
11/10/2025	16.5	13.0	41.3	32.5
12/10/2025	19.0	13.1	47.5	32.6
13/10/2025	23.1	13.2	57.8	32.9
14/10/2025	17.9	13.2	44.8	33.0
15/10/2025	25.0	13.3	62.5	33.3
16/10/2025	30.4	13.5	76.0	33.8
17/10/2025	24.1	13.6	60.3	34.0
18/10/2025	20.0	13.7	50.0	34.2
19/10/2025	19.0	13.7	47.5	34.3
20/10/2025	22.9	13.8	57.3	34.5
21/10/2025	28.1	14.0	70.3	34.9
22/10/2025	**47.1**	14.3	117.8	35.7
23/10/2025	33.9	14.5	84.8	36.2
24/10/2025	24.9	14.6	62.3	36.4
25/10/2025	19.7	14.6	49.3	36.5
26/10/2025	17.2	14.6	43.0	36.6
27/10/2025	22.5	14.7	56.3	36.8
28/10/2025	12.7	14.7	31.8	36.7
29/10/2025	9.1	14.6	22.8	36.6
30/10/2025	11.6	14.6	29.0	36.5
31/10/2025	15.1	14.6	37.8	36.5

*Calculated from PM10

**Calculated from PM10 Annual Average

Note: results above the Dixon Sand EPL criteria limit of 42 ug/m^3 are highlighted in yellow

No Data (ND) - <18hrs hour of valid data to calculate a 24hr average

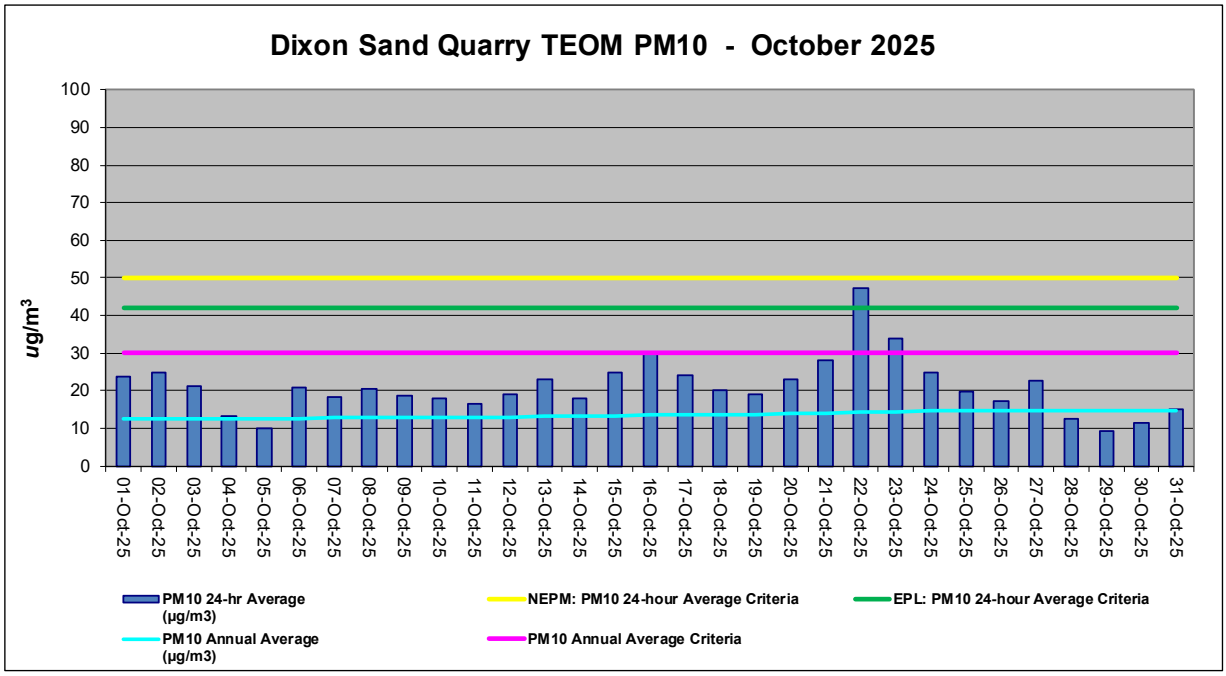


Figure 1: *TEOM PM_{10} 24 hr, Annual Average and Criteria*

3.2 Meteorological Data

The weather station logs data at 5-minute intervals and sends the data to a web database by NextG telemetry. The data is accessible from the web site http://console.teledata.com.au/index.html.

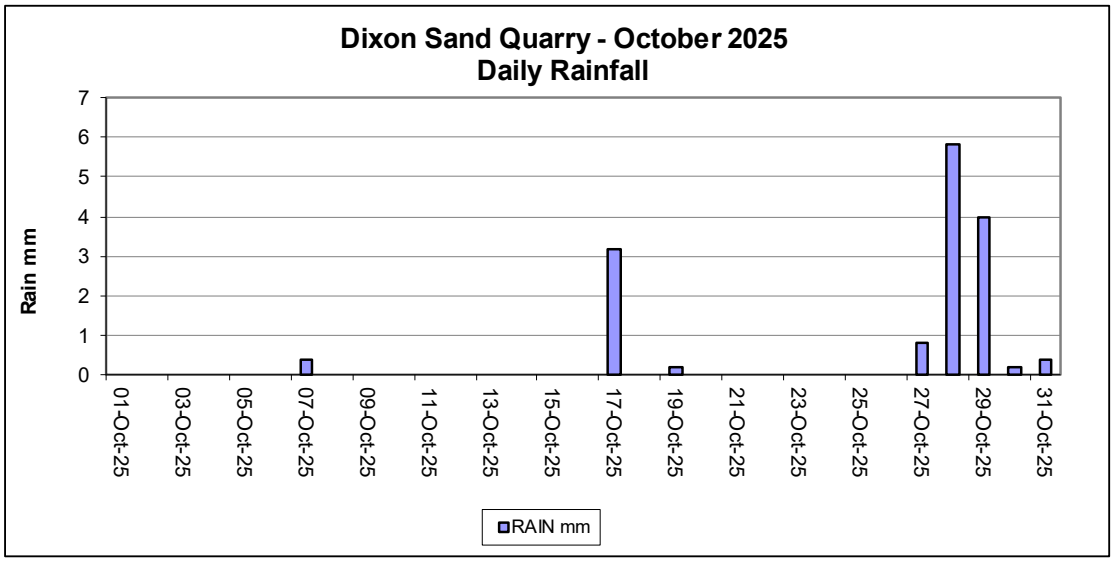
A summary of monthly results is presented in **Table 3**. Charts of meteorological parameters are presented in **Figures 2** and **3**. A Windrose is provided in **Figure 4**.

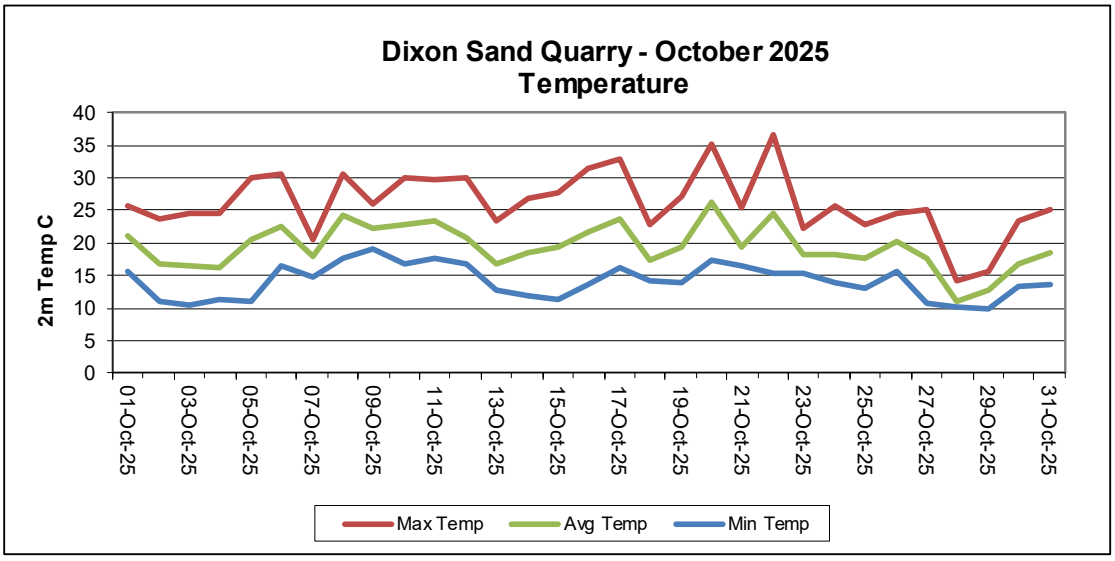
A 6-monthly physical screening and system check of the meteorological station was conducted in July 2025 (for June). The next physical screening and system check is currently scheduled for December 2025. The screening and system check certificates are provided in **Appendix 1** (when required).

Approximately 100% of valid meteorological data was recorded for October 2025.

Table 3: Meteorological Data Summary for October 2025

Date	Min Temp	Avg Temp	Max Temp	RAIN mm	Min WS	Avg WS	Max WS	Min Humidity	Avg Humidity	Max Humidity	Min Pressure	Avg Pressure	Max Pressure
1/10/2025	15.6	21.0	25.8	0.0	0.0	4.9	18.2	19.5	33.7	49.5	975.8	980.3	983.8
2/10/2025	10.9	16.8	23.8	0.0	0.5	6.6	23.6	24.9	38.3	52.0	979.5	983.0	988.0
3/10/2025	10.4	16.6	24.5	0.0	0.2	4.1	20.6	23.8	42.3	59.3	986.7	989.4	994.1
4/10/2025	11.2	16.2	24.5	0.0	0.3	4.0	22.1	30.3	62.9	89.5	993.9	995.5	997.9
5/10/2025	11.1	20.6	30.1	0.0	0.1	4.6	19.8	23.2	55.9	95.9	987.2	991.0	995.7
6/10/2025	16.6	22.4	30.6	0.0	0.2	6.0	22.7	23.7	45.3	83.9	982.4	985.6	990.2
7/10/2025	14.7	17.8	20.6	0.4	0.4	4.4	13.6	61.6	80.5	93.6	984.8	988.1	990.6
8/10/2025	17.6	24.3	30.7	0.0	0.2	6.0	25.1	26.0	44.6	63.1	979.5	983.9	987.5
9/10/2025	19.2	22.4	25.9	0.0	0.3	5.7	23.5	32.6	52.0	67.1	982.9	984.7	987.4
10/10/2025	16.7	22.7	29.9	0.0	0.7	5.5	18.8	19.8	46.6	77.1	984.1	986.0	988.1
11/10/2025	17.5	23.3	29.6	0.0	0.3	4.8	17.4	15.2	29.0	42.3	982.8	985.0	986.9
12/10/2025	16.7	20.8	30.1	0.0	0.3	7.1	26.9	21.1	39.5	67.2	981.4	985.0	987.2
13/10/2025	12.7	16.7	23.3	0.0	0.4	5.5	34.6	29.2	57.3	74.3	986.0	989.5	993.8
14/10/2025	11.8	18.5	26.9	0.0	0.0	3.5	13.5	21.1	52.3	80.6	987.9	991.2	993.8
15/10/2025	11.2	19.3	27.8	0.0	0.0	3.7	20.2	23.8	56.5	82.4	990.4	993.0	995.8
16/10/2025	13.5	21.8	31.3	0.0	0.2	4.4	20.3	26.6	62.0	90.4	987.0	990.5	993.7
17/10/2025	16.3	23.7	32.8	3.2	0.1	6.2	32.6	30.4	57.6	84.8	980.7	985.3	988.1
18/10/2025	14.2	17.5	22.9	0.0	0.4	5.7	23.5	51.7	73.1	93.7	986.2	988.3	991.7
19/10/2025	13.8	19.4	27.2	0.2	0.0	4.4	18.2	35.1	63.9	81.2	984.0	988.2	991.8
20/10/2025	17.3	26.3	35.2	0.0	0.4	5.2	18.3	23.2	47.4	79.8	979.8	983.0	986.6
21/10/2025	16.6	19.4	25.4	0.0	0.1	5.6	26.3	44.5	70.2	83.9	983.3	985.7	989.1
22/10/2025	15.3	24.6	36.5	0.0	0.5	6.6	39.2	26.7	58.8	93.4	970.1	976.4	983.2
23/10/2025	15.2	18.2	22.1	0.0	0.1	5.5	23.3	37.7	54.9	75.1	979.2	985.4	988.5
24/10/2025	13.9	18.2	25.8	0.0	0.0	3.5	21.4	29.3	64.5	79.3	984.0	986.6	990.8
25/10/2025	13.0	17.5	22.9	0.0	0.1	4.3	16.2	40.7	63.2	86.0	984.8	987.8	990.4
26/10/2025	15.5	20.3	24.5	0.0	0.1	5.1	18.3	35.9	49.3	64.0	973.3	978.4	985.2
27/10/2025	10.6	17.7	25.2	0.8	0.0	5.0	14.7	29.8	63.9	91.1	973.1	979.0	991.0
28/10/2025	10.2	11.1	14.1	5.8	0.0	2.7	13.6	54.9	81.5	94.6	990.3	992.2	993.7
29/10/2025	9.9	12.7	15.5	4.0	0.0	2.5	9.0	82.2	92.5	96.5	988.3	990.1	992.4
30/10/2025	13.3	16.8	23.3	0.2	0.1	3.5	15.7	49.5	79.2	96.1	987.1	989.2	992.0
31/10/2025	13.5	18.6	25.2	0.4	0.0	4.0	20.8	49.7	78.2	94.6	987.5	990.5	992.5
Monthly	**9.9**	**19.5**	**36.5**	**15.0**	**0.0**	**4.9**	**39.2**	**15.2**	**58.0**	**96.5**	**970.1**	**986.7**	**997.9**





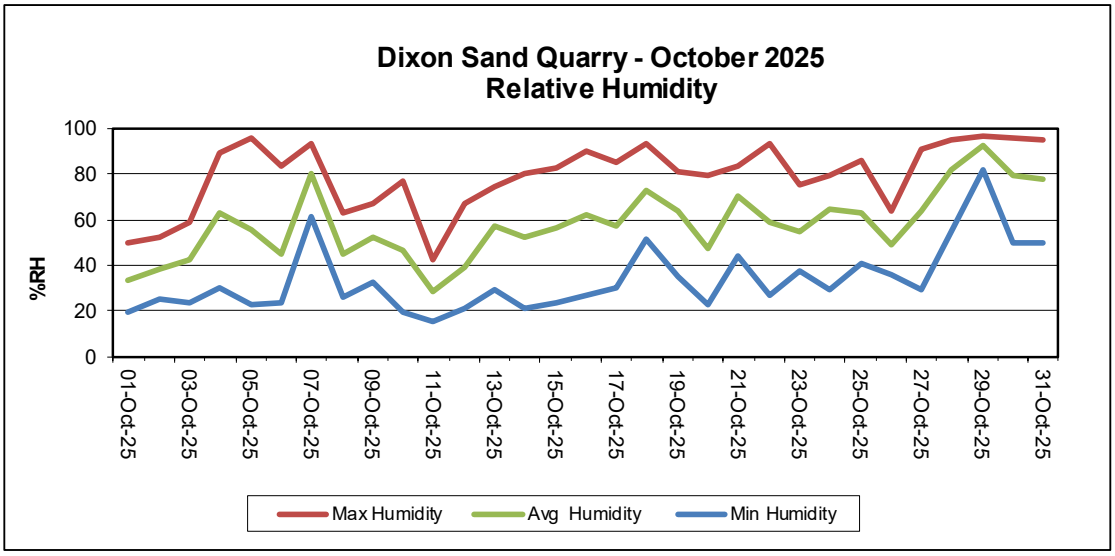


Figure 2: *Daily Rainfall, Temperature and Relative Humidity Charts*

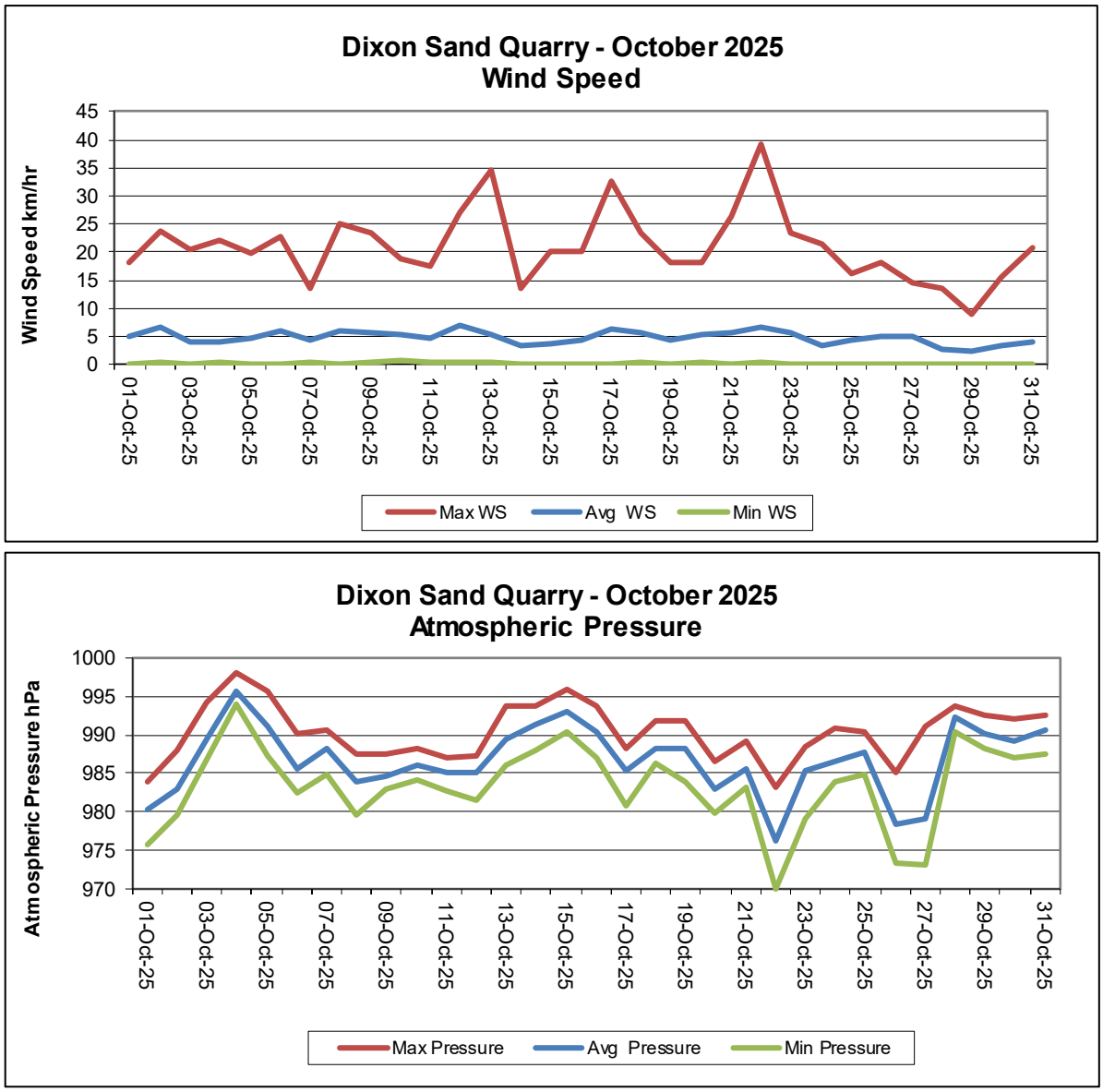


Figure 3: *Wind Speed and Atmospheric Pressure Char*

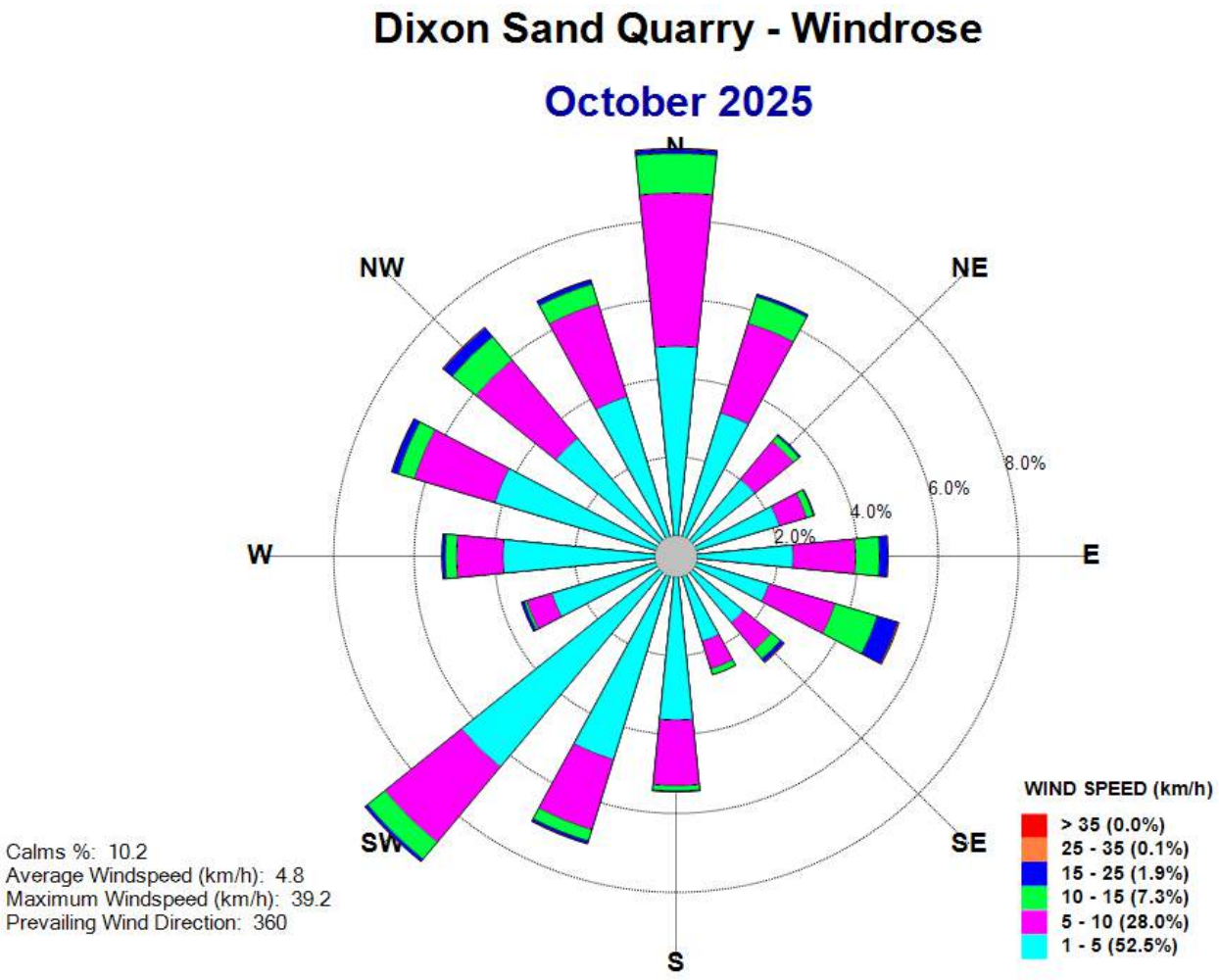


Figure 4: *Windrose*

Appendix 1

Calibration Documents (when required)

CBased Environmental Pty Limited
ABN 62 611 924 264

Dixon Sand Quarry

Environmental Monitoring
Air Quality

Tapered Element Oscillating Microbalance (TEOM) (PM_{10}) and Meteorological Data

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November 2025

Colin Davies BSc MEIA CENVP
Environmental Scientist
Date 30 December 2025

CBased Environmental Pty Ltd
Unit 3, 2 Enterprise Crescent SINGLETON NSW 2330
☎ (02) 65713334

1.0 Summary

CBased Environmental Pty Limited is contracted by Dixon Sand to conduct continuous Tapered Element Oscillating Microbalance (TEOM) for fine particulates (PM_{10}) and meteorological monitoring for the Dixon Sand Quarry. The information is required to assess air quality levels. The results for the TEOM and meteorological site are included in this report.

The monitoring programme includes:

- One continuous TEOM PM_{10} monitor; and
- One continuous meteorological station.

This monthly report for November 2025 was prepared by CBased Environmental and includes the following:

- TEOM (PM_{10}) monitoring results; and
- Meteorological results.

In accordance with Schedule 3, Condition 7 of the Dixon Sand development Consent and the Dixon Sand EPL;

- 24-hour average PM_{10} results were below the NEPM 24-hour maximum criteria of 50ug/m^3; with the exception of one occurrence on the 29th November 2025 (59.5ug/m^3)
- 24-hour average PM_{10} results were below the Dixon Sand Quarry EPL limit of 42ug/m^3, with the exception of one occurrence on the 29 November 2025 (59.5ug/m^3)
- The PM_{10} annual average is below the Dixon Sand Quarry consent annual average criteria of 30ug/m^3; and
- The calculated TSP is below the Dixon Sand Quarry annual average criteria of 90ug/m^3.

Note: Based on the available data, statements in green indicate current conformance to Dixon Sand Quarry Air Quality Impact Assessment criteria, statements in red indicate possible non-conformance. Year to date annual average for PM_{10} is calculated from 1 July 2025 for TEOM's coinciding with the Dixon Sand project year.

Approximately 96.7% of valid meteorological data was recorded for November 2025

Approximately 88.9% of valid TEOM data was available for November 2025.

2.0 Sampling Programme

The TEOM is sited and operated to the applicable Australian Standard and/or NSW EPA approved methods. The following Australian Standards were used:

- AS3580.9.8 - "*Methods for Sampling and Analysis of Ambient Air. Determination of Suspended Particulates—PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*"; and
- AS/NZS 3580.1.1 - "*Methods for Sampling and Analysis of Ambient Air Part 1.1 Guide to Siting Air Monitoring Equipment*".

TEOM PM_{10} results are 24-hour averages at midnight and are reported as $\mu g/m^3$ corrected to 0 degrees C and 101.3kPa.

All laboratory analysis was conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Air Quality monitoring site descriptions and locations are provided in **Table 1**.

Table 1: Dixon Sand Air Quality Monitoring Description and Locations

Monitor	Site Code	Location Description
TEOM PM_{10}	TEOM	Old North Road, Maroota NSW
Meteorological Station	MET	Old North Road, Maroota NSW

3.0 Results

3.1 TEOM PM_{10}

24-hour average TEOM PM_{10} results from the AQMS data collection software are provided in **Table 2** and a chart of the data is provided in **Figure 1**.

During the November 2025 monitoring period, individual 24-hour TEOM PM_{10} results were below the National Environmental Protection Measure (NEPM) short-term (24hr) impact criteria of 50ug/m^3 with the exception of one occurrence on 29th November 2025 (59.5ug/m^3) highlighted in yellow in **Table 2**.

During the November 2025 monitoring period, individual 24-hour TEOM PM_{10} results were below the Dixon Sand Quarry EPL limit of 42ug/m3 with exception of one occurrence on 29th November 2025 (59.5ug/m^3) highlighted in yellow in **Table 2.**

Two fire events occurred in close proximity to the quarry during the monitoring period: a grass fire on 27 November 2025 at 4547 Old Northern Road and a bushfire on 29 November 2025 at 4567 Old Northern Road. In addition, farming activities exposing dust and uncovered soil were also noted near the quarry and TEOM, along with windy conditions on 29 November 2025. The cumulative impact of these events, combined with predominant winds, could have contributed to the elevated PM_{10} levels observed on 29–30 November 2025.This information was provided by the client and has not been validated by Cbased Environmental Pty Ltd.

Approximately 88.9% of valid TEOM data was available for November 2025.

At present, the current TEOM PM_{10} annual average is below the Dixon Sand Quarry annual average PM_{10} criteria of 30ug/m^3. The current annual average for calculated Total Suspended Particulates (TSP) is below the annual average criterion of 90ug/m^3. The TSP is calculated by multiplying the PM_{10} by 2.5. Note: the annual average is calculated from 1 July 2025 and therefore an annual amount of data has not been collected.

The quarterly TEOM calibration was conducted in September 2025. The next calibration is due to be completed in December 2025. The calibration certificate is provided in **Appendix 1** (when required).

Table 2: Average Daily 24-hr TEOM PM_{10} and TSP Results for November 2025 from AQMS and Annual Average PM_{10} calculated from 1 July 2025.

Date	PM_{10} 24-hr Average ($\mu g/m^3$)	PM_{10} Annual Average ($\mu g/m^3$)	24-hr Average TSP* ($\mu g/m^3$)	Annual Average TSP** ($\mu g/m^3$)
1/11/2025	11.2	14.6	28.0	36.5
2/11/2025	13.1	14.6	32.8	36.4
3/11/2025	23.8	14.7	59.6	36.6
4/11/2025	22.1	14.7	55.3	36.8
5/11/2025	16.1	14.7	40.3	36.8
6/11/2025	23.1	14.8	57.8	37.0
7/11/2025	23.0	14.9	57.5	37.2
8/11/2025	21.8	14.9	54.5	37.3
9/11/2025	13.0	14.9	32.5	37.3
10/11/2025	22.5	15.0	56.3	37.4
11/11/2025	22.6	15.0	56.5	37.6
12/11/2025	22.5	15.1	56.3	37.7
13/11/2025	26.9	15.2	67.2	38.0
14/11/2025	34.5	15.3	86.3	38.3
15/11/2025	33.3	15.5	83.3	38.7
16/11/2025	10.2	15.4	25.5	38.6
17/11/2025	21.9	15.5	54.8	38.7
18/11/2025	20.3	15.5	50.8	38.8
19/11/2025	30.1	15.6	75.3	39.1
20/11/2025	32.7	15.8	81.8	39.4
21/11/2025	9.7	15.7	24.3	39.3
22/11/2025	13.1	15.7	32.8	39.2
23/11/2025	9.3	15.6	23.2	39.1
24/11/2025	12.8	15.6	32.0	39.1
25/11/2025	22.7	15.7	56.9	39.2
26/11/2025	ND	15.7	ND	39.2
27/11/2025	ND	15.7	ND	39.2
28/11/2025	ND	15.7	ND	39.2
29/11/2025	**59.5**	16.0	148.7	40.0
30/11/2025	13.2	16.0	33.0	39.9

*Calculated from PM10

**Calculated from PM10 Annual Average

Note: results above the Dixon Sand EPL criteria limit of 42 ug/m^3 are highlighted in yellow

No Data (ND) - <18hrs hour of valid data to calculate a 24hr average

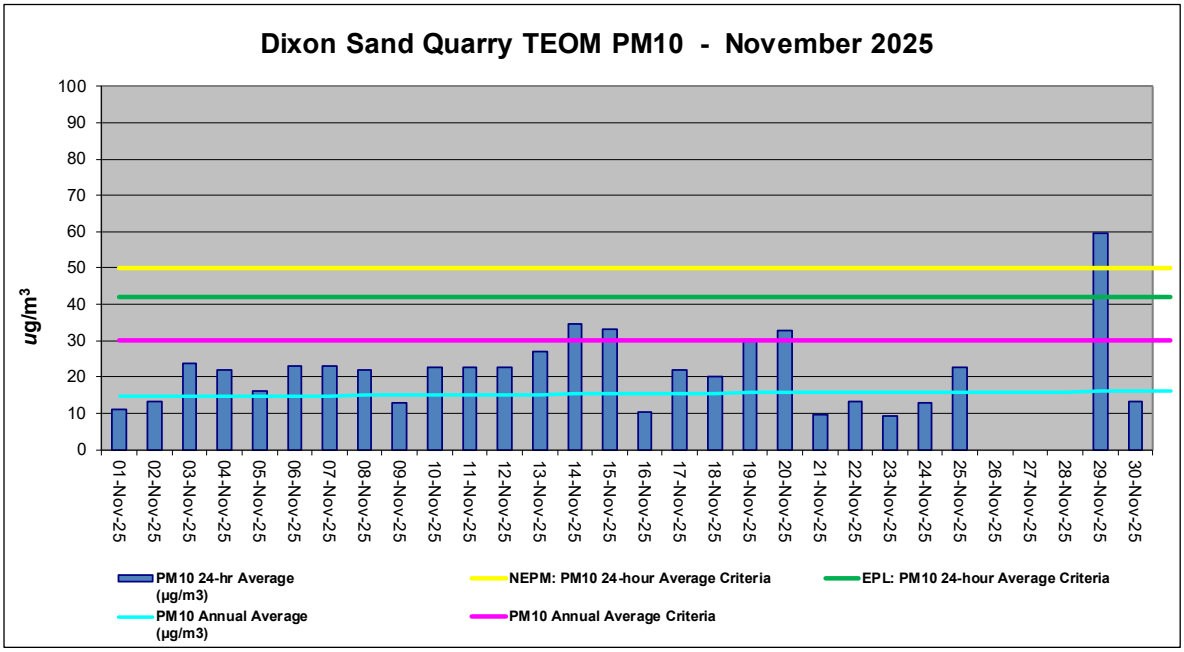


Figure 1: *TEOM PM_{10} 24 hr, Annual Average and Criteria*

3.2 Meteorological Data

The weather station logs data at 5-minute intervals and sends the data to a web database by NextG telemetry. The data is accessible from the web site http://console.teledata.com.au/index.html.

A summary of monthly results is presented in **Table 3**. Charts of meteorological parameters are presented in **Figures 2** and **3**. A Windrose is provided in **Figure 4**.

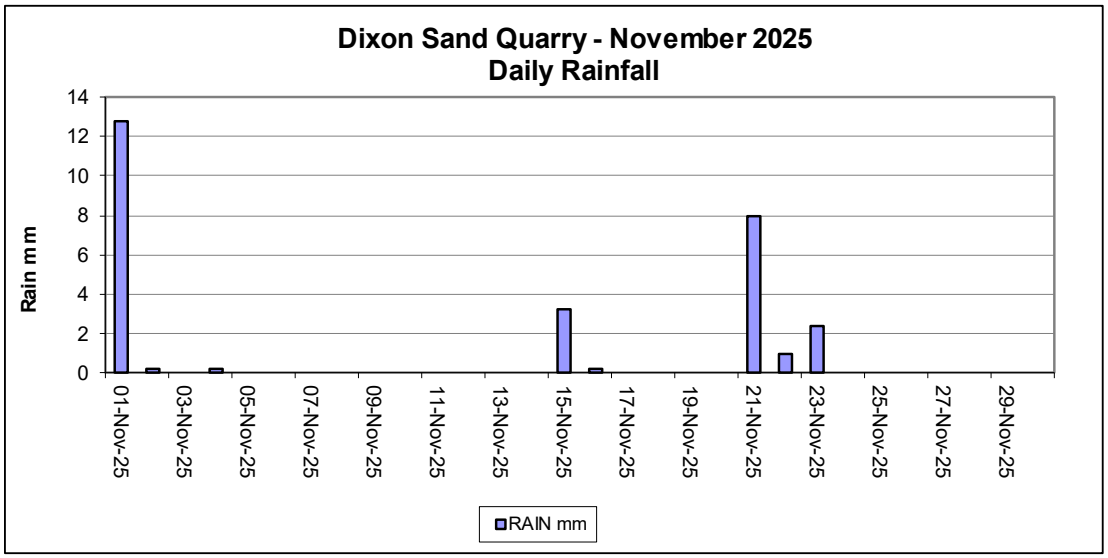
A 6-monthly physical screening and system check of the meteorological station was conducted in July 2025 (for June). The next physical screening and system check is currently scheduled for December 2025. The screening and system check certificates are provided in **Appendix 1** (when required).

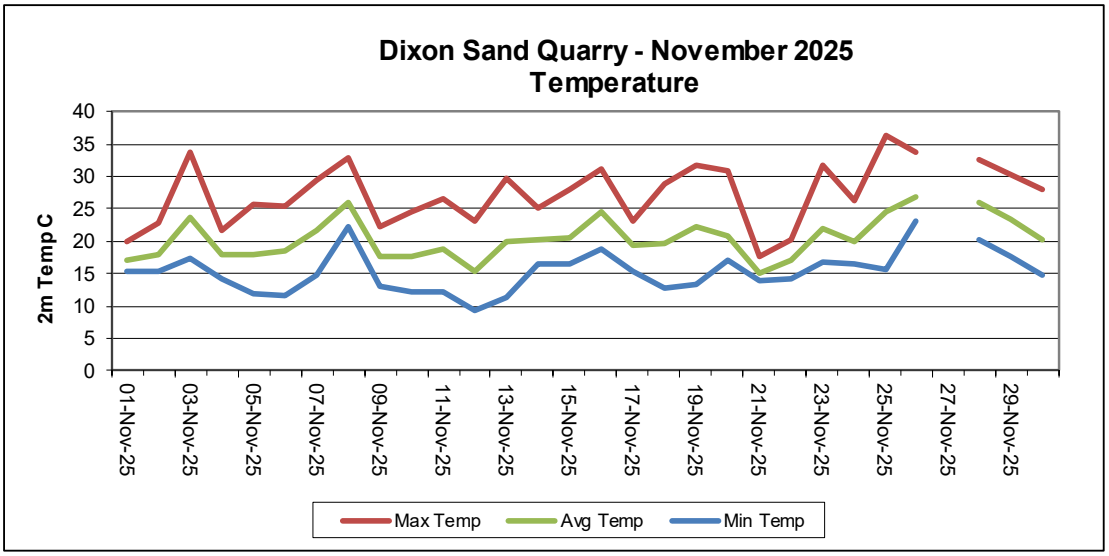
Approximately 96.7% of valid meteorological data was recorded for November 2025.

Table 3: Meteorological Data Summary for November 2025

Date	Min Temp	Avg Temp	Max Temp	RAIN mm	Min WS	Avg WS	Max WS	Min Humidity	Avg Humidity	Max Humidity	Min Pressure	Avg Pressure	Max Pressure
1/11/2025	15.2	17.2	20.0	12.8	0.1	3.4	22.3	80.1	91.1	95.6	985.9	988.2	990.1
2/11/2025	15.3	18.0	22.9	0.2	0.2	3.5	14.2	72.9	89.7	96.8	982.9	985.7	988.2
3/11/2025	17.4	23.6	33.7	0.0	0.3	4.6	14.4	33.8	70.6	95.5	972.4	977.4	982.9
4/11/2025	14.1	18.0	21.8	0.2	0.4	6.0	34.1	26.1	44.7	65.3	976.9	980.3	985.4
5/11/2025	11.8	18.0	25.6	0.0	0.2	4.3	17.5	23.7	42.8	63.8	983.8	986.1	989.6
6/11/2025	11.6	18.6	25.5	0.0	0.1	5.0	31.4	33.5	58.2	79.9	986.2	989.1	992.0
7/11/2025	14.9	21.6	29.4	0.0	0.2	4.6	16.4	33.9	64.1	86.9	980.5	984.2	988.4
8/11/2025	22.3	26.0	32.8	0.0	0.4	7.8	29.2	32.1	49.5	60.5	972.2	976.8	981.0
9/11/2025	12.9	17.6	22.1	0.0	0.1	4.5	21.8	37.9	52.7	73.2	977.8	982.9	988.2
10/11/2025	12.2	17.6	24.6	0.0	0.0	3.7	25.0	32.2	61.3	78.4	984.0	986.6	988.9
11/11/2025	12.1	18.8	26.5	0.0	0.3	4.6	24.0	19.0	47.2	89.1	980.4	984.7	989.5
12/11/2025	9.2	15.3	23.1	0.0	0.4	4.6	26.2	20.3	40.0	63.8	987.1	989.7	992.5
13/11/2025	11.2	20.0	29.6	0.0	0.2	4.9	19.1	14.6	42.3	69.0	979.5	984.2	989.4
14/11/2025	16.6	20.2	25.0	0.0	0.1	6.0	33.1	19.0	53.7	84.8	979.6	982.1	985.1
15/11/2025	16.4	20.4	28.1	3.2	0.0	4.5	31.5	45.3	76.0	88.0	976.7	981.0	985.1
16/11/2025	18.8	24.5	31.0	0.2	0.0	3.6	15.7	18.5	44.8	82.6	972.7	975.5	977.5
17/11/2025	15.2	19.3	23.1	0.0	0.0	4.2	20.8	25.2	36.2	53.9	973.4	976.1	981.0
18/11/2025	12.8	19.6	28.7	0.0	0.1	4.7	25.1	26.1	44.7	60.4	978.9	981.4	983.4
19/11/2025	13.3	22.3	31.8	0.0	0.0	3.8	25.5	24.5	51.3	80.9	979.2	982.2	984.5
20/11/2025	17.0	20.9	30.8	0.0	0.0	4.5	30.6	35.0	67.3	85.1	981.0	984.1	990.1
21/11/2025	13.9	15.0	17.6	8.0	0.4	4.8	17.7	77.4	91.9	96.4	989.4	991.9	993.6
22/11/2025	14.2	17.0	20.3	1.0	0.2	2.8	11.4	80.9	92.4	96.6	986.2	989.9	992.9
23/11/2025	16.9	21.9	31.7	2.4	0.2	3.4	26.7	28.3	76.5	96.5	976.2	980.5	986.1
24/11/2025	16.5	20.0	26.3	0.0	0.2	4.5	17.8	49.8	74.9	94.5	978.6	980.1	981.4
25/11/2025	15.7	24.5	36.3	0.0	0.2	5.4	26.4	26.7	59.8	87.6	970.3	974.7	981.6
26/11/2025	23.2	26.7	33.6	0.0	0.7	6.9	26.2	33.3	48.4	58.6	969.7	973.1	974.8
27/11/2025													
28/11/2025	20.2	25.9	32.6	0.0	0.4	6.4	27.4	15.6	48.5	77.1	976.5	978.1	982.2
29/11/2025	17.7	23.4	30.4	0.0	0.2	6.1	37.5	24.3	53.4	78.9	970.1	974.6	980.0
30/11/2025	14.9	20.3	28.0	0.0	0.2	4.3	23.5	21.9	51.0	85.1	975.3	979.0	981.5
Monthly	**9.2**	**20.4**	**36.3**	**28.0**	**0.0**	**4.7**	**37.5**	**14.6**	**59.5**	**96.8**	**969.7**	**982.1**	**993.6**

No Data due to power outage





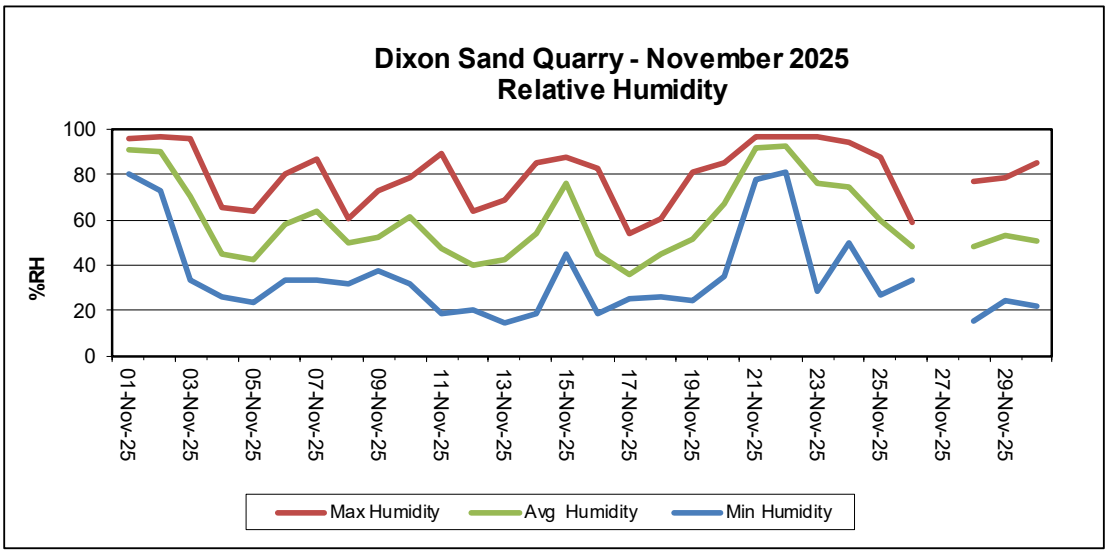


Figure 2: *Daily Rainfall, Temperature and Relative Humidity Charts*

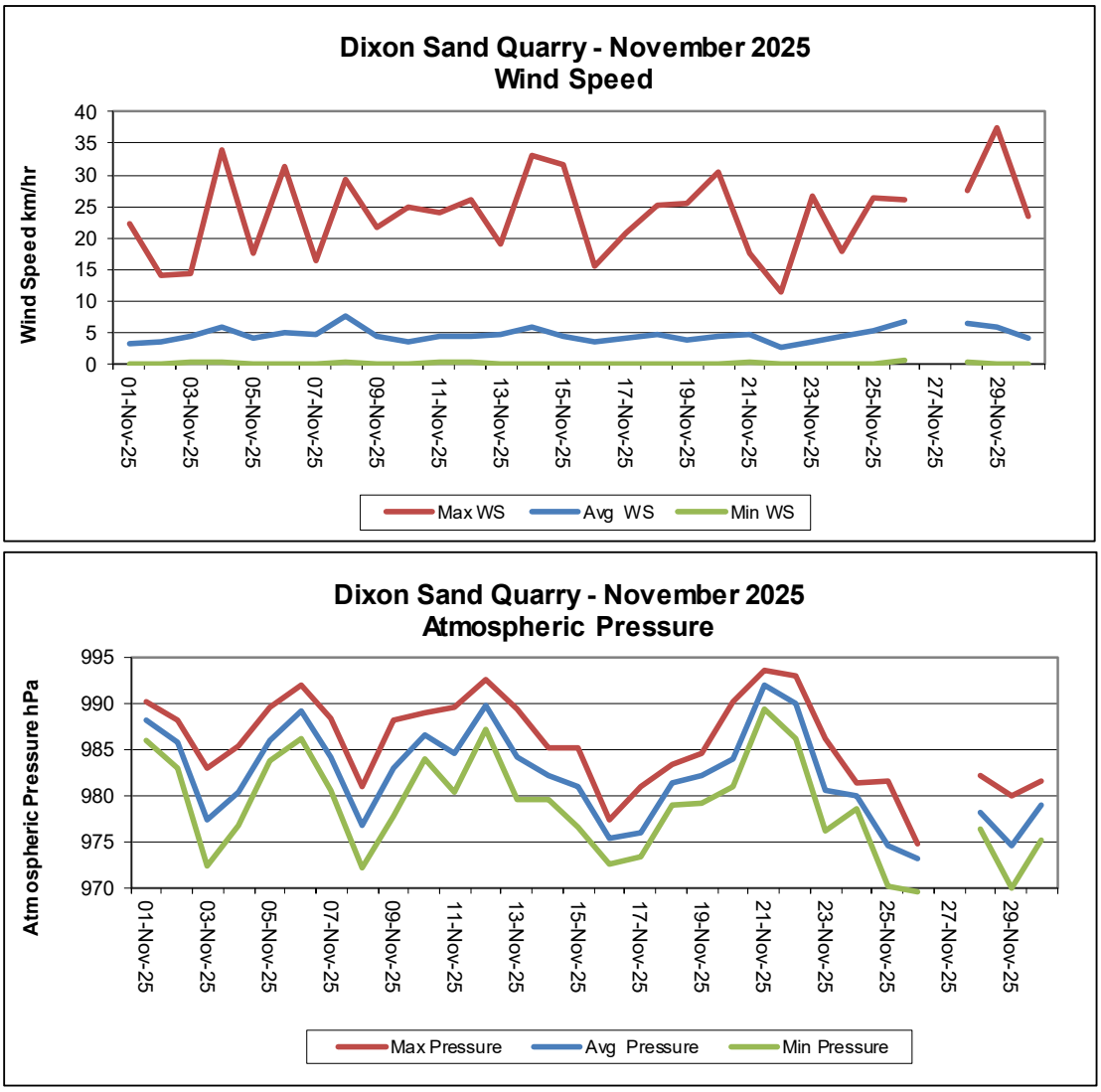


Figure 3: *Wind Speed and Atmospheric Pressure Chart*

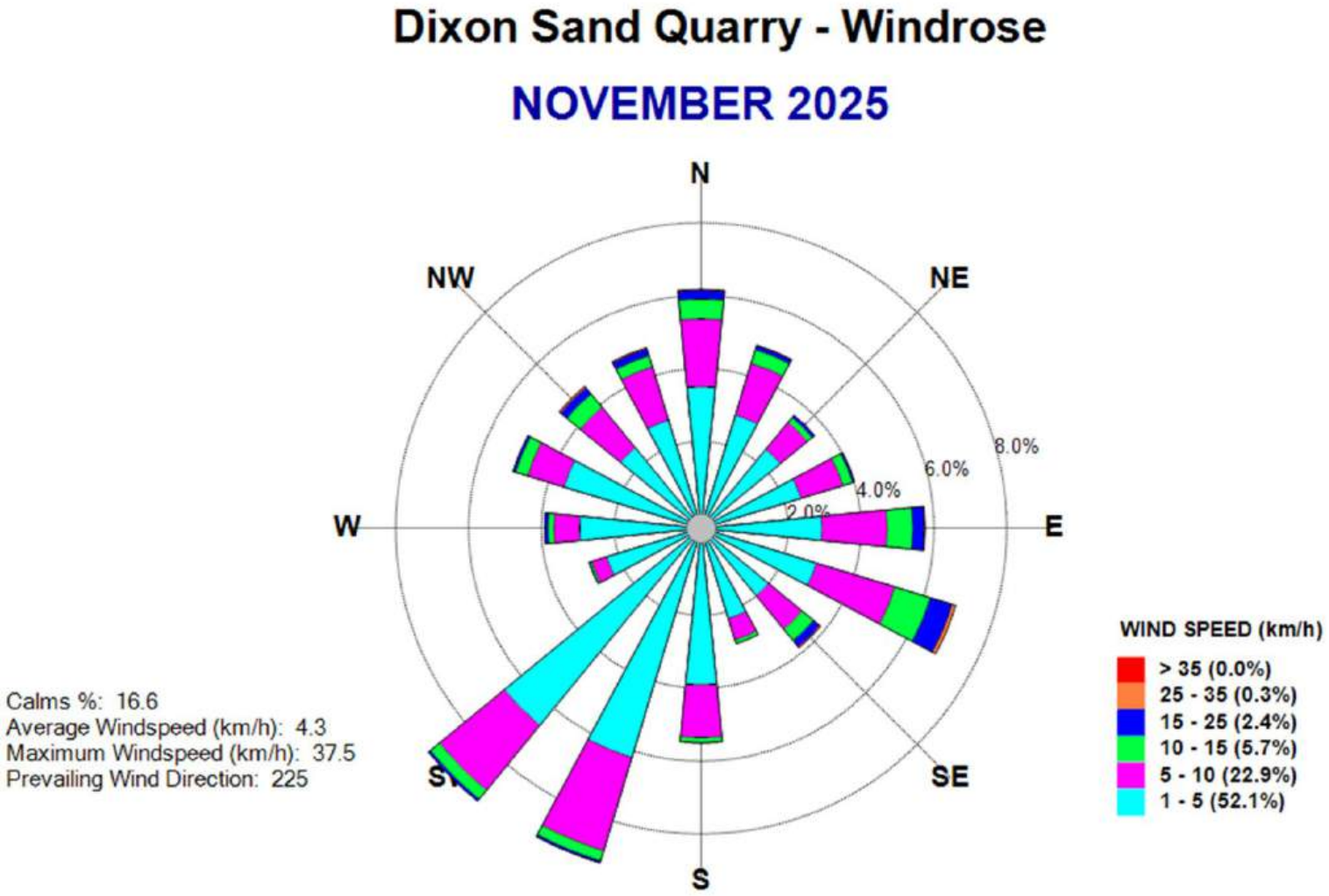


Figure 4: *Windrose*

Appendix 1

Calibration Documents (when required)

CBased Environmental Pty Limited
ABN 62 611 924 264

Dixon Sand Quarry

Environmental Monitoring
Air Quality

Tapered Element Oscillating Microbalance (TEOM) (PM_{10}) and Meteorological Data

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December 2025

Colin Davies BSc MEIA CENVP
Environmental Scientist
Date 13 January 2026

CBased Environmental Pty Ltd
Unit 3, 2 Enterprise Crescent SINGLETON NSW 2330
☎ (02) 65713334

1.0 Summary

CBased Environmental Pty Limited is contracted by Dixon Sand to conduct continuous Tapered Element Oscillating Microbalance (TEOM) for fine particulates (PM_{10}) and meteorological monitoring for the Dixon Sand Quarry. The information is required to assess air quality levels. The results for the TEOM and meteorological site are included in this report.

The monitoring programme includes:

- One continuous TEOM PM_{10} monitor; and
- One continuous meteorological station.

This monthly report for December 2025 was prepared by CBased Environmental and includes the following:

- TEOM (PM_{10}) monitoring results; and
- Meteorological results.

In accordance with Schedule 3, Condition 7 of the Dixon Sand development Consent and the Dixon Sand EPL;

- 24-hour average PM_{10} results were below the NEPM 24-hour maximum criteria of 50ug/m^3.
- 24-hour average PM_{10} results were below the Dixon Sand Quarry EPL limit of 42ug/m^3, with the exception of one occurrence on 19 December 2025 (49.7ug/m^3)
- The PM_{10} annual average is below the Dixon Sand Quarry consent annual average criteria of 30ug/m^3; and
- The calculated TSP is below the Dixon Sand Quarry annual average criteria of 90ug/m^3.

Note: Based on the available data, statements in green indicate current conformance to Dixon Sand Quarry Air Quality Impact Assessment criteria, statements in red indicate possible non-conformance. Year to date annual average for PM_{10} is calculated from 1 July 2025 for TEOM's coinciding with the Dixon Sand project year.

Approximately 100% of valid meteorological data was recorded for December 2025

Approximately 99.4% of valid TEOM data was available for December 2025.

2.0 Sampling Programme

The TEOM is sited and operated to the applicable Australian Standard and/or NSW EPA approved methods. The following Australian Standards were used:

- AS3580.9.8 - "*Methods for Sampling and Analysis of Ambient Air. Determination of Suspended Particulates—PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*"; and
- AS/NZS 3580.1.1 - "*Methods for Sampling and Analysis of Ambient Air Part 1.1 Guide to Siting Air Monitoring Equipment*".

TEOM PM_{10} results are 24-hour averages at midnight and are reported as $\mu g/m^3$ corrected to 0 degrees C and 101.3kPa.

All laboratory analysis was conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Air Quality monitoring site descriptions and locations are provided in **Table 1**.

Table 1: Dixon Sand Air Quality Monitoring Description and Locations

Monitor	Site Code	Location Description
TEOM PM_{10}	TEOM	Old North Road, Maroota NSW
Meteorological Station	MET	Old North Road, Maroota NSW

3.0 Results

3.1 TEOM PM_{10}

24-hour average TEOM PM_{10} results from the AQMS data collection software are provided in **Table 2** and a chart of the data is provided in **Figure 1**.

During the December 2025 monitoring period, individual 24-hour TEOM PM_{10} results were below the National Environmental Protection Measure (NEPM) short-term (24hr) impact criteria of 50ug/m^3.

During the December 2025 monitoring period, individual 24-hour TEOM PM_{10} results were below the Dixon Sand Quarry EPL limit of 42ug/m3 with exception of one occurrence on 19th December 2025 (49.7ug/m^3) highlighted in yellow in **Table 2.**

Approximately 99.4% of valid TEOM data was available for December 2025.

At present, the current TEOM PM_{10} annual average is below the Dixon Sand Quarry annual average PM_{10} criteria of 30ug/m^3. The current annual average for calculated Total Suspended Particulates (TSP) is below the annual average criterion of 90ug/m^3. The TSP is calculated by multiplying the PM_{10} by 2.5. Note: the annual average is calculated from 1 July 2025 and therefore an annual amount of data has not been collected.

The quarterly TEOM calibration was conducted the 5th January 2026 (for December 2025). The next calibration is due to be completed in March 2026. The calibration certificate is provided in **Appendix 1** (when required).

Table 2: Average Daily 24-hr TEOM PM_{10} and TSP Results for December 2025 from AQMS and Annual Average PM_{10} calculated from 1 July 2025.

Date	PM_{10} 24-hr Average ($\mu g/m^3$)	PM_{10} Annual Average ($\mu g/m^3$)	24-hr Average TSP* ($\mu g/m^3$)	Annual Average TSP** ($\mu g/m^3$)
1/12/2025	23.6	16.0	59.0	40.1
2/12/2025	12.1	16.0	30.3	40.0
3/12/2025	21.6	16.0	54.0	40.1
4/12/2025	30.3	16.1	75.8	40.3
5/12/2025	27.4	16.2	68.5	40.5
6/12/2025	34.6	16.3	86.5	40.9
7/12/2025	26.8	16.4	67.0	41.0
8/12/2025	29.5	16.5	73.8	41.3
9/12/2025	37.3	16.6	93.2	41.6
10/12/2025	30.6	16.7	76.5	41.8
11/12/2025	18.4	16.7	46.0	41.9
12/12/2025	7.2	16.7	18.0	41.7
13/12/2025	11.3	16.6	28.3	41.6
14/12/2025	11.5	16.6	28.8	41.5
15/12/2025	39.8	16.8	99.5	41.9
16/12/2025	19.1	16.8	47.8	41.9
17/12/2025	22.4	16.8	56.0	42.0
18/12/2025	23.3	16.9	58.3	42.1
19/12/2025	**49.7**	17.1	124.3	42.7
20/12/2025	20.6	17.1	51.5	42.7
21/12/2025	22.3	17.1	55.8	42.8
22/12/2025	19.8	17.1	49.5	42.8
23/12/2025	18.6	17.1	46.5	42.9
24/12/2025	25.1	17.2	62.8	43.0
25/12/2025	23.3	17.2	58.3	43.1
26/12/2025	12.0	17.2	30.0	43.0
27/12/2025	14.8	17.2	37.0	43.0
28/12/2025	15.8	17.2	39.5	42.9
29/12/2025	12.0	17.1	30.0	42.9
30/12/2025	13.4	17.1	33.5	42.8
31/12/2025	15.4	17.1	38.5	42.8

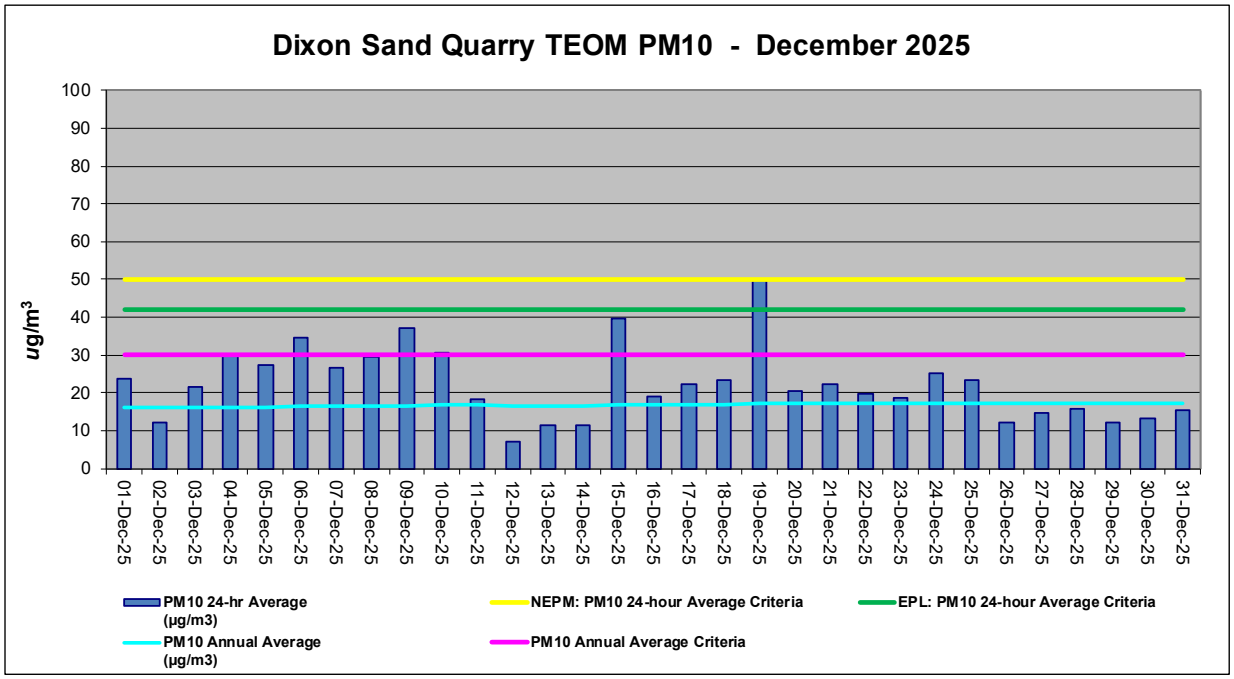


Figure 1: *TEOM PM_{10} 24 hr, Annual Average and Criteria*

3.2 Meteorological Data

The weather station logs data at 5-minute intervals and sends the data to a web database by NextG telemetry. The data is accessible from the web site http://console.teledata.com.au/index.html.

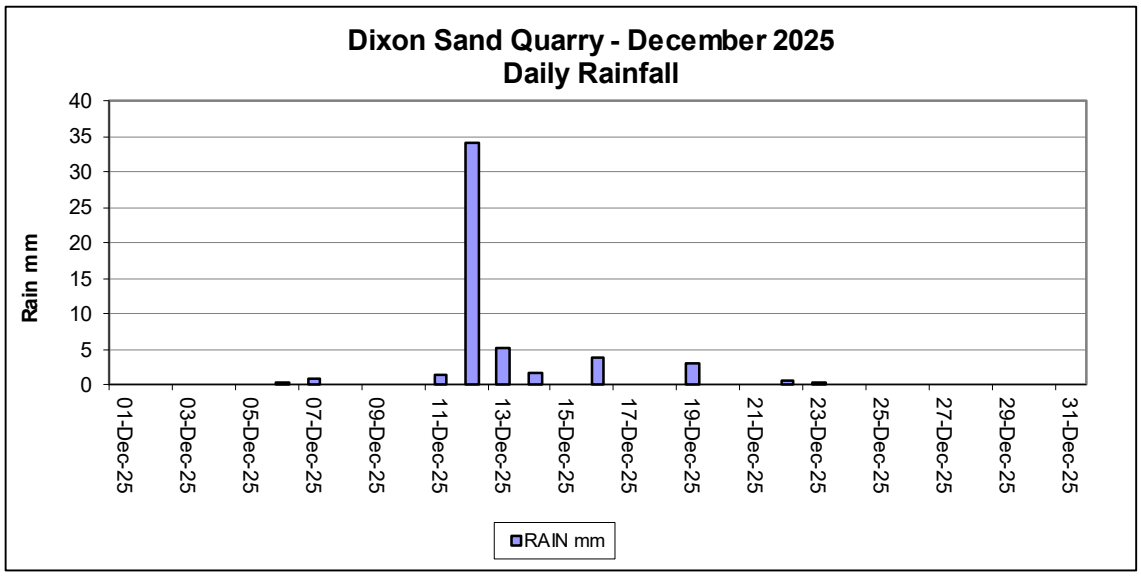
A summary of monthly results is presented in **Table 3**. Charts of meteorological parameters are presented in **Figures 2** and **3**. A Windrose is provided in **Figure 4**.

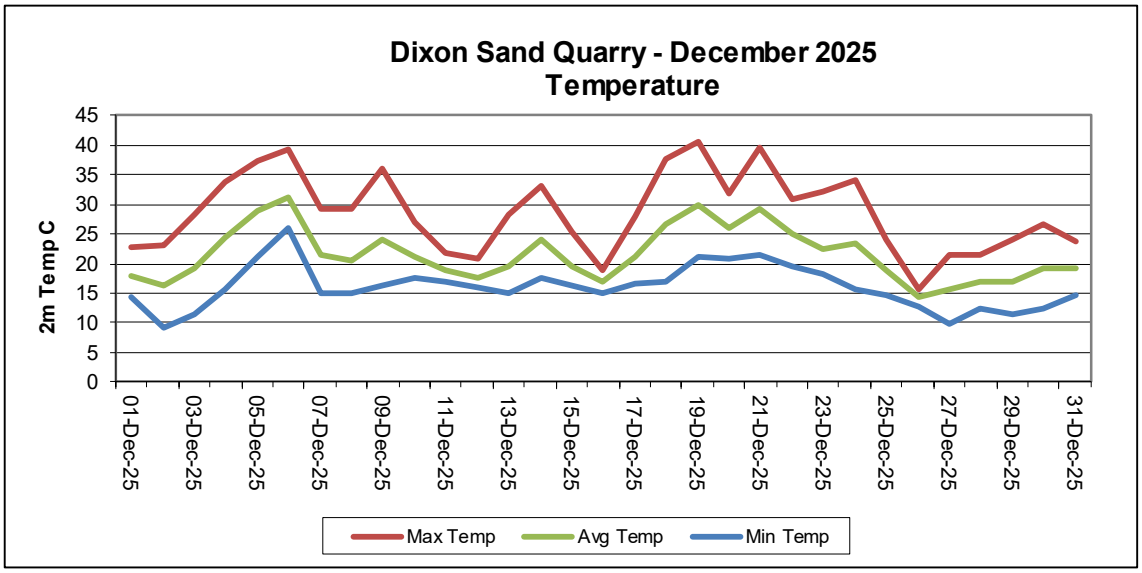
A 6-monthly physical screening and system check of the meteorological station was conducted on the 6th January 2026 (for December 2025). The next physical screening and system check is currently scheduled for June 2026. The screening and system check certificates are provided in **Appendix 1** (when required).

Approximately 100% of valid meteorological data was recorded for December 2025.

Table 3: Meteorological Data Summary for December 2025

Date	Min Temp	Avg Temp	Max Temp	RAIN mm	Min WS	Avg WS	Max WS	Min Humidity	Avg Humidity	Max Humidity	Min Pressure	Avg Pressure	Max Pressure
1/12/2025	14.2	17.8	22.9	0.0	0.2	3.8	21.9	27.6	40.9	62.2	976.3	979.0	981.5
2/12/2025	9.2	16.2	23.1	0.0	0.1	4.0	18.1	26.7	50.1	73.8	978.6	984.2	991.3
3/12/2025	11.3	19.1	28.4	0.0	0.0	4.4	23.8	24.8	56.9	82.2	988.0	990.7	993.1
4/12/2025	15.8	24.4	33.8	0.0	0.3	4.5	22.5	17.3	44.1	74.8	985.2	989.0	992.1
5/12/2025	21.2	28.9	37.2	0.0	0.2	5.1	27.9	13.0	26.4	40.9	981.9	985.0	987.9
6/12/2025	26.0	31.1	39.1	0.2	1.2	8.1	28.3	14.5	28.2	39.1	974.1	979.0	982.7
7/12/2025	14.9	21.5	29.2	0.8	0.1	5.4	19.0	34.0	61.7	93.0	976.7	982.7	988.7
8/12/2025	15.0	20.4	29.1	0.0	0.2	4.7	21.5	39.1	74.0	93.9	981.8	985.8	988.4
9/12/2025	16.2	24.1	35.9	0.0	0.0	5.2	25.1	17.5	61.2	94.0	983.7	986.4	992.6
10/12/2025	17.6	21.2	27.0	0.0	0.6	5.6	20.1	53.5	73.7	85.9	987.9	991.6	993.9
11/12/2025	16.9	18.9	21.9	1.4	0.1	4.0	15.7	59.4	78.2	93.3	990.7	992.7	994.0
12/12/2025	16.0	17.7	20.8	34.2	0.1	3.5	17.0	77.2	90.0	95.3	987.1	989.6	992.8
13/12/2025	14.9	19.6	28.2	5.2	0.0	4.1	18.6	49.2	83.6	96.4	979.6	983.6	986.9
14/12/2025	17.5	24.1	33.0	1.6	0.1	3.6	15.5	29.7	63.8	94.4	975.4	978.8	983.3
15/12/2025	16.3	19.6	25.4	0.0	0.0	5.6	25.6	51.9	71.6	87.5	983.4	986.6	992.2
16/12/2025	15.0	17.0	19.0	3.8	0.0	4.2	14.0	74.2	83.9	93.7	991.6	994.4	997.2
17/12/2025	16.6	21.3	27.9	0.0	0.0	4.2	19.0	50.3	72.3	91.1	991.2	994.6	997.3
18/12/2025	16.8	26.8	37.5	0.0	0.2	4.6	16.8	26.6	57.2	89.4	983.4	987.9	992.5
19/12/2025	21.1	30.0	40.5	3.0	0.1	4.3	16.9	16.9	44.8	84.0	979.2	982.7	984.9
20/12/2025	20.8	25.9	31.8	0.0	0.0	3.3	14.4	49.6	64.8	86.0	977.7	980.9	984.4
21/12/2025	21.5	29.3	39.4	0.0	0.1	4.4	21.8	22.0	54.0	80.8	971.7	976.7	979.9
22/12/2025	19.6	25.0	30.7	0.6	0.3	5.1	35.7	43.5	64.3	89.3	973.9	978.7	983.6
23/12/2025	18.3	22.5	32.2	0.4	0.0	4.0	32.4	19.8	68.3	93.9	980.3	982.7	987.8
24/12/2025	15.5	23.4	33.9	0.0	0.0	3.6	13.8	15.5	61.7	87.5	978.4	982.8	987.4
25/12/2025	14.6	18.7	24.0	0.0	0.2	5.5	22.5	48.2	71.2	89.0	982.0	983.8	987.1
26/12/2025	12.7	14.3	15.5	0.0	0.0	3.2	14.8	63.8	72.0	85.7	985.6	987.8	990.0
27/12/2025	9.9	15.7	21.5	0.0	0.1	4.5	24.7	45.1	65.5	89.8	987.5	989.3	990.8
28/12/2025	12.4	16.8	21.4	0.0	0.1	4.3	16.1	45.5	61.7	76.8	989.8	992.5	995.1
29/12/2025	11.3	17.0	24.1	0.0	0.1	4.6	23.0	41.2	65.5	84.9	989.8	992.2	994.7
30/12/2025	12.4	19.2	26.7	0.0	0.0	5.0	27.0	30.7	62.4	83.1	981.4	985.8	990.5
31/12/2025	14.8	19.1	23.7	0.0	0.3	4.5	19.3	42.4	70.4	83.0	980.3	983.1	986.4
Monthly	**9.2**	**21.5**	**40.5**	**51.2**	**0.0**	**4.5**	**35.7**	**13.0**	**62.7**	**96.4**	**971.7**	**985.8**	**997.3**





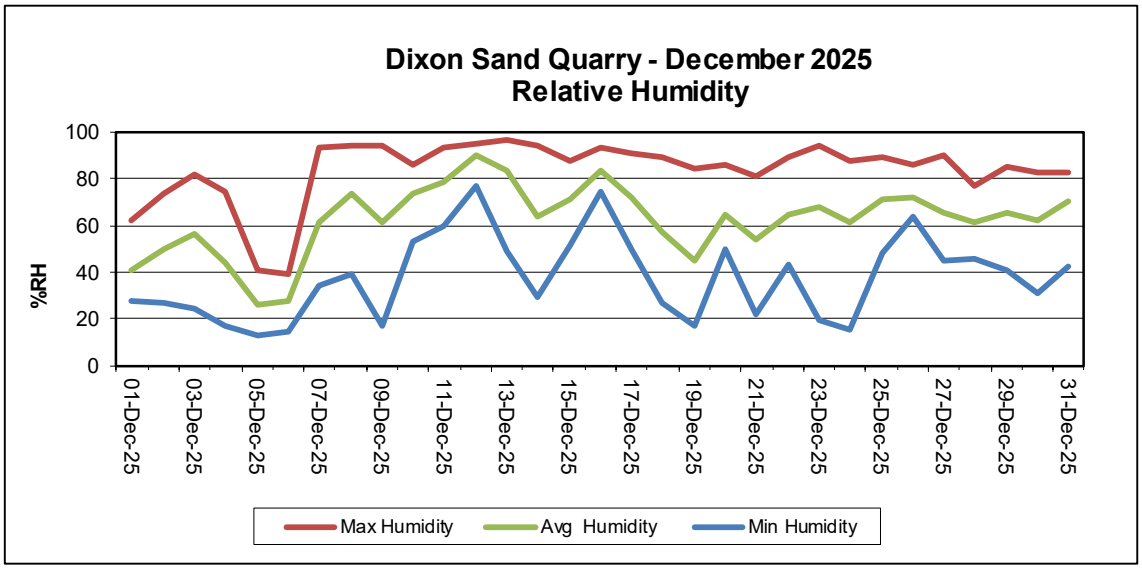


Figure 2: *Daily Rainfall, Temperature and Relative Humidity Charts*

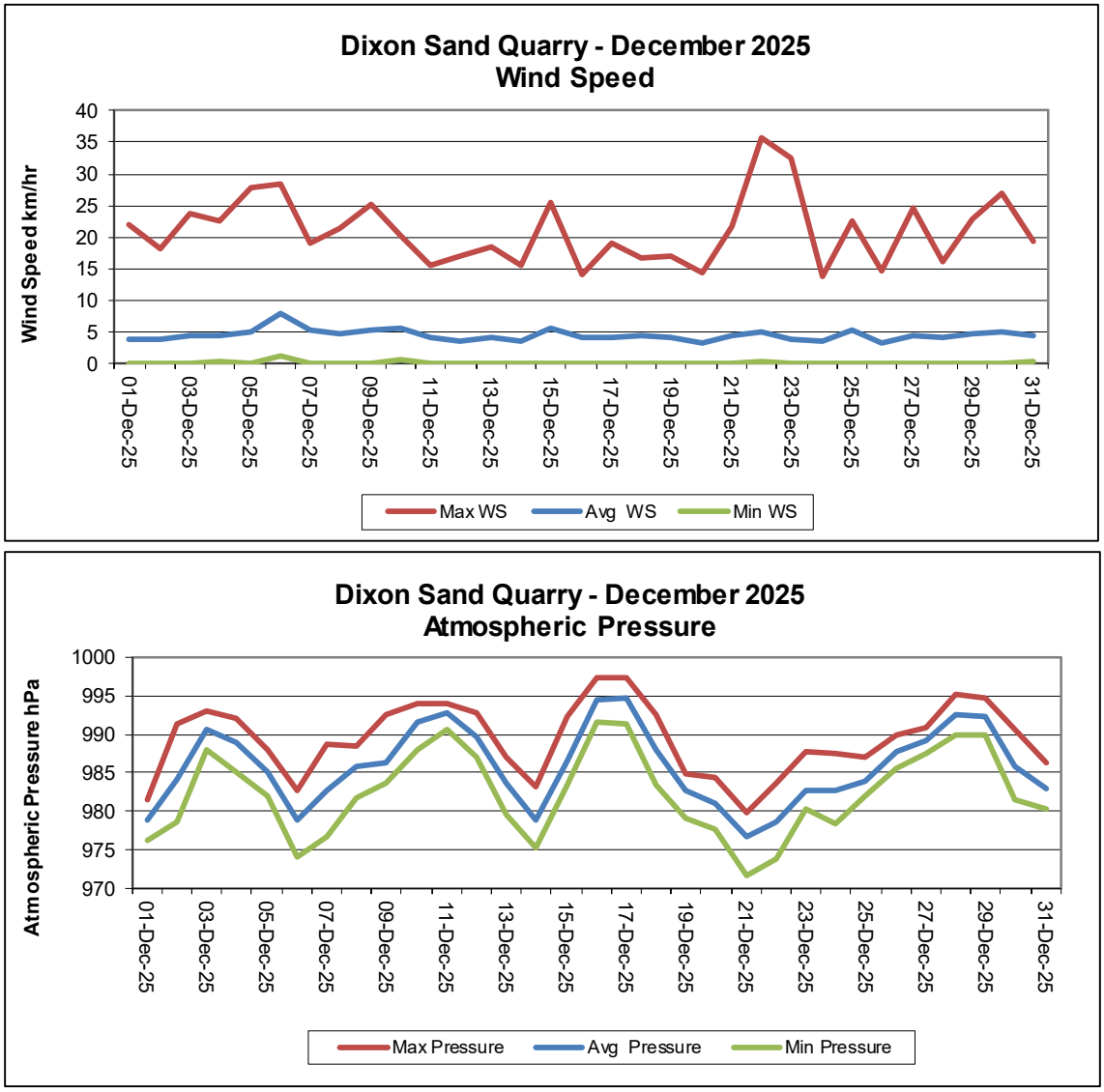


Figure 3: *Wind Speed and Atmospheric Pressure Chart*

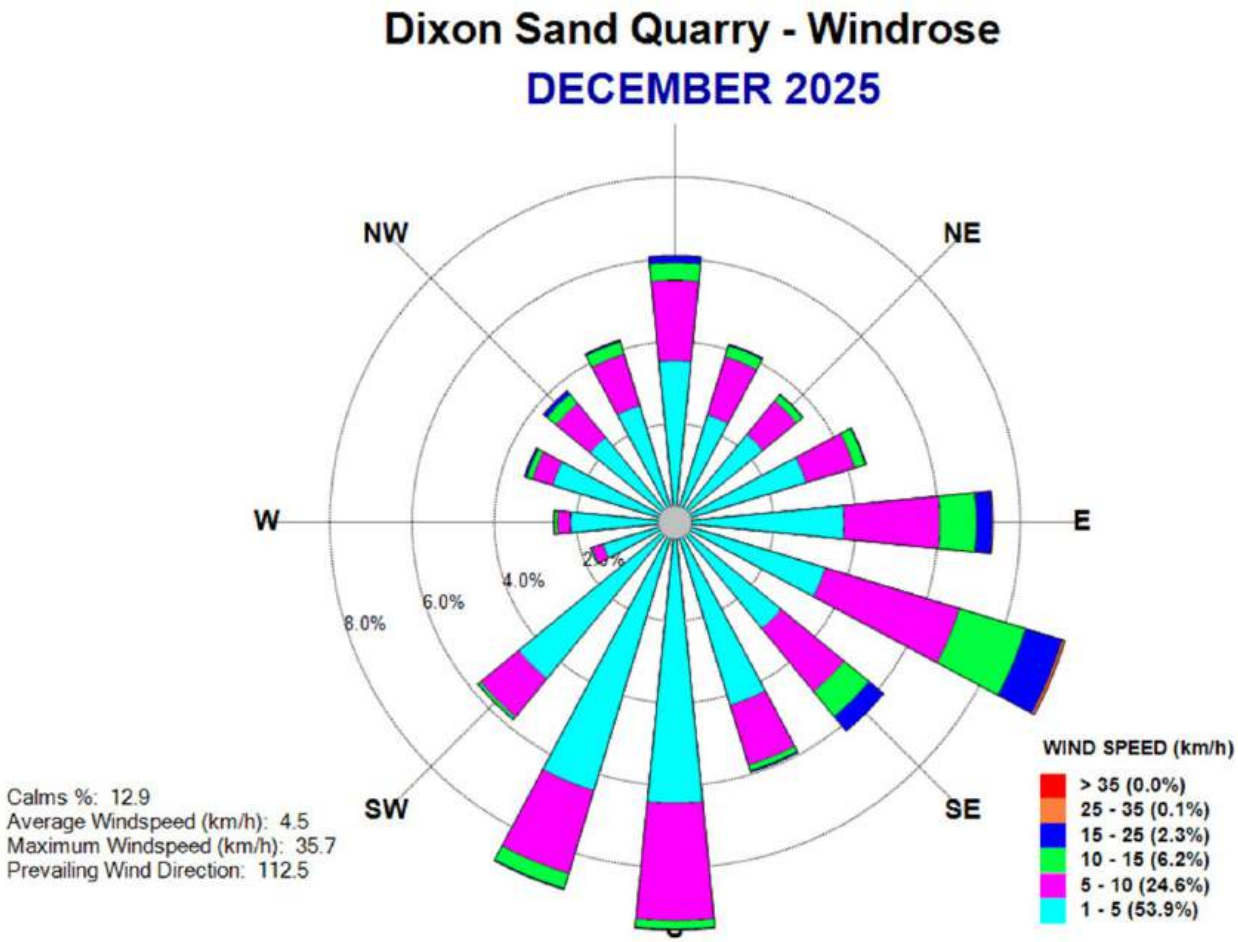


Figure 4: *Windrose*

Appendix 1

Calibration Documents (when required)

CARBON BASED ENVIRONMENTAL

Continuous Air Quality Monthly/Quarterly/Six Monthly/Annual TEOM Maintenance and Calibration – 1400AB

teledata

TEOM Client/Site: Dixon Sandy TEOM **Date:** 5/1/26 + 6/1/26

1. TEOM Data Screen **SERIAL No:** 1400AB255700503

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Operating Condition	4 OK	Green - Normal	✓	
Date/time	TEOM: 13:50 5-1-26 Actual: 14.52 5-1-26	Current Date/time correct within 5 minutes EST/DST ✓	✓	
PM-10 24hr av	17.2	Positive values	✓	
Filter loading PM10	54	<80 %	✓	
Frequency PM-10	251.5989	200-300 Hz	✓	
Noise PM-10	0.07	<0.100ug	✓	

Comment: If filter load >80% but <90% and if flows Ok then data is OK

Comments: Note 24h AV zero → Power outage used 12hr av.

2. System Status

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Vacuum pump pressure	-0.8	<0.50 atm	✓	
Warnings	NIL	No Warnings	✓	
If any warnings list:				

Comments:

Data Downloaded: YES/NO (circle)

Technician Name : COLIN JAMES **Signed**

3. Instrument Conditions Ambient Conditions and Temperatures

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Ambient Temperature	30.1	-10 to 50 C	✓	
Ambient Dew Point	NA	-10 to 50 C	NA	
Ambient Pressure	0.967	0.9-1.1 atm	✓	
Ambient Relative Humidity	NA	10-100 %RH	NA	
Cap temperature	50.00	50.00 +/- 0.10 C	✓	
Case temperature	50.00	50.00 +/- 0.10 C	✓	
Main (PM-10) Air Tube temp	50.00	50.00 +/- 0.10 C	✓	

Comments:

Adj Man 1.15 adj → ~~1.10~~ 1.055 cb.

Adj aux 1.00 ok ✓ 1.000

4. Instrument Conditions – Flows

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Main (PM-10) Flow rate	3.08	2.82 – 3.18 lpm	✓	
Bypass Flow rate	13.57	12.95 – 14.39 lpm	✓	
Total Flow rate	16.65	15.67 – 17.67 lpm	✓	

Comments:

Results: (Tick box)

☑ **There were NO equipment faults found. No action required – (file report)**

☐ **There were faults found (Fails) – Were these fixed on site: YES/NO (circle)**
Any Fails that cannot be repaired on site must be reported to CBased:
Office: 65713334 or email cbased@bigpond.com
Date faults notified to CBased: _____

Comments/Action Required:

Calibration/Maintenance

1. 1405A: Were Filters replaced YES/NO
2. PM10 Inlet head cleaned YES/NO
3. If measurement filters were replaced, confirm stable results after change. Stable particulate results confirmed YES/NO

Channel	Filter Load %	Frequency Hz initial	Frequency check 1min	Frequency check 3min	Frequency check 5min
PM10	26	255.92489	255.92485	255.92480	255.92479

Frequency should not drift by more than 0.0010 between readings (if instrument is thermodynamically stable)
Pass/Fail – if Fail – install new filter and redo stability test. Noise 0.041 ✓ OK

4. Instrument clock verified (Refer Section 1) (YES)/NO.
If Time changed – clock reset OK YES/NO or (NA) (not changed)
Comments:

5. Were TEOM in line and rear TEOM filters checked for cleanliness and replaced if necessary. (YES)/NO.
Comments if changed:

6. TEOM Cleaned and Air Conditioner checked (YES)/NO. Air Conditioner settings or operational status: low cool 6

Tetracal Flow/Temp/Pressure Calibrator Serial No: Tet005 **Refer to calibration corrections for Temperature/Pressure and Flows and apply to all readings.**

Quarterly or Six Monthly Calibration

1. Flow Verification – Conducted (YES)/NO

PM10 Flow verified Flow l/min 3.08 Error % 2.7 (allowed error <6%) (PASS)/FAIL

Bypass Flow verified Flow l/min 13.57 Error % 0.7 (allowed error <6%) (PASS)/FAIL
If fail then complete a full multipoint recalibration and review previous data from last good flow check. **Comments if Flows recalibrated:**

2. Leak Check – Conducted (YES)/NO

PM10 actual 0.14 < Limit 0.15

Bypass actual 0.46 < Limit 0.60

Leak check (PASS)/FAIL – If fail then find leak and retest.
Comments:
leak but OK ✓

Annual Calibration/Maintenance

1. Temperature and Pressure Calibration – Conducted YES/NO
Reference Temperature: 30.4 C TEOM Temperature 30.1 C
if difference +/- 1 C recalibrate sensor. Sensor recalibrated YES/NO

Reference Pressure: 0.970 atm TEOM Pressure 0.967 atm
if difference +/- 0.010 atm recalibrate sensor. Sensor recalibrated YES/NO

Note: Tetracal measures Atmospheric Pressure in mm Hg or mb or hPa
For mb or hPa divide tetracal result by 1013.25 to change units to atm.
For mmHg divide tetracal result by 760 to change units to atm.

2. Flow Calibration – Conducted YES/NO
PM10
Set point 2.4 Actual:_____
Set point 3.6 Actual:_____
Set point 3.0 Actual:_____ After calibration Final:_____l/min
NA

BYPASS
Set point 10.9 Actual:_____
Set point 16.4 Actual:_____
Set point 13.67 Actual:_____ After calibration Final:_____l/min

Initial		l/m
Adj Main	1.15	3.08
Adj Aux	1.00	13.57

Final Adj Main 1.055 3.00
Adj Aux 1.000 13.63
Hardware reset OK ✓ OK.

3. Post Cal Leak Check – Conducted YES/NO ~~(use leak check wizard~~. Actual = channel flow-zero flow) NA for N00AB Model
PM2.5 Base actual_____ < Limit 0.15 Reference actual_____< Limit 0.15
BYPASS Base actual_____ < Limit 0.60 Reference actual_____< Limit 0.60
Leak checks PASS/FAIL – If fails, find leak and retest.
Note that a big FAIL here will need the leak resolved and go back to Step 2 as the flow has been calibrated with a leak.

4. Mass calibration (K0) Verification – Conducted YES/NO
Audit Filter Serial Number: 6734-3
Audit Filter Average Weight: 0.09705 grams

Channel	TEOM stated KO	Audit KO	% Error	PASS/FAIL
PM10	13748	14005	1.8	PASS

Allowed Error +/- 2.5%. If Error > +/- 2.5% then repeat measurement.
Second Error % =PM10_____ PASS/FAIL NA
If FAIL confirmed then consult Lear Siegler or manufacturer.
Comments:

5. Prepare for Noise Check – Conducted YES/NO

Channel	Filter Load %	Frequency Hz initial (Time= 0 min)	Frequency check Time= 1 min	Frequency check Time= 3 min	Frequency check Time = 5 min
PM2.5	26	255.92489	255.92485	255.92480	255.92479

PASS/FAIL – If stability test fails, use change filter wizard to reseat the filter.
The next step will not pass until this test passes

6. Annual Noise check - Conducted YES/NO

Zero filter applied to TEOM and TEOM operated for at least 12 hours:
Start date/time: 5/1/26 19:00 Finish date/time: 6/1/26 09:55
Standard deviation of all recorded data (min 30 min averages) = 2.8 ug/m^3
Noise was less than 5ug/m^3 (YES)/NO

7. Maintenance

Air Inlet system cleaned (YES)/NO
Pump Reconditioned YES/(NO)
Check Waterproofing (YES)/NO OK

Comments:

Meteorological Monitoring Maintenance and Calibration

Maintenance and Calibration as per CBased Environmental Method M202

Client: Dixon Sands	Site Name: Dixon Sands
Date: 5/1/26	Time: 15:15
General Climatic Conditions: Very light winds. Sunny; warm. Thunderstorm building up from west. Possible rain later.	
Latitude: 33 ° 27 ' 16 "	Longitude: 150 °59 '37 "
Note: Contact office to confirm coordinates if required. Coordinates required to determine magnetic declination.	

1. Physical Maintenance

Item	Yes (Pass)	No (Fail)	Comments
Grass / Vegetation Impacts			
Compound Grass height <10cm	✓		
Ground Anchor / Guy Wires / Mast Condition			
Bottom guy wires tight (correct tension = 35-50mm deflection, with only moderate hand force at 1.5 metres up the guy wire)	NA		Pole no guy wires
Top Guy wires tensioned (correct tension = 60-75mm deflection, with only moderate hand force at 1.5 metres up the guy wire)	NA		" " "
Mast Vertical and in good condition	✓		Some Corrosion
Ground anchors/star pickets tight in ground	✓		No star pickets
Guy Wires insignificant corrosion	NA		No guy wires
Ground anchors/D shackles/ winders insignificant corrosion	NA		No Winder - winch is rusty
Bolts/hinge points in mast are secure	NA		Solid Pole
Cables / Connectors / Logger Cabinet / Solar Panel			
Cables attached to mast/guy wires via ties are secure	✓		as allowed by pole
Insignificant corrosion to plugs/connectors	✓		
No water ingress in logger/battery cabinet	✓		
Wiring/plugs in cabinet OK, Logger OK	✓		
Battery terminals and condition OK	~~NA~~		Battery Volts = NA No battery
Battery volts (charging>13V, not charging >12V)	NA		240V/12V System
Solar panel undamaged and clean	NA		No sl
Check for ants/insects and install new ant bait station in enclosure	NA		OK

Item	Yes (Pass)	No (Fail)	Comments
Sensor Maintenance / Checks			
Recent data checked and OK / Logging data OK, review sensor data and station battery voltage.	✓		
Wind Speed/Direction			
Wind direction aligned to ±3 degrees of: True North/Magnetic North (strike out N/A) Refer: https://geomagnetism.ga.gov.au/agrf-calculations/agrf-form#magfield	✓		Magnetic Declination: ~~348~~ 12° ca Compass Bearing: 348 ° Looking: (North) / South
Anemometer/wind vane moving freely (analogue sensors)	NA		Gill Ultrasonic
Mechanical sensors are inaudible (audible bearing noises may indicate sensor issues)	NA		" "
Temperature			
Temperature sensor(s), and associated radiation shield(s) inspected and cleaned	✓		
Fan(s) on aspirated radiation shields confirmed running	NA		No fans
Sensor shields cleaned	✓		
Humidity			
Humidity sensor, and associated radiation shield inspected and cleaned	✓		
Barometric Pressure			
Barometric sensor inspected, and any vents for sensor checked and cleared	✓		
Solar Radiation			
Solar radiation sensor inspected	NA		No Solar Rad Sensor
Solar radiation sensor cleaned	NA		" " " "
Solar radiation sensor alignment OK	NA		" " " "
Rainfall/Precipitation			
Rain gauge checked for blockages and cleaned if required	✓		Cleaned + cal
Rain gauge level on arrival	✓		
Rain gauge re-levelled			NA.

2. Calibration Equipment / Transfer Standard Details

Wind Speed, Wind Direction		*Temperature, Humidity & Pressure*	
Manufacturer:	Vaisala	Manufacturer:	Vaisala
Model:	WXT536	Model:	WXT536 (PTU Module)
Serial Number:	W4710639	Serial Number:	T1910754
Calibration Date:	17/12/2024	Calibration Date:	18/3/2025
Calibration Expires:	17/12/2026	Calibration Expires:	18/3/2027

Precipitation		*Solar Radiation*	
Manufacturer:	Hydrological Services	Manufacturer:	EKO Instruments
Model:	FCD	Model:	MS-80SH
Serial Number:	FCD001	Serial Number:	S24083856
Calibration Date:	7/3/2025	Calibration Date:	23/1/2025
Calibration Expires:	7/3/2030	Calibration Expires:	23/1/2030

1. Wind Sensor Precision Check

Sensor mounting height: 10m or Other (specify): 10 m (Pole hight not measured but historically at same point.)

Wind Speed Sensor

Calibration Point	Transfer Standard, km/hr or _____	Sensor under test, km/hr or _____	Difference, km/hr or _____
1	4.2	4.1	-0.1
2	4.0	3.9	-0.1
3	3.0	2.5	-0.5
4	3.5	3.3	-0.2
5	4.5	4.4	-0.1
6	5.0	4.9	-0.1
Average	4.0		-0.2
Determination of Result Allowable accuracy (average of difference) ± (0.72km/hr + 5% of observed) i.e. ± (0.2m/s + 5% of observed) (*Refer Section 5-1 of USEPA 454/R-99-005*)			Calculate Allowable: -0.2 Result: (PASS) / FAIL

Wind Direction Sensor

Calibration Point	Transfer Standard, degrees	Sensor under test, degrees	Difference, degrees
1	100	96	-4
2	96	94	-2
3	86	84	-2
4	86	84	-2
5	87	85	-2
6	83	81	-2
Average			-2
Determination of Result Allowable accuracy (average of difference) ± 5 degrees (*Refer Section 5-1 of USEPA 454/R-99-005*)			Result: (PASS) / FAIL

2. Temperature Sensor Precision Check

Temperature Sensor # 1

Sensor mounting height: 2m, 10m or Other (specify): 10m

Operational Precision Check

Time Interval	Calibration Point	Transfer Standard, °C	Sensor under test, °C	Difference, °C
1 min	1	26.0	25.8	-0.2
2 min	2	26.0	25.8	-0.2
3 min	3	25.9	25.7	-0.2
4 min	4	25.9	25.7	-0.2
5 min	5	25.8	25.6	-0.2
Average				-0.2
Determination of Result Acceptable tolerance is ± 0.5°C (*Refer Section 5-1 of USEPA 454/R-99-005*)				Result: (PASS) / FAIL

Temperature Sensor # 2 (If Present)

Sensor mounting height: 2m, 10m or Other (specify):

Operational Precision Check

Time Interval	Calibration Point	Transfer Standard, °C	Sensor under test, °C	Difference, °C
1 min	1		NA	
2 min	2			
3 min	3			
4 min	4			
5 min	5			
Average				
Determination of Result Acceptable tolerance is ± 0.5°C (*Refer Section 5-1 of USEPA 454/R-99-005*)				Result: PASS / FAIL

3. Humidity Sensor Precision Check

Operational Precision Check

Precision Test Start Time:				
Time Interval	**Calibration Point**	**Transfer Standard, % RH**	**Sensor under test, % RH**	**Difference, % RH**
5 min	1	67.1	66.2	0.9
10 min	2	67.2	66.3	0.9
15 min	3	66.8	65.7	1.1
Average				1.0
Determination of Result Allowable Relative Humidity (average of difference) not specified in *USEPA 454/R-99-005. Using AS3580.14:2014 which specifies* ±5% (when RH <35%) and ±7% (when RH ≥35%),				Result: (PASS) / FAIL

4. Solar Radiation Sensor Precision Check

Operational Precision Check

Calibration Point	**Transfer Standard, W/m²**	**Sensor under test, W/m²**	**Difference, W/m²**
1			
2		NA.	
3			
4			
5			
6			
Average			
Determination of Result Allowable Solar Radiation (average of difference) ±5% of observed (*Refer Section 5-1 of USEPA 454/R-99-005*) or ±50W/m² (*Refer Section 5.5.2.3 of AS/NZS 3580.14*)			Calculate Allowable:_____ Result: PASS / FAIL

5. Barometric Pressure Operational Precision Check

Operational Precision Check

Time Interval	**Calibration Point**	**Transfer Standard, hPa**	**Sensor under test, hPa**	**Difference, hPa**
0 min	1	984.7	983.6	1.1
15 min	2	984.8	983.7	1.1
30 min	3	984.8	983.7	1.1
45 min	4	984.3	983.4	1.0
60 min	5	984.7	983.6	1.1
Average				1.1
Determination of Result Allowable difference: ±3mb (±3hPa) (average difference) (*Refer Section 5-1 of USEPA 454/R-99-005*)				Result: (PASS) / FAIL

6. Precipitation/Rainfall Operational Precision Check – In Situ

Sensor Under Test

Manufacturer:	Hyqvest TBA
Model:	
Resolution / Tipping bucket size:	(circle) 0.2mm / 0.5mm or Other (specify):
Catch diameter:	200mm or Other (specify):

Maintenance

Item	Completed
Record "As Found" details of rain gauge, are any conditions present that would affect data integrity? Comments:	Some debris in screen but water passing OK
Disassemble the rain gauge and clean thoroughly	✓ OK
Check rain gauge is level	✓ OK
Re-level if needed Comments if unable to re-level:	NA
Reassemble the rain gauge and check to confirm no leaks through funnel mechanism	✓ cleaned OK

Operational Precision Check

Precision Test Start Time: 15:20		
Expected	**Recorded**	**Difference**
104 tips 20.8 mm	100 tips 20.0 mm	0.8 mm
Determination of Result Allowable difference: ±10% or 0.5mm 10% = 2.1 mm		Result: (PASS) / FAIL

Comments:

Tips/mm added during cleaning/test preparation: Nil

Total rainfall volume to be removed from daily rain records due to maintenance and precision test completed: 20.0 mm

Note → It did rain after test and 1.2mm is correct for this event.

Maintenance Summary	Yes	No	Comments
There were NO equipment faults found. No action required – (file report)	✓		
There were faults found (Fails) – Were these fixed on site?			NA

Any Faults / Fails that cannot be repaired on site must be reported to CBased:
Office: (02) 65713334 or email support@cbased.com.au
Date faults notified to CBased: NA
Comments/Action Taken/Action Recommended:
(If sensors are replaced - record serial numbers and details of both the removed and installed sensors and attach calibration certificates)

Specific Comments on equipment "as found":

OK

Specific Comments on equipment "as left":

OK

NB: CBased Environmental completes maintenance, calibration and diagnostic checks on a six monthly basis as per Section 8.3.5 of USEPA 454/R-99-005, it is the Clients responsibility to complete daily remote operational checks and weekly onsite inspections/maintenance of the meteorological station.

Completed By:

Technician Name(s):	COLIN DAVIES	Signed:	

CBased Environmental Pty Limited
ABN 62 611 924 264

Dixon Sand Quarry

Environmental Monitoring
Air Quality

Tapered Element Oscillating Microbalance (TEOM) (PM_{10}) and Meteorological Data

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January 2026

Colin Davies BSc MEIA CENVP
Environmental Scientist
Date 26 February 2026

CBased Environmental Pty Ltd
Unit 3, 2 Enterprise Crescent SINGLETON NSW 2330
☎ (02) 65713334

1.0 Summary

CBased Environmental Pty Limited is contracted by Dixon Sand to conduct continuous Tapered Element Oscillating Microbalance (TEOM) for fine particulates (PM_{10}) and meteorological monitoring for the Dixon Sand Quarry. The information is required to assess air quality levels. The results for the TEOM and meteorological site are included in this report.

The monitoring programme includes:

- One continuous TEOM PM_{10} monitor; and
- One continuous meteorological station.

This monthly report for January 2026 was prepared by CBased Environmental and includes the following:

- TEOM (PM_{10}) monitoring results; and
- Meteorological results.

In accordance with Schedule 3, Condition 7 of the Dixon Sand development Consent and the Dixon Sand EPL;

- 24-hour average PM_{10} results were below the NEPM 24-hour maximum criteria of 50ug/m^3.
- 24-hour average PM_{10} results were below the Dixon Sand Quarry EPL limit of 42ug/m^3.
- The PM_{10} annual average is below the Dixon Sand Quarry consent annual average criteria of 30ug/m^3; and
- The calculated TSP is below the Dixon Sand Quarry annual average criteria of 90ug/m^3.

Note: Based on the available data, statements in green indicate current conformance to Dixon Sand Quarry Air Quality Impact Assessment criteria, statements in red indicate possible non-conformance. Year to date annual average for PM_{10} is calculated from 1 July 2025 for TEOM's coinciding with the Dixon Sand project year.

Approximately 100% of valid meteorological data was recorded for January 2026

Approximately 96.03% of valid TEOM data was available for January 2026.

2.0 Sampling Programme

The TEOM is sited and operated to the applicable Australian Standard and/or NSW EPA approved methods. The following Australian Standards were used:

- AS3580.9.8 - "*Methods for Sampling and Analysis of Ambient Air. Determination of Suspended Particulates—PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*"; and
- AS/NZS 3580.1.1 - "*Methods for Sampling and Analysis of Ambient Air Part 1.1 Guide to Siting Air Monitoring Equipment*".

TEOM PM_{10} results are 24-hour averages at midnight and are reported as $\mu g/m^3$ corrected to 0 degrees C and 101.3kPa.

All laboratory analysis was conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Air Quality monitoring site descriptions and locations are provided in **Table 1**.

Table 1: Dixon Sand Air Quality Monitoring Description and Locations

Monitor	Site Code	Location Description
TEOM PM_{10}	TEOM	Old North Road, Maroota NSW
Meteorological Station	MET	Old North Road, Maroota NSW

3.0 Results

3.1 TEOM PM_{10}

24-hour average TEOM PM_{10} results from the AQMS data collection software are provided in **Table 2** and a chart of the data is provided in **Figure 1**.

During the January 2026 monitoring period, individual 24-hour TEOM PM_{10} results were below the National Environmental Protection Measure (NEPM) short-term (24hr) impact criteria of 50ug/m^3.

During the January 2026 monitoring period, individual 24-hour TEOM PM_{10} results were below the Dixon Sand Quarry EPL limit of 42ug/m3 **Table 2.**

Approximately 96.03% of valid TEOM data was available for January 2026.

At present, the current TEOM PM_{10} annual average is below the Dixon Sand Quarry annual average PM_{10} criteria of 30ug/m^3. The current annual average for calculated Total Suspended Particulates (TSP) is below the annual average criterion of 90ug/m^3. The TSP is calculated by multiplying the PM_{10} by 2.5. Note: the annual average is calculated from 1 July 2025 and therefore an annual amount of data has not been collected.

The quarterly TEOM calibration was conducted in January 2026 (for December 2025). The next calibration is due to be completed in March 2026. The calibration certificate is provided in **Appendix 1** (when required).

Table 2: Average Daily 24-hr TEOM PM_{10} and TSP Results for January 2026 from AQMS and Annual Average PM_{10} calculated from 1 July 2025.

Date	PM_{10} 24-hr Average ($\mu g/m^3$)	PM_{10} Annual Average ($\mu g/m^3$)	24-hr Average TSP* ($\mu g/m^3$)	Annual Average TSP** ($\mu g/m^3$)
1/01/2026	13.3	17.1	33.3	42.7
2/01/2026	12.1	17.1	30.3	42.7
3/01/2026	10.5	17.0	26.3	42.6
4/01/2026	13.4	17.0	33.6	42.5
5/01/2026	ND	17.0	ND	42.5
6/01/2026	ND	17.0	ND	42.5
7/01/2026	18.2	17.0	45.5	42.5
8/01/2026	18.1	17.0	45.3	42.5
9/01/2026	20.6	17.0	51.5	42.6
10/01/2026	18.9	17.0	47.3	42.6
11/01/2026	36.4	17.2	91.0	42.9
12/01/2026	15.9	17.1	39.8	42.9
13/01/2026	20.3	17.2	50.8	42.9
14/01/2026	15.8	17.2	39.5	42.9
15/01/2026	20.0	17.2	50.0	42.9
16/01/2026	13.4	17.2	33.5	42.9
17/01/2026	10.2	17.1	25.5	42.8
18/01/2026	10.9	17.1	27.3	42.7
19/01/2026	11.7	17.1	29.3	42.6
20/01/2026	12.0	17.0	30.0	42.6
21/01/2026	14.7	17.0	36.8	42.5
22/01/2026	23.1	17.0	57.7	42.6
23/01/2026	20.7	17.1	51.8	42.7
24/01/2026	16.0	17.1	40.0	42.6
25/01/2026	17.1	17.1	42.8	42.6
26/01/2026	26.5	17.1	66.3	42.8
27/01/2026	19.1	17.1	47.8	42.8
28/01/2026	22.0	17.1	55.0	42.9
29/01/2026	21.2	17.2	53.0	42.9
30/01/2026	21.7	17.2	54.3	43.0
31/01/2026	37.2	17.3	93.0	43.2

*Calculated from PM10

**Calculated from PM10 Annual Average

Note: results above the Dixon Sand EPL criteria limit of 42 ug/m^3 are highlighted in yellow

No Data (ND) - <18hrs hour of valid data to calculate a 24hr average

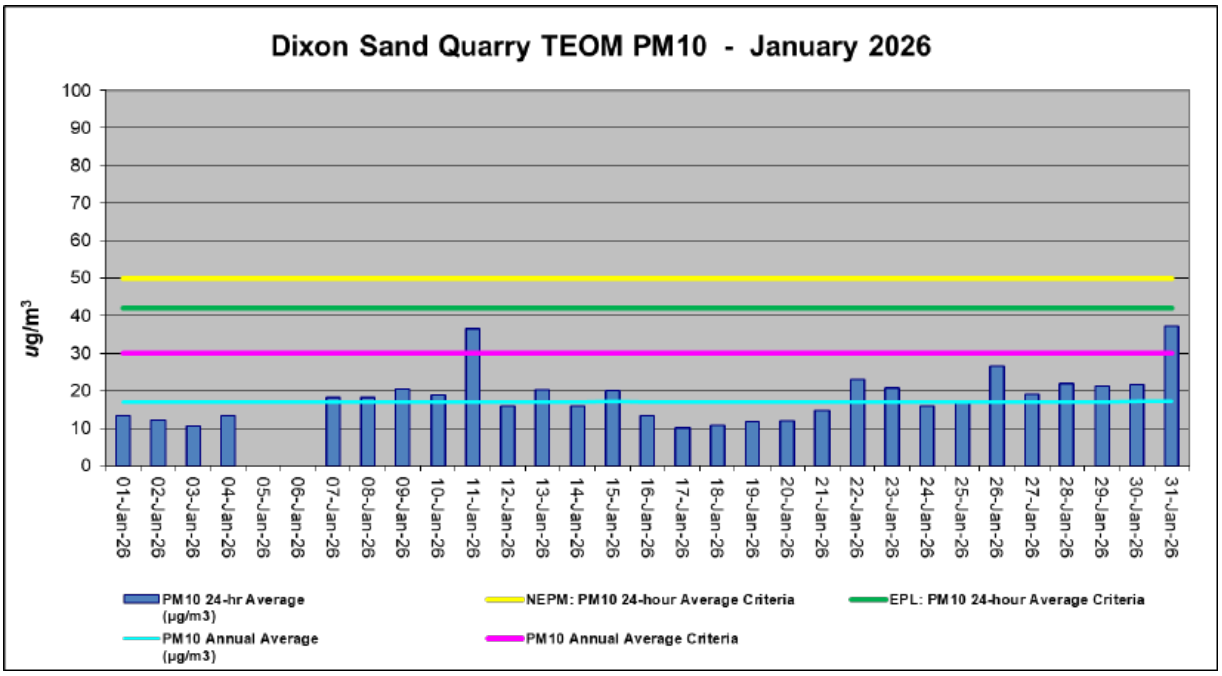


Figure 1: *TEOM PM_{10} 24 hr, Annual Average and Criteria*

3.2 Meteorological Data

The weather station logs data at 5-minute intervals and sends the data to a web database by NextG telemetry. The data is accessible from the web site http://console.teledata.com.au/index.html.

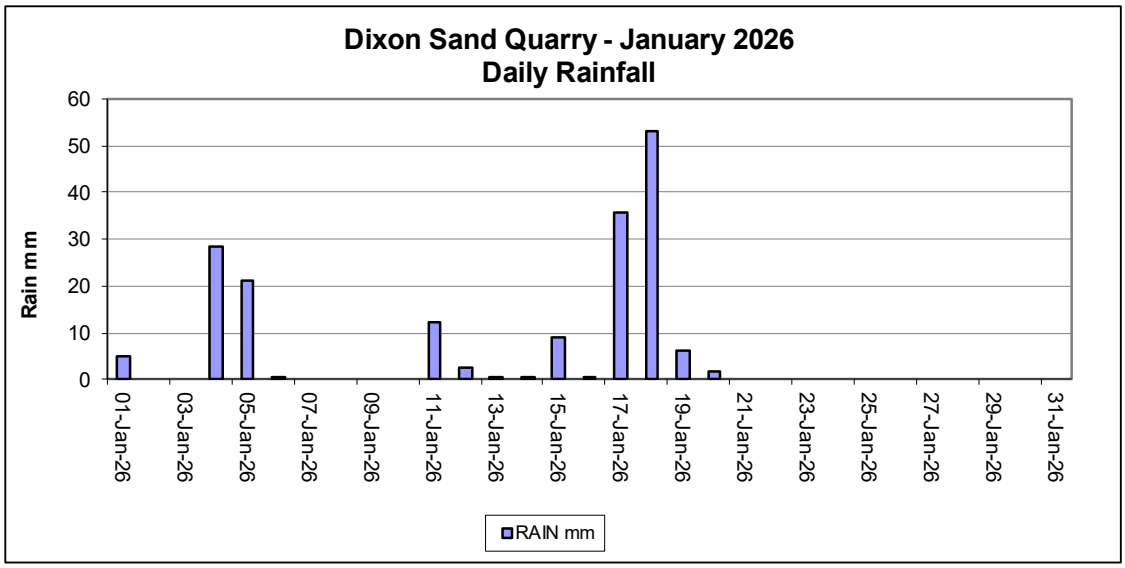
A summary of monthly results is presented in **Table 3**. Charts of meteorological parameters are presented in **Figures 2** and **3**. A Windrose is provided in **Figure 4**.

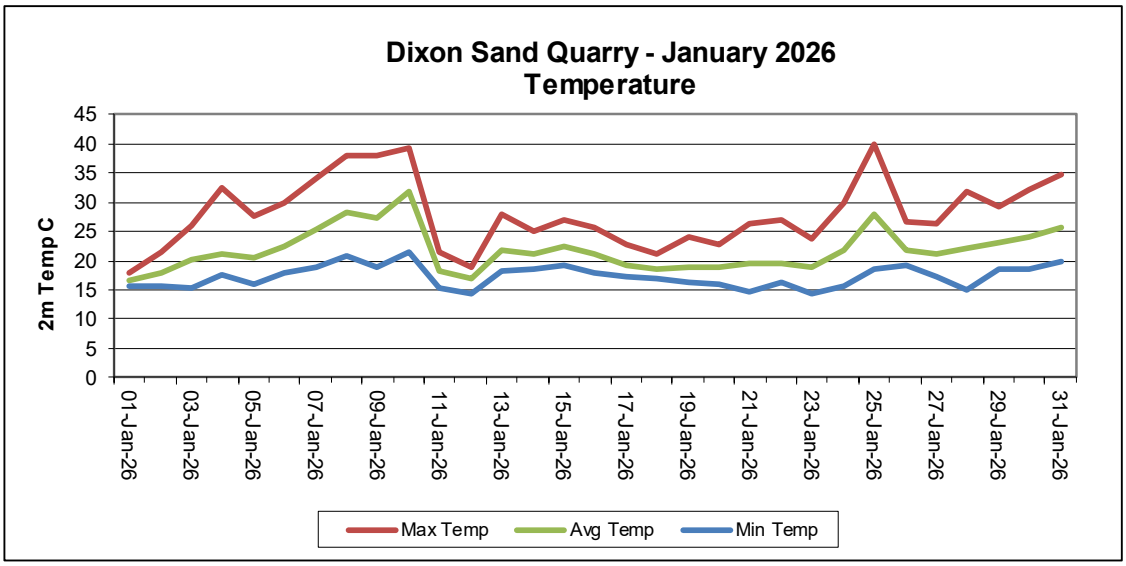
A 6-monthly physical screening and system check of the meteorological station was conducted in January 2026 (for December 2025). The next physical screening and system check is currently scheduled for June 2026. The screening and system check certificates are provided in **Appendix 1** (when required).

Approximately 100% of valid meteorological data was recorded for January 2026.

Table 3: Meteorological Data Summary for January 2026

Date	Min Temp	Avg Temp	Max Temp	RAIN mm	Min WS	Avg WS	Max WS	Min Humidity	Avg Humidity	Max Humidity	Min Pressure	Avg Pressure	Max Pressure
1/01/2026	15.6	16.5	17.9	4.8	0.0	3.7	18.1	68.3	83.9	94.4	984.5	987.8	991.4
2/01/2026	15.5	17.9	21.4	0.0	0.0	4.5	19.7	60.1	73.3	88.4	988.8	990.3	991.8
3/01/2026	15.4	20.3	25.9	0.0	0.1	5.2	25.5	59.9	76.0	93.2	982.6	987.1	990.5
4/01/2026	17.6	21.2	32.5	28.4	0.0	4.4	30.7	40.7	78.4	94.5	979.2	984.0	987.0
5/01/2026	15.9	20.6	27.6	21.2	0.2	4.2	19.0	53.0	80.2	94.1	982.9	985.2	988.7
6/01/2026	18.0	22.4	30.0	0.2	0.3	4.1	23.2	48.5	76.3	94.8	987.0	988.9	991.2
7/01/2026	18.9	25.3	34.0	0.0	0.2	3.9	22.2	34.1	67.0	93.3	988.2	990.6	993.0
8/01/2026	20.8	28.2	38.0	0.0	0.2	4.7	13.8	20.0	51.4	79.9	985.6	988.0	990.1
9/01/2026	18.8	27.4	38.0	0.0	0.2	5.6	24.5	23.0	57.2	94.1	979.4	983.7	987.5
10/01/2026	21.4	31.9	39.1	0.0	0.4	6.5	37.8	21.8	35.3	75.8	975.5	978.7	981.0
11/01/2026	15.3	18.3	21.3	12.2	0.3	3.7	16.1	70.9	81.3	94.4	981.1	987.9	993.9
12/01/2026	14.4	16.8	19.0	2.4	0.1	3.2	9.9	84.3	91.2	94.8	987.5	990.5	993.1
13/01/2026	18.1	21.8	27.9	0.4	0.0	4.2	23.9	56.9	80.9	95.2	982.0	984.5	987.4
14/01/2026	18.5	21.0	25.0	0.2	0.0	4.5	17.7	64.8	80.2	92.1	980.9	983.9	985.7
15/01/2026	19.3	22.3	27.1	9.0	0.1	4.2	16.4	62.3	79.1	92.5	974.3	979.5	983.5
16/01/2026	17.8	21.3	25.8	0.4	0.1	3.3	10.6	59.4	77.4	93.4	975.4	977.5	980.3
17/01/2026	17.4	19.3	22.6	35.8	0.1	4.3	17.0	74.2	88.1	95.0	979.8	981.8	984.9
18/01/2026	16.9	18.5	21.0	53.0	0.2	5.2	27.2	71.8	89.0	94.0	983.7	986.2	988.5
19/01/2026	16.4	19.0	24.1	6.2	0.2	4.7	22.9	58.6	82.4	95.6	985.2	986.8	988.4
20/01/2026	16.0	18.7	22.9	1.6	0.1	3.7	15.0	59.7	81.2	95.1	981.1	983.6	986.4
21/01/2026	14.6	19.6	26.3	0.0	0.0	4.0	26.6	46.1	72.8	94.4	976.8	979.6	982.0
22/01/2026	16.2	19.6	27.0	0.0	0.0	3.0	17.0	48.6	69.5	83.0	977.4	981.9	989.7
23/01/2026	14.4	18.7	23.6	0.0	0.0	3.6	16.1	52.3	67.8	85.4	988.4	990.0	991.8
24/01/2026	15.7	21.6	29.8	0.0	0.0	3.7	18.0	47.1	70.7	90.0	980.9	985.6	990.3
25/01/2026	18.4	28.0	40.0	0.0	0.0	3.1	14.4	18.4	60.1	94.6	978.0	980.8	984.0
26/01/2026	19.3	21.8	26.6	0.0	0.2	3.2	15.3	56.7	69.5	83.0	980.9	985.6	988.6
27/01/2026	17.2	21.1	26.4	0.0	0.0	4.1	14.3	50.3	70.2	86.4	984.2	986.9	988.7
28/01/2026	15.1	22.2	31.9	0.0	0.0	4.8	16.8	39.9	70.1	91.5	983.9	985.9	990.3
29/01/2026	18.6	23.0	29.1	0.0	0.0	4.3	22.6	50.7	72.1	89.7	989.3	991.1	993.2
30/01/2026	18.7	24.2	32.0	0.0	0.1	4.0	13.2	44.5	69.1	86.2	982.9	988.1	992.8
31/01/2026	19.8	25.6	34.6	0.0	0.2	5.2	18.8	39.5	72.4	91.9	976.9	981.0	985.2
Monthly	**14.4**	**21.7**	**40.0**	**175.8**	**0.0**	**4.2**	**37.8**	**18.4**	**73.4**	**95.6**	**974.3**	**985.3**	**993.9**





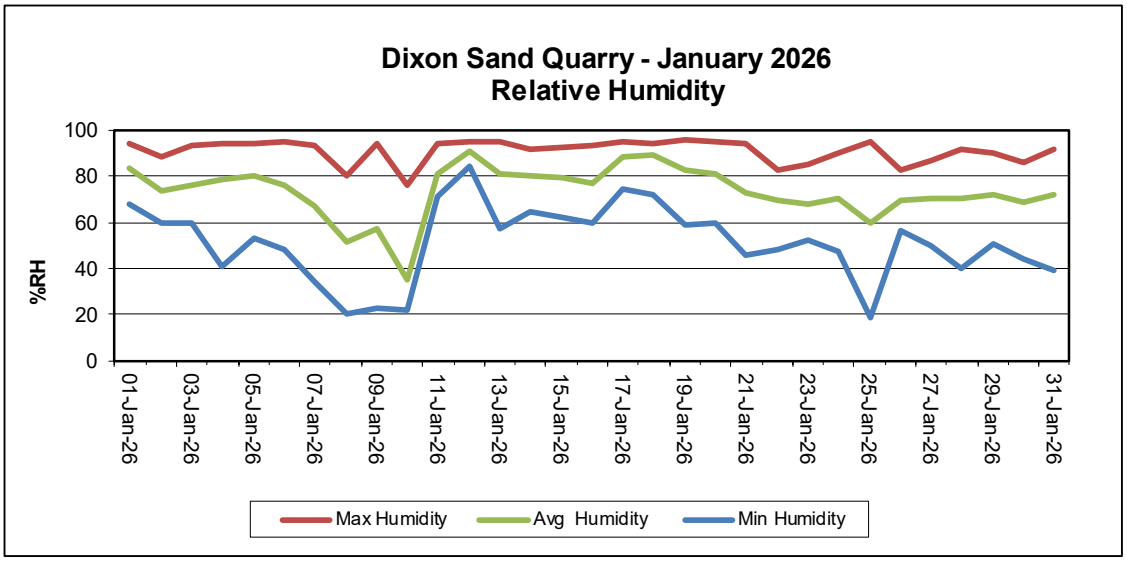


Figure 2: *Daily Rainfall, Temperature and Relative Humidity Charts*

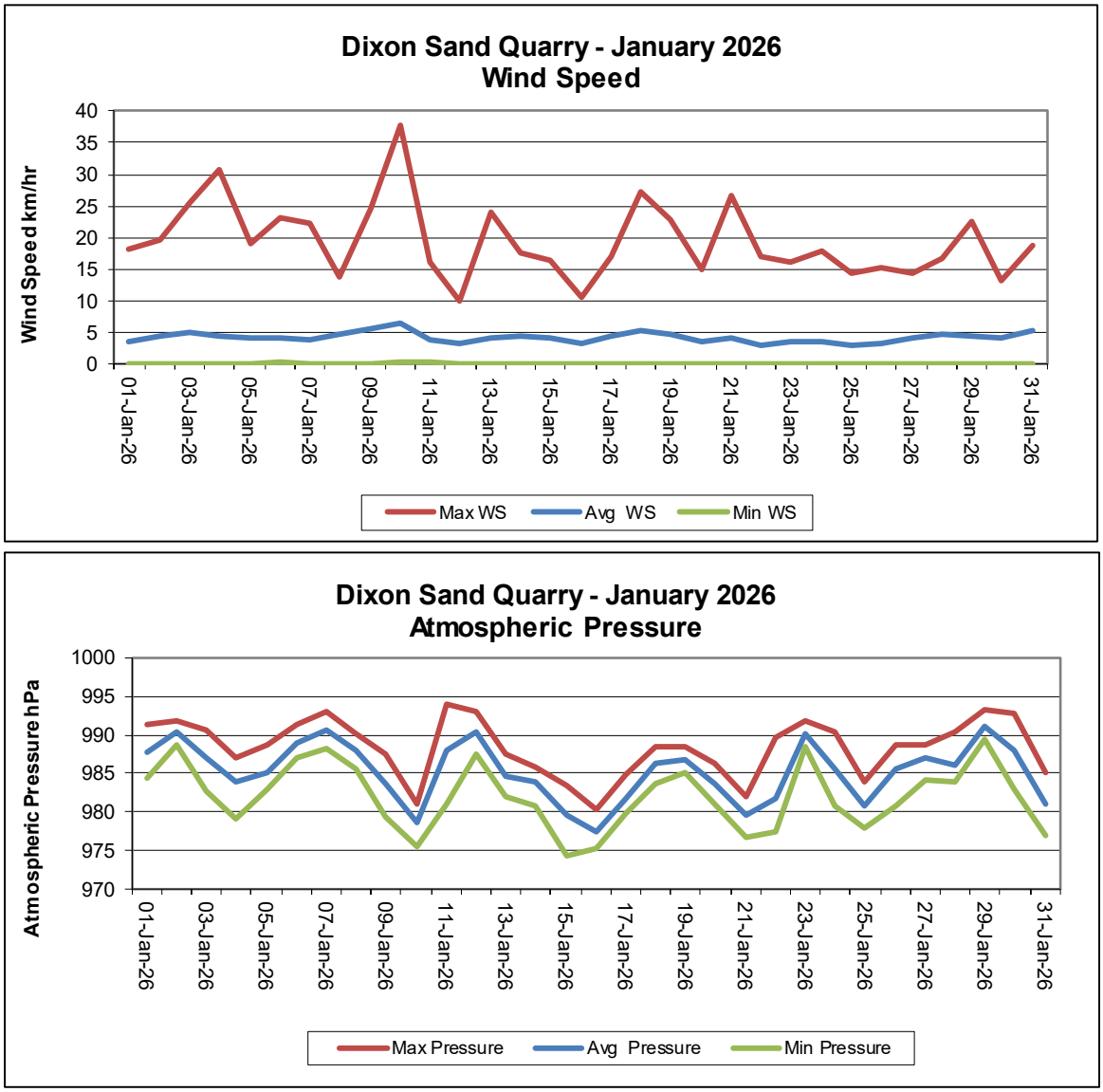


Figure 3: *Wind Speed and Atmospheric Pressure Chart*

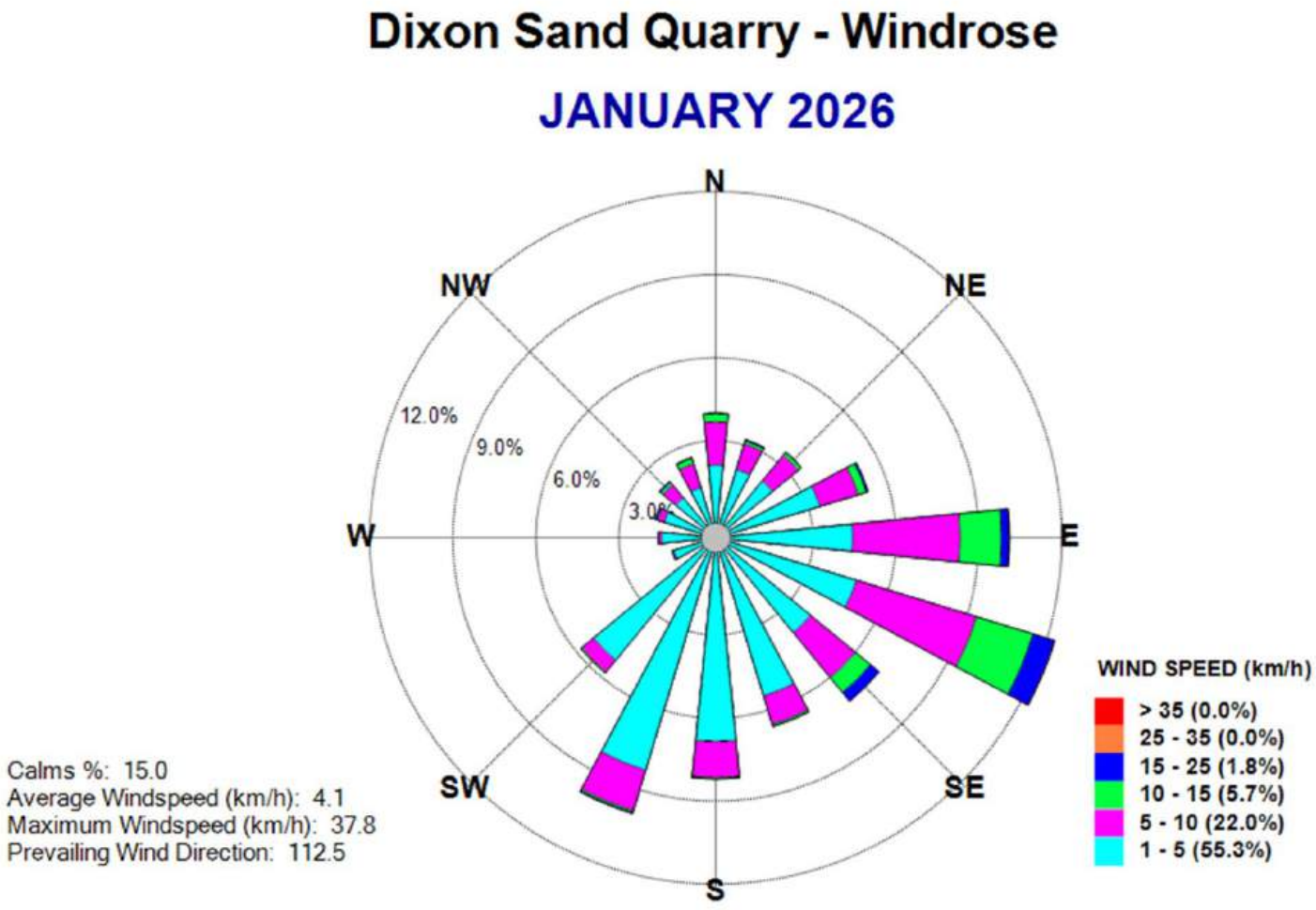


Figure 4: *Windrose*

Appendix 1

Calibration Documents (when required)

CBased Environmental Pty Limited
ABN 62 611 924 264

Dixon Sand Quarry

Environmental Monitoring
Air Quality

Tapered Element Oscillating Microbalance (TEOM) (PM_{10}) and Meteorological Data

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February 2026

Colin Davies BSc MEIA CENVP
Environmental Scientist
Date 17 March 2026

CBased Environmental Pty Ltd
Unit 3, 2 Enterprise Crescent SINGLETON NSW 2330
☎ (02) 65713334

1.0 Summary

CBased Environmental Pty Limited is contracted by Dixon Sand to conduct continuous Tapered Element Oscillating Microbalance (TEOM) for fine particulates (PM_{10}) and meteorological monitoring for the Dixon Sand Quarry. The information is required to assess air quality levels. The results for the TEOM and meteorological site are included in this report.

The monitoring programme includes:

- One continuous TEOM PM_{10} monitor; and
- One continuous meteorological station.

This monthly report for February 2026 was prepared by CBased Environmental and includes the following:

- TEOM (PM_{10}) monitoring results; and
- Meteorological results.

In accordance with Schedule 3, Condition 7 of the Dixon Sand development Consent and the Dixon Sand EPL;

- 24-hour average PM_{10} results were below the NEPM 24-hour maximum criteria of 50ug/m^3.
- 24-hour average PM_{10} results were below the Dixon Sand Quarry EPL limit of 42ug/m^3.
- The PM_{10} annual average is below the Dixon Sand Quarry consent annual average criteria of 30ug/m^3; and
- The calculated TSP is below the Dixon Sand Quarry annual average criteria of 90ug/m^3.

Note: Based on the available data, statements in green indicate current conformance to Dixon Sand Quarry Air Quality Impact Assessment criteria, statements in red indicate possible non-conformance. Year to date annual average for PM_{10} is calculated from 1 July 2025 for TEOM's coinciding with the Dixon Sand project year.

Approximately 100% of valid meteorological data was recorded for February 2026

Approximately 99.93% of valid TEOM data was available for February 2026.

2.0 Sampling Programme

The TEOM is sited and operated to the applicable Australian Standard and/or NSW EPA approved methods. The following Australian Standards were used:

- AS3580.9.8 - "*Methods for Sampling and Analysis of Ambient Air. Determination of Suspended Particulates—PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*"; and
- AS/NZS 3580.1.1 - "*Methods for Sampling and Analysis of Ambient Air Part 1.1 Guide to Siting Air Monitoring Equipment*".

TEOM PM_{10} results are 24-hour averages at midnight and are reported as $\mu g/m^3$ corrected to 0 degrees C and 101.3kPa.

All laboratory analysis was conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Air Quality monitoring site descriptions and locations are provided in **Table 1**.

Table 1: Dixon Sand Air Quality Monitoring Description and Locations

Monitor	Site Code	Location Description
TEOM PM_{10}	TEOM	Old North Road, Maroota NSW
Meteorological Station	MET	Old North Road, Maroota NSW

3.0 Results

3.1 TEOM PM_{10}

24-hour average TEOM PM_{10} results from the AQMS data collection software are provided in **Table 2** and a chart of the data is provided in **Figure 1**.

During the February 2026 monitoring period, individual 24-hour TEOM PM_{10} results were below the National Environmental Protection Measure (NEPM) short-term (24hr) impact criteria of 50ug/m^3.

During the February 2026 monitoring period, individual 24-hour TEOM PM_{10} results were below the Dixon Sand Quarry EPL limit of 42ug/m3 **Table 2.**

Approximately 99.93% of valid TEOM data was available for February 2026.

At present, the current TEOM PM_{10} annual average is below the Dixon Sand Quarry annual average PM_{10} criteria of 30ug/m^3. The current annual average for calculated Total Suspended Particulates (TSP) is below the annual average criterion of 90ug/m^3. The TSP is calculated by multiplying the PM_{10} by 2.5. Note: the annual average is calculated from 1 July 2025 and therefore an annual amount of data has not been collected.

The quarterly TEOM calibration was conducted in January 2026 (for December 2025). The next calibration is due to be completed in March 2026. The calibration certificate is provided in **Appendix 1** (when required).

Table 2: Average Daily 24-hr TEOM PM_{10} and TSP Results for February 2026 from AQMS and Annual Average PM_{10} calculated from 1 July 2025.

Date	PM_{10} 24-hr Average ($\mu g/m^3$)	PM_{10} Annual Average ($\mu g/m^3$)	24-hr Average TSP* ($\mu g/m^3$)	Annual Average TSP** ($\mu g/m^3$)
1/02/2026	37.0	17.4	92.5	43.5
2/02/2026	16.0	17.4	40.0	43.4
3/02/2026	16.4	17.4	41.0	43.4
4/02/2026	20.2	17.4	50.5	43.5
5/02/2026	34.2	17.5	85.5	43.7
6/02/2026	28.3	17.5	70.8	43.8
7/02/2026	17.7	17.5	44.3	43.8
8/02/2026	15.9	17.5	39.8	43.8
9/02/2026	17.3	17.5	43.3	43.8
10/02/2026	21.2	17.5	53.0	43.8
11/02/2026	21.1	17.5	52.8	43.9
12/02/2026	20.0	17.6	50.0	43.9
13/02/2026	19.1	17.6	47.8	43.9
14/02/2026	10.9	17.5	27.3	43.8
15/02/2026	8.4	17.5	21.0	43.7
16/02/2026	11.6	17.5	29.0	43.7
17/02/2026	15.2	17.5	38.0	43.6
18/02/2026	25.5	17.5	63.8	43.7
19/02/2026	28.6	17.5	71.5	43.9
20/02/2026	22.8	17.6	57.0	43.9
21/02/2026	18.7	17.6	46.8	43.9
22/02/2026	15.5	17.6	38.8	43.9
23/02/2026	21.5	17.6	53.8	43.9
24/02/2026	23.5	17.6	58.8	44.0
25/02/2026	23.2	17.6	58.0	44.1
26/02/2026	10.1	17.6	25.3	44.0
27/02/2026	6.9	17.6	17.3	43.9
28/02/2026	11.6	17.5	29.0	43.8

*Calculated from PM10

**Calculated from PM10 Annual Average

Note: results above the Dixon Sand EPL criteria limit of 42 ug/m^3 are highlighted in yellow

No Data (ND) - <18hrs hour of valid data to calculate a 24hr average

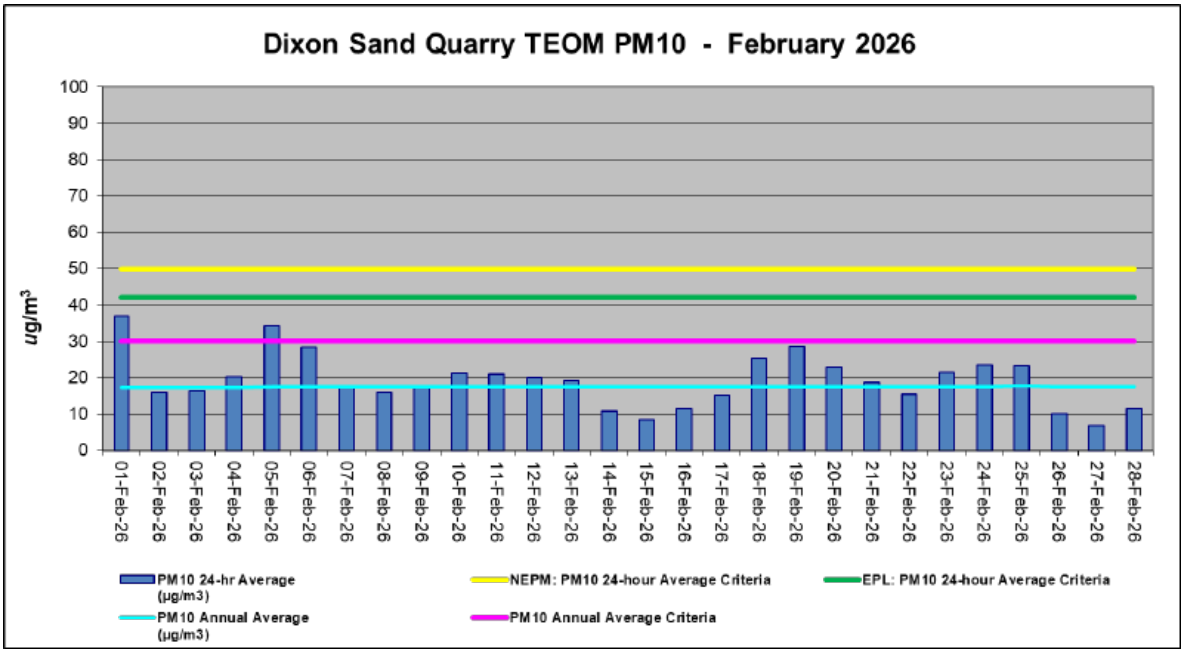


Figure 1: *TEOM PM_{10} 24 hr, Annual Average and Criteria*

3.2 Meteorological Data

The weather station logs data at 5-minute intervals and sends the data to a web database by NextG telemetry. The data is accessible from the web site http://console.teledata.com.au/index.html.

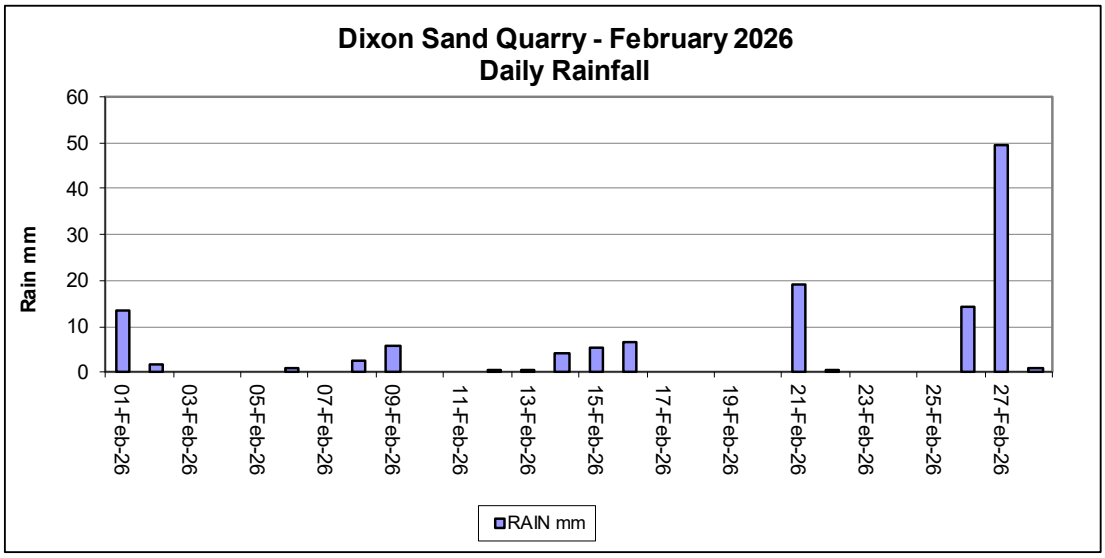
A summary of monthly results is presented in **Table 3**. Charts of meteorological parameters are presented in **Figures 2** and **3**. A Windrose is provided in **Figure 4**.

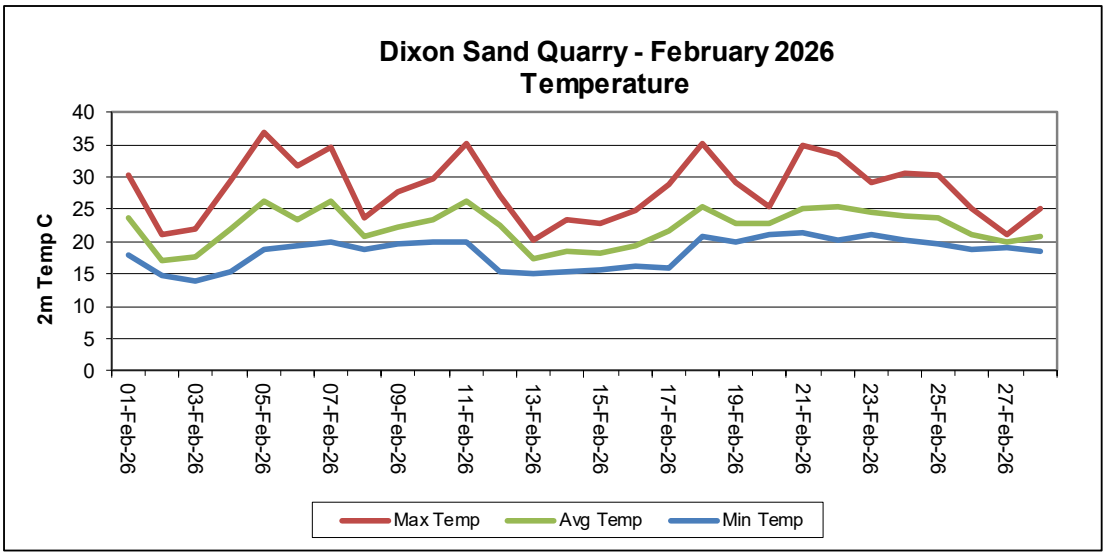
A 6-monthly physical screening and system check of the meteorological station was conducted in January 2026 (for December 2025). The next physical screening and system check is currently scheduled for June 2026. The screening and system check certificates are provided in **Appendix 1** (when required).

Approximately 100% of valid meteorological data was recorded for February 2026.

Table 3: Meteorological Data Summary for February 2026

Date	Min Temp	Avg Temp	Max Temp	RAIN mm	Min WS	Avg WS	Max WS	Min Humidity	Avg Humidity	Max Humidity	Min Pressure	Avg Pressure	Max Pressure
1/02/2026	17.9	23.6	30.2	13.6	0.2	3.5	16.1	57.1	80.3	92.9	977.3	979.6	985.6
2/02/2026	14.9	17.2	21.0	1.6	0.0	4.5	16.3	49.0	69.2	93.5	985.3	993.0	998.2
3/02/2026	13.8	17.7	21.9	0.0	0.0	2.9	19.4	59.9	77.0	90.6	995.1	996.9	998.7
4/02/2026	15.3	21.9	29.4	0.0	0.0	3.9	18.9	46.4	68.1	88.8	988.1	991.8	995.7
5/02/2026	18.7	26.4	37.0	0.0	0.2	3.0	16.4	17.7	58.0	86.5	987.0	989.3	992.4
6/02/2026	19.5	23.5	31.8	1.0	0.0	3.2	14.1	47.3	68.3	84.8	989.0	991.6	993.6
7/02/2026	19.8	26.4	34.5	0.0	0.2	3.6	16.7	33.6	58.2	78.0	987.6	989.7	991.7
8/02/2026	18.7	20.9	23.6	2.4	0.0	2.8	17.0	64.8	86.9	93.2	987.0	989.1	991.6
9/02/2026	19.6	22.2	27.8	5.6	0.0	3.0	15.2	60.4	83.9	95.0	983.9	985.8	987.9
10/02/2026	19.9	23.5	29.6	0.0	0.1	3.1	10.2	52.0	78.0	90.5	986.1	987.8	990.4
11/02/2026	19.9	26.4	35.1	0.0	0.0	3.7	14.4	36.4	68.0	94.1	977.0	982.8	987.0
12/02/2026	15.3	22.6	27.2	0.2	0.4	4.0	16.6	46.4	68.8	89.8	973.6	979.0	987.4
13/02/2026	15.1	17.3	20.3	0.2	0.0	2.2	8.6	64.5	76.4	89.6	987.0	989.6	992.9
14/02/2026	15.4	18.4	23.4	4.2	0.0	4.2	19.4	54.8	76.2	93.5	991.5	993.0	994.7
15/02/2026	15.6	18.3	22.7	5.4	0.0	2.8	14.5	68.8	84.6	94.0	989.7	991.7	993.5
16/02/2026	16.2	19.2	24.9	6.6	0.0	3.9	24.5	56.5	81.6	94.9	987.7	989.6	991.4
17/02/2026	15.9	21.5	28.8	0.0	0.0	3.4	17.1	42.8	71.0	91.3	980.6	984.5	989.1
18/02/2026	20.9	25.5	35.2	0.0	0.1	4.5	18.6	35.0	62.2	85.7	978.3	980.9	985.3
19/02/2026	19.9	22.9	29.2	0.0	0.2	5.5	24.6	61.1	80.4	90.1	984.9	987.3	991.3
20/02/2026	21.2	22.8	25.3	0.0	0.1	4.8	20.8	70.4	79.0	88.1	985.7	989.1	991.5
21/02/2026	21.3	25.0	34.8	19.0	0.0	3.4	22.5	43.6	76.0	93.3	980.9	984.1	986.1
22/02/2026	20.2	25.3	33.3	0.2	0.1	3.4	13.6	47.9	77.1	95.0	979.3	982.6	985.1
23/02/2026	21.0	24.5	29.1	0.0	0.0	3.2	23.1	59.9	76.6	88.2	979.9	984.9	990.1
24/02/2026	20.1	23.8	30.7	0.0	0.0	4.0	21.9	53.6	77.3	93.5	986.9	989.1	991.6
25/02/2026	19.6	23.6	30.4	0.0	0.2	2.9	17.4	54.3	76.0	89.2	985.7	987.7	990.6
26/02/2026	18.8	21.1	25.2	14.4	0.1	2.8	9.0	72.1	86.8	93.0	988.9	990.4	992.1
27/02/2026	19.0	20.0	21.1	49.4	0.0	3.0	16.4	89.9	92.9	94.8	989.0	990.8	992.7
28/02/2026	18.4	20.9	25.1	0.8	0.0	4.3	18.6	61.8	81.4	94.7	989.5	991.2	992.7
Monthly	**13.8**	**22.2**	**37.0**	**124.6**	**0.0**	**3.5**	**24.6**	**17.7**	**75.7**	**95.0**	**973.6**	**988.0**	**998.7**





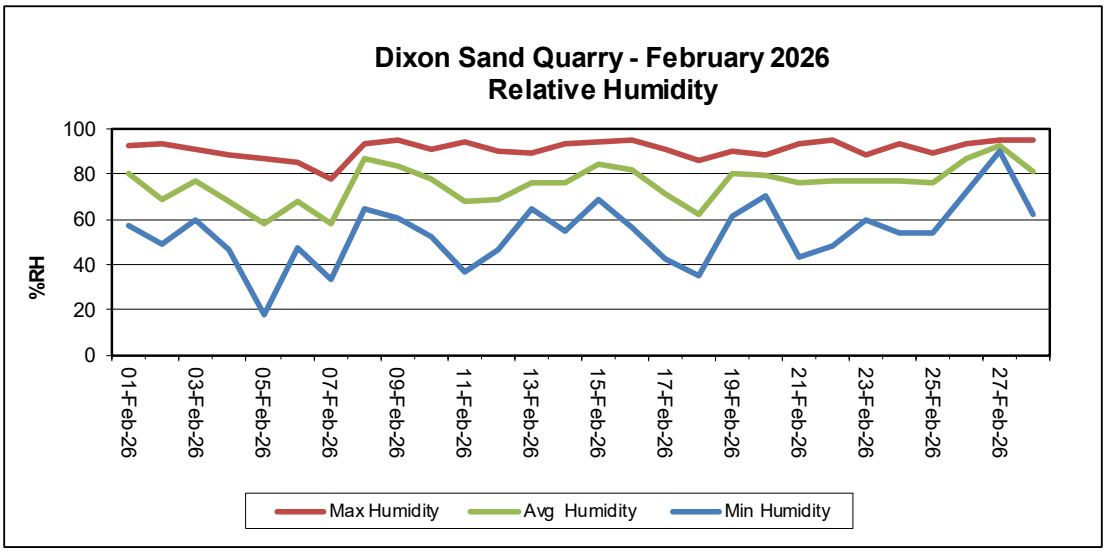


Figure 2: *Daily Rainfall, Temperature and Relative Humidity Charts*

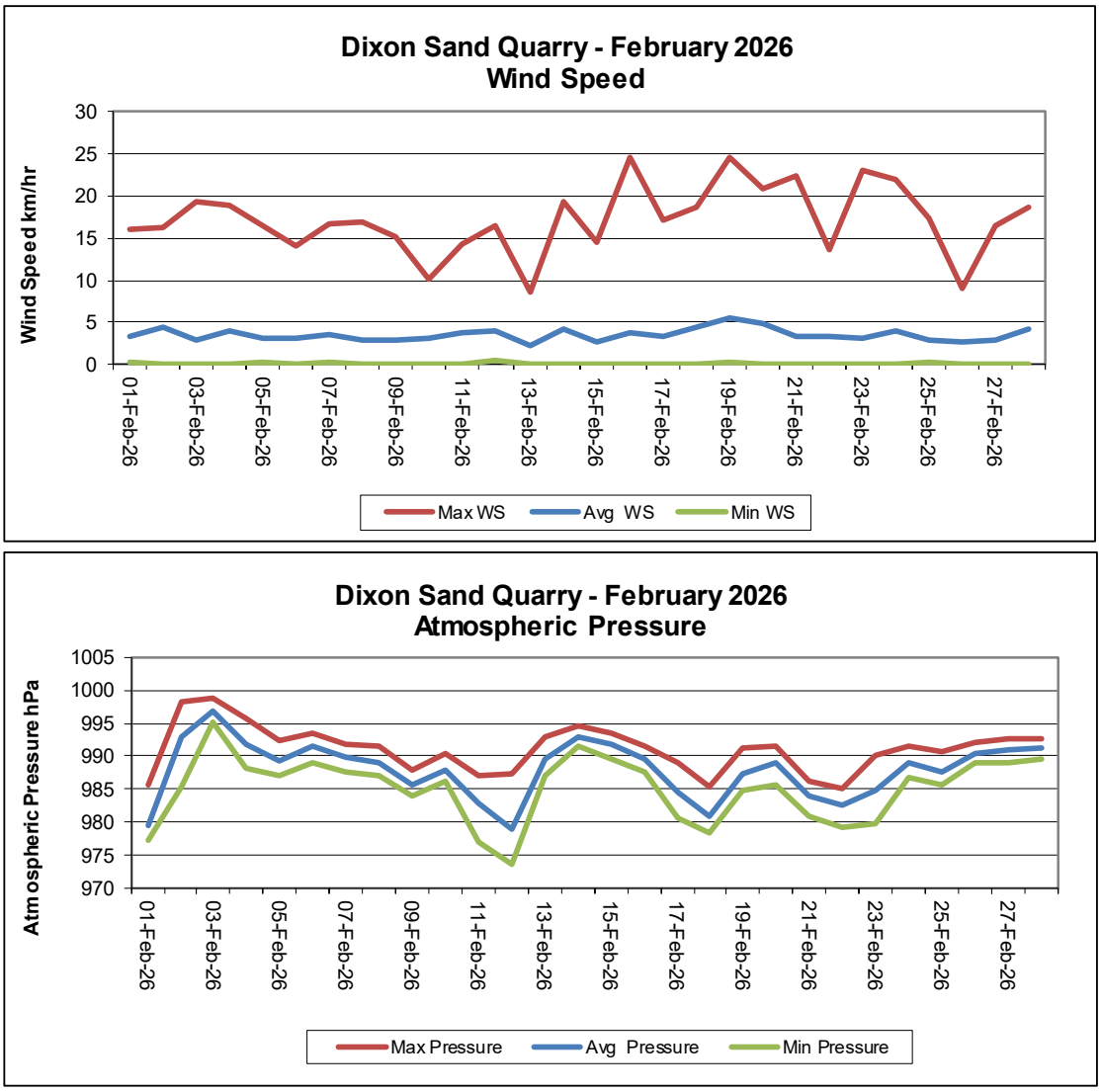


Figure 3: *Wind Speed and Atmospheric Pressure Cha*

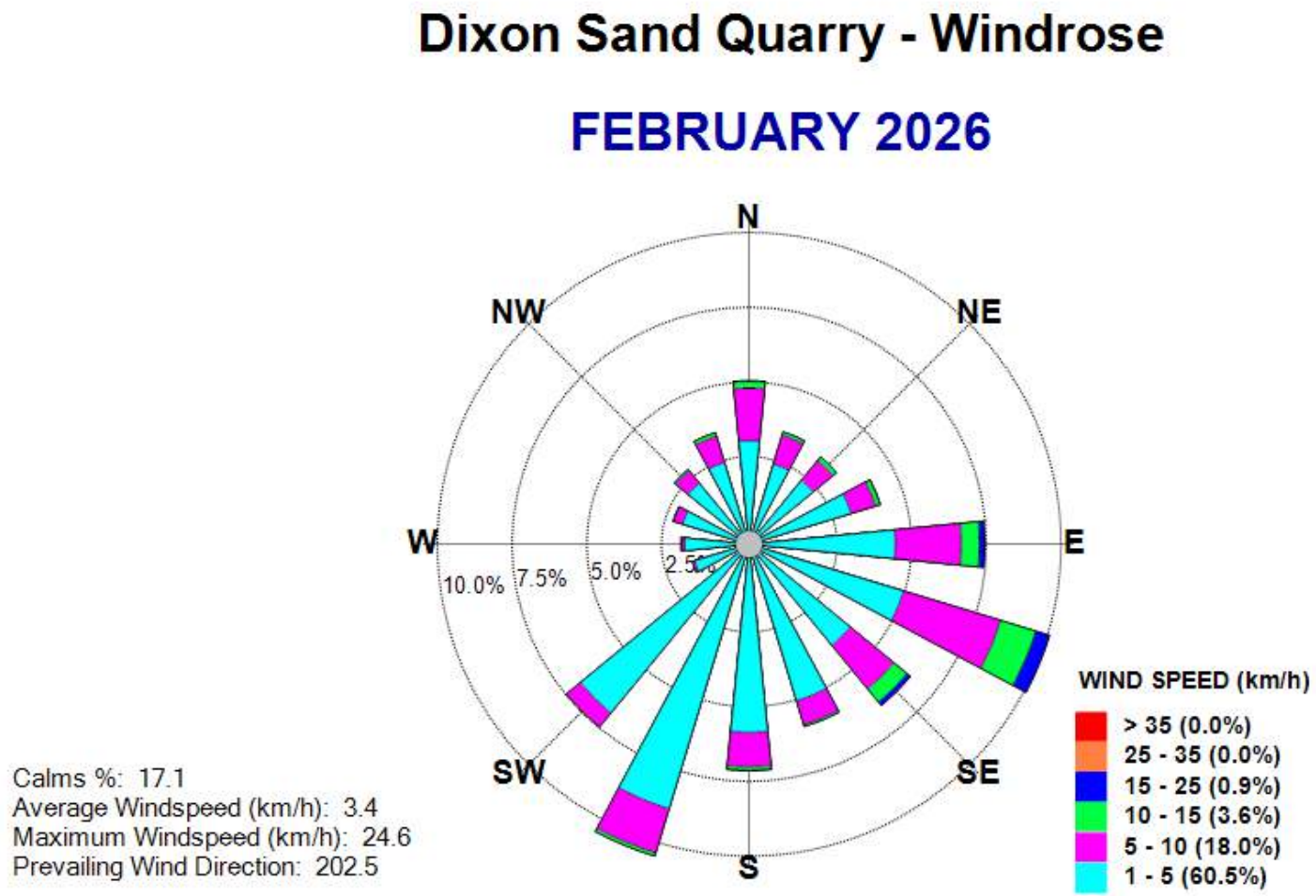


Figure 4: *Windrose*

Appendix 1

Calibration Documents (when required)

CBased Environmental Pty Limited
ABN 62 611 924 264

Dixon Sand Quarry

Environmental Monitoring
Air Quality

Tapered Element Oscillating Microbalance (TEOM) (PM_{10}) and Meteorological Data

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March 2026

Colin Davies BSc MEIA CENVP
Environmental Scientist
Date 10 April 2026

CBased Environmental Pty Ltd
Unit 3, 2 Enterprise Crescent SINGLETON NSW 2330
☎ (02) 65713334

1.0 Summary

CBased Environmental Pty Limited is contracted by Dixon Sand to conduct continuous Tapered Element Oscillating Microbalance (TEOM) for fine particulates (PM_{10}) and meteorological monitoring for the Dixon Sand Quarries. The information is required to assess air quality levels. The results for the TEOM and meteorological site are included in this report.

The monitoring programme includes:

- One continuous TEOM PM_{10} monitor; and
- One continuous meteorological station.

This monthly report for March 2026 was prepared by CBased Environmental and includes the following:

- TEOM (PM_{10}) monitoring results; and
- Meteorological results.

In accordance with Dixon Sand Development Consents (DA250-09-01 and DA165-7-2005) and Environmental Protection Licences (EPL3916 and EPL12513)

- 24-hour average PM_{10} results were below the 24-hour maximum criteria of 50ug/m^3.
- The PM_{10} rolling annual average is below the annual average criteria of 30ug/m^3; and
- The calculated TSP is below the annual average criteria of 90ug/m^3.

Note: Based on the available data, statements in green indicate current conformance to Dixon Sand Quarry Air Quality Impact Assessment criteria, statements in red indicate possible non-conformance. Year to date annual average for PM_{10} is calculated from 1 April 2025 to 31 March 2026.

Approximately 97.0% of valid meteorological data was recorded for March 2026

Approximately 91.5% of valid TEOM data was available for March 2026.

2.0 Sampling Programme

The TEOM is sited and operated to the applicable Australian Standard and/or NSW EPA approved methods. The following Australian Standards were used:

- AS3580.9.8 - "*Methods for Sampling and Analysis of Ambient Air. Determination of Suspended Particulates—PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*"; and
- AS/NZS 3580.1.1 - "*Methods for Sampling and Analysis of Ambient Air Part 1.1 Guide to Siting Air Monitoring Equipment*".

TEOM PM_{10} results are 24-hour averages at midnight and are reported as $\mu g/m^3$ corrected to 0 degrees C and 101.3kPa.

All laboratory analysis was conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Air Quality monitoring site descriptions and locations are provided in **Table 1**.

Table 1: Dixon Sand Air Quality Monitoring Description and Locations

Monitor	Site Code	Location Description
TEOM PM_{10}	TEOM	Old Northern Road, Maroota NSW
Meteorological Station	MET	Old Northern Road, Maroota NSW

3.0 Results

3.1 TEOM PM_{10}

24-hour average TEOM PM_{10} results from the AQMS data collection software are provided in **Table 2** and a chart of the data is provided in **Figure 1**.

During the March 2026 monitoring period, individual 24-hour TEOM PM_{10} results were below the DA/EPL short-term (24hr) impact criteria of 50ug/m^3.

Approximately 91.5% of valid TEOM data was available for March 2026.

At present, the current TEOM PM_{10} rolling annual average is below the Dixon Sand Quarry annual average PM_{10} criteria of 30ug/m^3. The current annual average for calculated Total Suspended Particulates (TSP) is below the rolling annual average criterion of 90ug/m^3. The TSP is calculated by multiplying the PM_{10} by 2.5. Note: the rolling annual average is calculated from 1 April 2025 to 31 March 2026.

The quarterly TEOM calibration was conducted on 10 March 2026. The next calibration is due to be completed in June 2026. The calibration certificate is provided in **Appendix 1** (when required).

Table 2: Average Daily 24-hr TEOM PM_{10} and TSP Results for March 2026 from AQMS and Rolling Annual Average PM_{10}.

Date	PM_{10} 24-hr Average ($\mu g/m^3$)	PM_{10} Rolling Annual Average (µg/m3)	TSP 24hr Average* ($\mu g/m^3$)	TSP Rolling Annual Average ($\mu g/m^3$)
1/03/2026	10.5	16.2	26.3	40.5
2/03/2026	16.0	16.2	40.0	40.4
3/03/2026	17.2	16.2	43.0	40.4
4/03/2026	18.3	16.2	45.8	40.5
5/03/2026	24.2	16.2	60.5	40.5
6/03/2026	27.3	16.2	68.3	40.6
7/03/2026	20.1	16.3	50.3	40.7
8/03/2026	12.7	16.3	31.9	40.7
9/03/2026	ND	16.3	ND	40.7
10/03/2026	ND	16.3	ND	40.8
11/03/2026	17.7	16.3	44.3	40.8
12/03/2026	26.2	16.4	65.5	40.9
13/03/2026	20.4	16.4	51.0	41.0
14/03/2026	23.9	16.4	59.8	41.0
15/03/2026	12.8	16.4	32.0	41.0
16/03/2026	26.2	16.4	65.5	41.1
17/03/2026	29.8	16.5	74.5	41.2
18/03/2026	11.2	16.4	28.0	41.1
19/03/2026	13.7	16.4	34.3	41.1
20/03/2026	ND	16.4	ND	41.1
21/03/2026	12.8	16.4	32.0	41.1
22/03/2026	10.1	16.4	25.3	41.0
23/03/2026	12.5	16.4	31.3	41.1
24/03/2026	18.9	16.4	47.3	41.1
25/03/2026	15.5	16.4	38.8	41.1
26/03/2026	18.7	16.5	46.7	41.1
27/03/2026	10.8	16.4	27.0	41.1
28/03/2026	12.1	16.4	30.3	41.1
29/03/2026	11.2	16.5	28.0	41.1
30/03/2026	14.3	16.5	35.8	41.2
31/03/2026	24.4	16.5	61.0	41.3

*Calculated from PM10

**Calculated from PM10 Annual Average

Note: results above the Dixon Sand EPL criteria limit of 42 ug/m^3 are highlighted in yellow

No Data (ND) - <18hrs hour of valid data to calculate a 24hr average

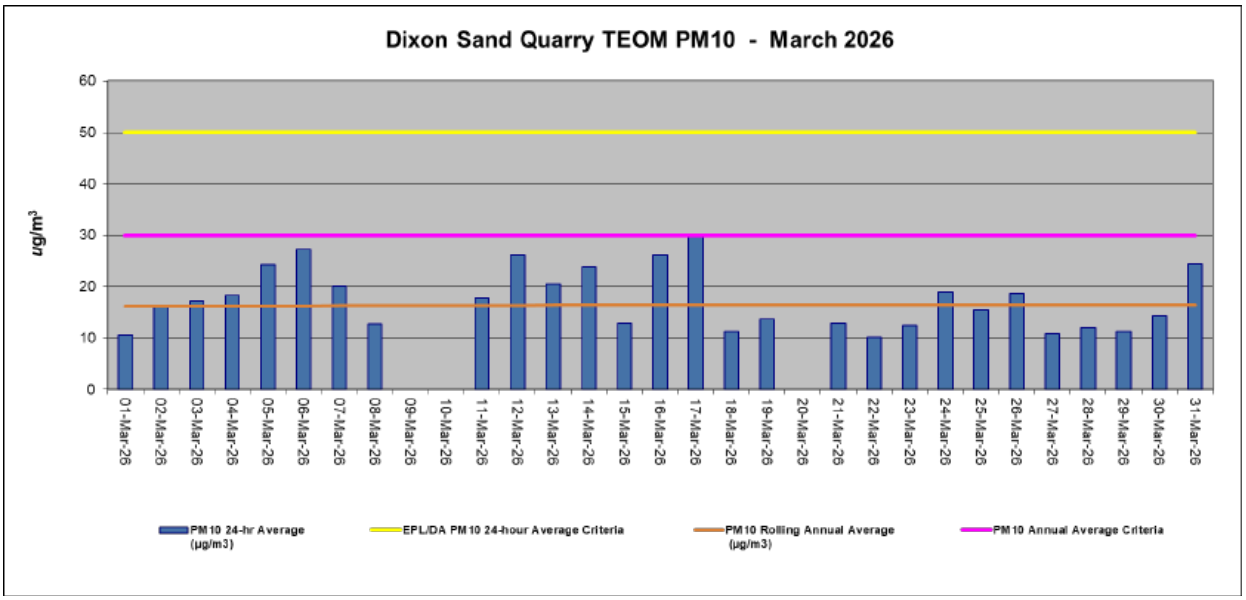


Figure 1: *TEOM PM_{10} 24 hr, Annual Rolling Average and Criteria*

3.2 EPL Reporting Conditions

Dixon Sand is required to comply with the Environmental Protection Licence (EPL) 3916 Condition M2.4 and EPL 12513 Condition M2.3.

During the reporting period Dixon Sand triggered reporting under these conditions on zero occasion(s). Details are listed below (if required):

Details are listed below (if required):

Old Northern Road Quarry - EPL 3916*

Date/Time	24hr Rolling Average (µg/m³)	Prevailing Wind Direction (°)

**Condition M2.4 - Any rolling 24-hour average PM10 result measured at Point 2 in licence condition M2.2 is greater than 42µg/m3 and the prevailing wind at the site is north-westerly (between 270 degrees and 315 degrees as measured at Point 3).*

Haerses Road Quarry - EPL 12513*

Date/Time	24hr Rolling Average (µg/m³)	Prevailing Wind Direction (°)

**Condition M2.3 - Any rolling 24-hour average PM10 result measured at Point 1 in licence condition M2.2 IS greater than 42µg/m3 and the prevailing wind at the site is north-westerly (between 270 degrees and 315 degrees as measured at Point 2).*

3.3 Meteorological Data

The weather station logs data at 5-minute intervals and sends the data to a web database by NextG telemetry. The data is accessible from the web site http://console.teledata.com.au/index.html.

A summary of monthly results is presented in **Table 3**. Charts of meteorological parameters are presented in **Figures 2** and **3**. A Windrose is provided in **Figure 4**.

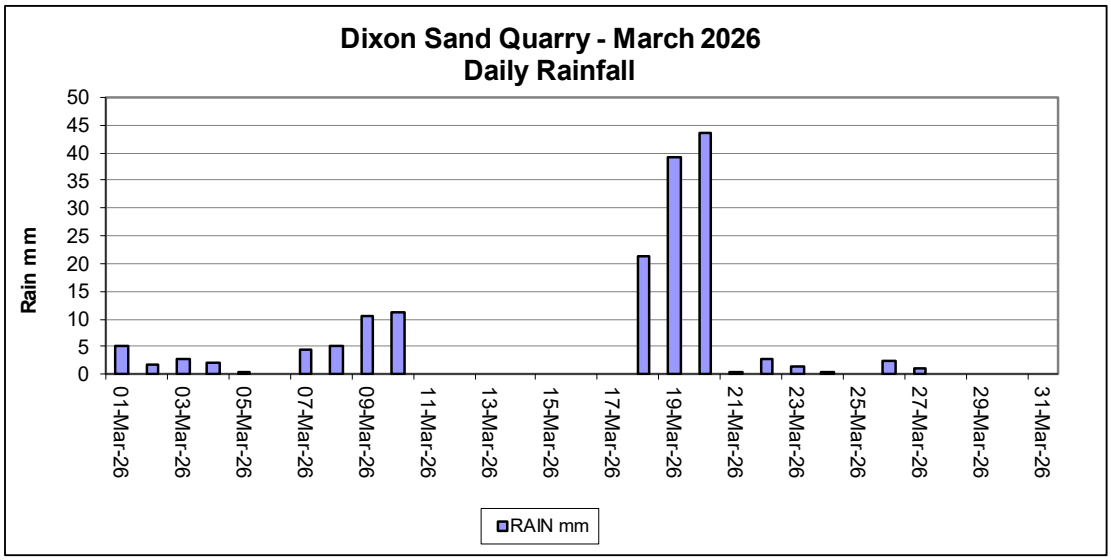
A 6-monthly physical screening and system check of the meteorological station was conducted in January 2026 (for December 2025). The next physical screening and system check is currently scheduled for June 2026. The screening and system check certificates are provided in **Appendix 1** (when required).

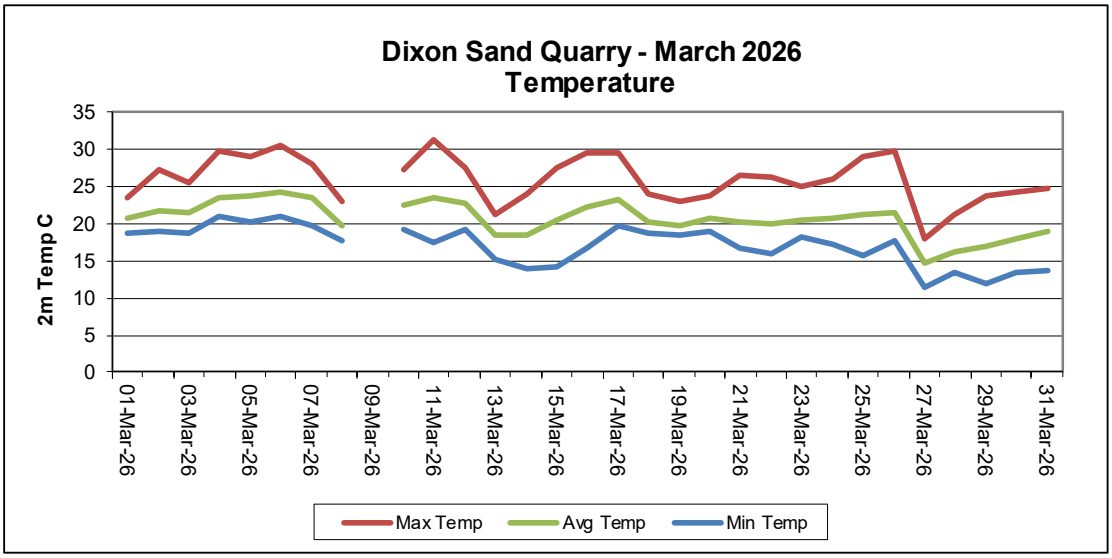
Approximately 97% of valid meteorological data was recorded for March 2026.

Table 3: Meteorological Data Summary for March 2026

Date	Min Temp	Avg Temp	Max Temp	RAIN mm	Min WS	Avg WS	Max WS	Min Humidity	Avg Humidity	Max Humidity	Min Pressure	Avg Pressure	Max Pressure
1/03/2026	18.8	20.8	23.4	5.2	0.0	2.3	9.5	70.4	84.6	93.6	986.7	989.2	991.2
2/03/2026	19.0	21.8	27.3	1.8	0.0	3.3	13.7	62.4	83.5	93.3	982.5	985.3	988.0
3/03/2026	18.8	21.4	25.4	2.8	0.0	3.3	12.2	71.4	87.6	93.5	982.4	984.8	986.3
4/03/2026	21.0	23.6	29.8	2.2	0.0	2.7	12.6	59.7	84.0	94.6	983.1	985.5	987.5
5/03/2026	20.2	23.7	29.1	0.2	0.0	3.0	14.2	66.7	83.3	94.2	983.4	985.3	987.7
6/03/2026	21.0	24.2	30.6	0.0	0.0	2.9	18.6	62.0	82.6	93.5	985.0	986.2	987.7
7/03/2026	19.8	23.4	28.0	4.4	0.0	2.0	8.5	67.2	84.4	93.7	982.9	985.1	987.3
8/03/2026	17.8	19.6	22.9	5.0	0.4	4.3	13.8	76.3	89.1	94.0	984.6	986.3	987.8
9/03/2026				10.6									
10/03/2026	19.3	22.4	27.2	11.2	0.2	4.7	18.1	59.8	78.6	88.5	984.6	985.7	987.0
11/03/2026	17.5	23.4	31.3	0.0	0.2	4.1	16.1	47.3	74.4	93.5	977.9	982.3	986.8
12/03/2026	19.1	22.6	27.6	0.0	0.0	4.0	21.1	46.3	65.7	76.9	976.9	981.1	987.5
13/03/2026	15.2	18.4	21.3	0.0	0.0	2.7	12.0	59.4	73.0	91.0	986.9	992.6	999.3
14/03/2026	13.8	18.5	24.1	0.0	0.2	3.2	13.4	46.3	65.0	79.4	998.2	999.7	1002.0
15/03/2026	14.3	20.4	27.5	0.0	0.0	2.6	16.6	45.5	67.8	86.2	992.3	995.8	999.4
16/03/2026	16.7	22.2	29.6	0.0	0.0	3.3	17.1	41.0	68.9	91.0	988.1	990.9	993.5
17/03/2026	19.8	23.3	29.6	0.0	0.1	2.7	11.9	46.3	67.0	83.6	986.7	989.6	993.2
18/03/2026	18.6	20.3	24.1	21.2	0.0	2.7	15.7	73.3	87.7	93.3	991.6	993.4	995.4
19/03/2026	18.5	19.6	23.0	39.2	0.0	1.4	6.7	74.5	91.4	94.1	988.7	990.8	992.5
20/03/2026	18.9	20.7	23.8	43.6	0.0	2.9	12.7	76.6	87.2	93.4	990.2	991.5	992.7
21/03/2026	16.8	20.2	26.4	0.4	0.0	2.2	14.9	59.6	86.7	95.0	990.8	992.6	994.9
22/03/2026	15.9	19.9	26.3	2.8	0.0	3.2	15.3	49.7	82.3	94.7	992.8	994.1	995.8
23/03/2026	18.1	20.4	25.0	1.6	0.0	3.6	20.5	65.7	85.2	94.6	992.2	993.7	994.9
24/03/2026	17.2	20.7	26.1	0.2	0.0	3.0	15.0	50.5	79.1	94.1	989.8	991.9	994.0
25/03/2026	15.7	21.3	29.0	0.0	0.0	2.2	12.3	46.0	75.2	93.7	985.1	987.9	990.5
26/03/2026	17.6	21.5	29.8	2.4	0.0	2.6	16.2	47.3	75.8	91.6	975.0	981.7	986.5
27/03/2026	11.4	14.6	18.0	1.2	0.2	4.1	22.2	50.4	63.4	83.2	975.7	978.1	983.0
28/03/2026	13.3	16.3	21.3	0.0	0.3	3.5	14.1	42.1	56.0	70.7	982.9	987.8	991.4
29/03/2026	11.8	17.0	23.7	0.0	0.0	3.0	15.2	48.2	70.1	85.5	991.2	994.0	997.0
30/03/2026	13.5	17.9	24.2	0.0	0.0	2.7	16.7	52.1	73.4	91.4	995.0	996.8	998.5
31/03/2026	13.6	18.9	24.7	0.0	0.0	2.9	15.5	52.4	71.0	86.3	994.7	997.0	999.3
Monthly	**11.4**	**20.6**	**31.3**	**156.0**	**0.0**	**3.0**	**22.2**	**41.0**	**77.5**	**95.0**	**975.0**	**989.2**	**1002.0**

No Data due to Communications fault





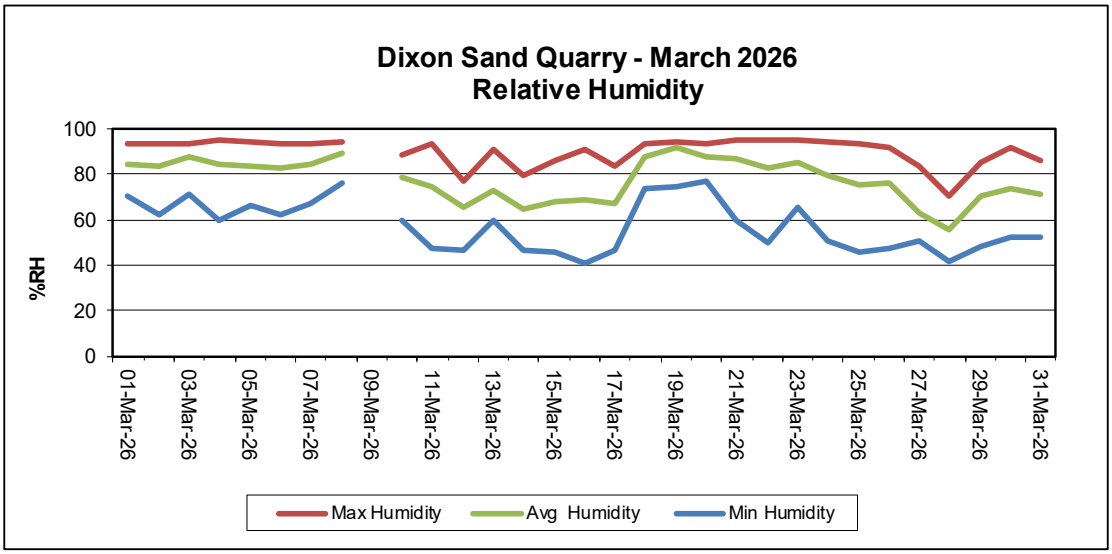


Figure 2: *Daily Rainfall, Temperature and Relative Humidity Charts*

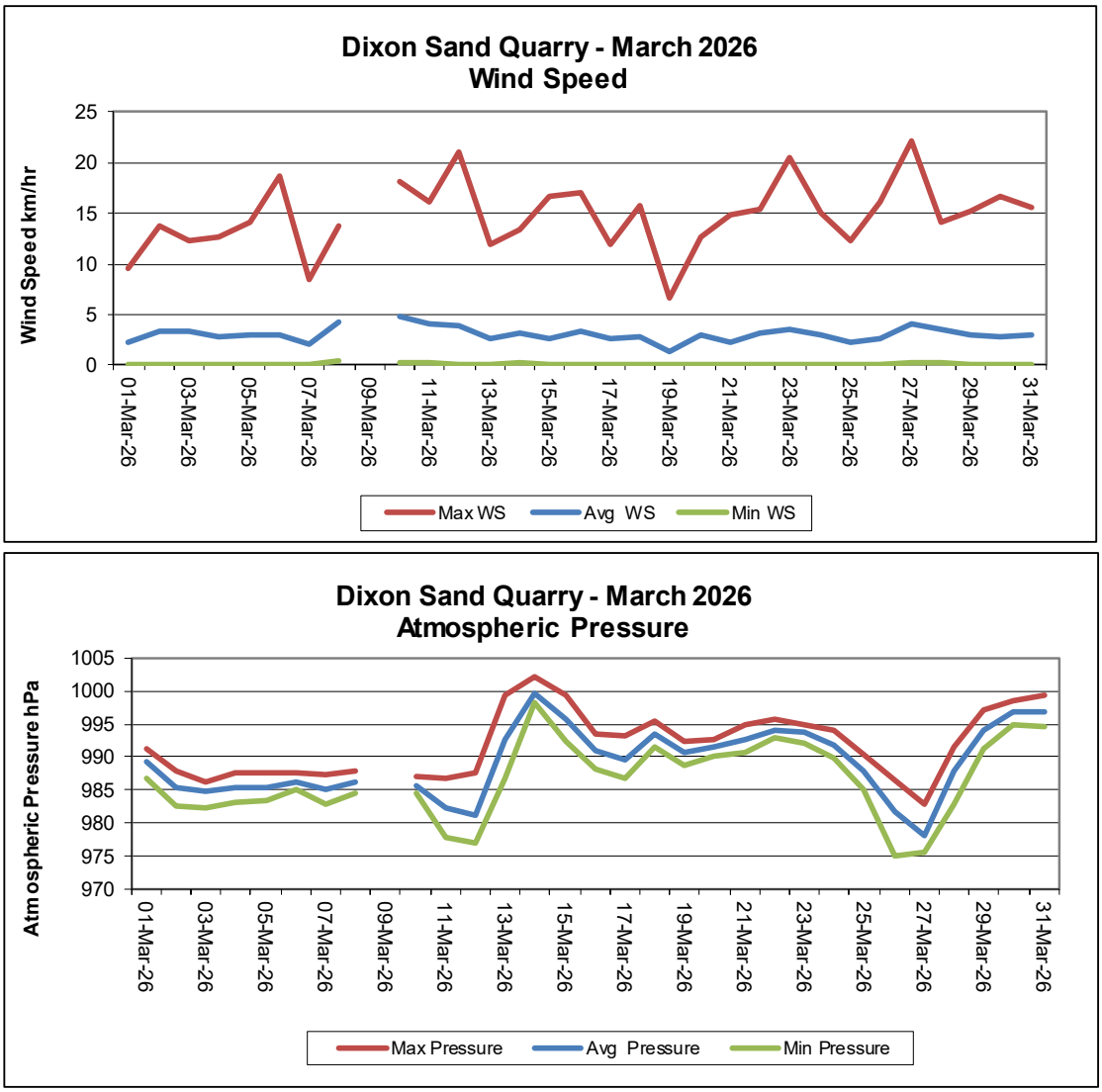


Figure 3: *Wind Speed and Atmospheric Pressure Cha*

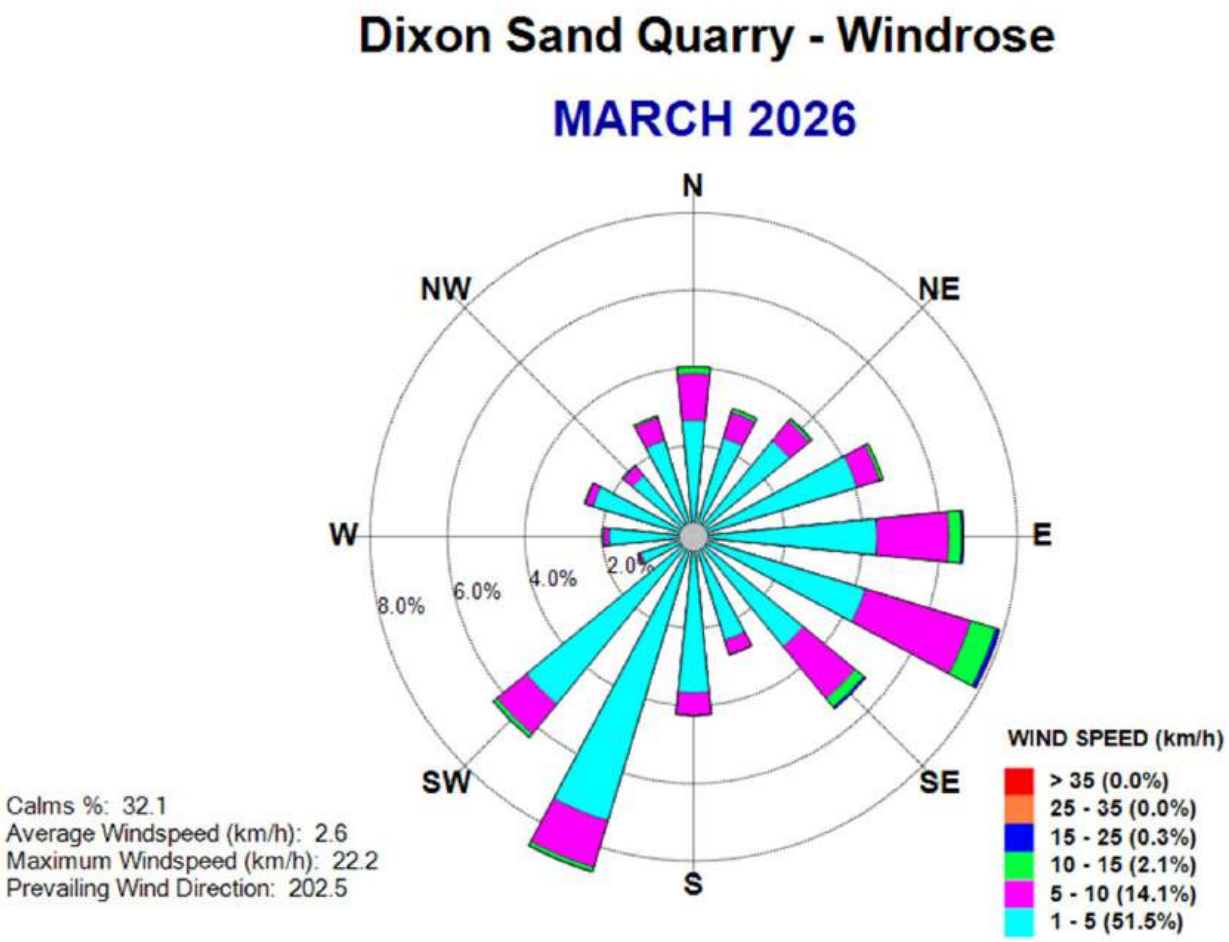


Figure 4: *Windrose*

Appendix 1

Calibration Documents (when required)

CARBON BASED ENVIRONMENTAL

Continuous Air Quality Monthly/Quarterly/Six Monthly/Annual TEOM Maintenance and Calibration – 1400AB

teledata

TEOM Client/Site: Dixon Intl / PM10 TEOM **Date:** 10/3/2026

1. TEOM Data Screen **SERIAL No:** 140AB255700503

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Operating Condition	Full 4	Green - Normal	✓	
Date/time	TEOM: 1210 Actual: 1313	Current Date/time correct within 5 minutes	✓	
PM-10 24hr av	14.3	Positive values	✓	
Filter loading PM10	38.0	<80 %	✓	
Frequency PM-10	251.11840	200-300 Hz	✓	
Noise PM-10	0.098	<0.100ug	✓	

Comment: If filter load >80% but <90% and if flows Ok then data is OK
Comments:

2. System Status

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Vacuum pump pressure	No filter pressure sensor with gauge	<0.50 atm	✓	
Warnings	0.44	No Warnings	✓	
If any warnings list:				

Comments:

Data Downloaded: YES/NO (circle) Not possible

Technician Name : Conrad Neilson **Signed** _____

3. Instrument Conditions Ambient Conditions and Temperatures

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Ambient Temperature	34.2	-10 to 50 C	✓	
Ambient Dew Point	—	-10 to 50 C	✓	
Ambient Pressure	0.969	0.9-1.1 atm	✓	
Ambient Relative Humidity	—	10-100 %RH	✓	
Cap temperature	50.00	50.00 +/- 0.10 C	✓	
Case temperature	50.00	50.00 +/- 0.10 C	✓	
Main (PM-10) Air Tube temp	50.00	50.00 +/- 0.10 C	✓	

Comments:

4. Instrument Conditions – Flows

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Main (PM-10) Flow rate	3.00	2.82 – 3.18 lpm	✓	
Bypass Flow rate	13.68	12.95 – 14.39 lpm	✓	
Total Flow rate	16.68	15.67 – 17.67 lpm	✓	

Comments:

Results: (Tick box)

☑ **There were NO equipment faults found. No action required – (file report)**

☐ **There were faults found (Fails) – Were these fixed on site: YES/NO (circle)**
Any Fails that cannot be repaired on site must be reported to CBased:
Office: 65713334 or email cbased@bigpond.com
Date faults notified to CBased: _____

Comments/Action Required:

Calibration/Maintenance

1. 1405A: Were Filters replaced YES/NO
2. PM10 Inlet head cleaned YES/NO
3. If measurement filters were replaced, confirm stable results after change. Stable particulate results confirmed YES/NO

Channel	Filter Load %	Frequency Hz initial	Frequency check 1min	Frequency check 3min	Frequency check 5min
PM10	17.8	256.18151	256.18151	256.18164	256.18173

Frequency should not drift by more than 0.0010 between readings (if instrument is thermodynamically stable)
Pass/Fail – if Fail – install new filter and redo stability test.

4. Instrument clock verified (Refer Section 1) YES/NO.
If Time changed – clock reset OK YES/NO or NA (not changed)
Comments: 12 20 → 1223

5. Were TEOM in line and rear TEOM filters checked for cleanliness and replaced if necessary. YES/NO.

Comments if changed:

6. TEOM Cleaned and Air Conditioner checked YES/NO. Air Conditioner settings or operational status: "6" Low Cool

Tetracal Flow/Temp/Pressure Calibrator Serial No: 172357 **Refer to calibration corrections for Temperature/Pressure and Flows and apply to all readings.**

Quarterly or Six Monthly Calibration

1. Flow Verification – Conducted YES/NO

PM10 Flow verified Flow l/min 2.88 Error % 4 (allowed error <6%) PASS/FAIL
Fddy 1.056 → 1.095
Bypass Flow verified Flow l/min 13.67 Error % 0 (allowed error <6%) PASS/FAIL
If fail then complete a full multipoint recalibration and review previous data from last good flow check. **Comments if Flows recalibrated:**
Yes Main adjust 1.055 → 1.095

2. Leak Check – Conducted YES/NO

	M	B
zero	0.08	1.24
vac	0.22	1.34
=	0.14	0.10

PM10 actual 0.14 < Limit 0.15
0.10
Bypass actual ~~0.50~~ < Limit 0.60

Leak check PASS/FAIL – If fail then find leak and retest.
Comments:
Unable to resolve small leak in Main flow recommend retiring machine Install used 1405

Annual Calibration/Maintenance

1. Temperature and Pressure Calibration – Conducted YES/NO
Reference Temperature: _____C TEOM Temperature_____C
if difference +/- 1 C recalibrate sensor. Sensor recalibrated YES/NO

Reference Pressure: _____atm TEOM Pressure_____atm
if difference +/- 0.010 atm recalibrate sensor. Sensor recalibrated YES/NO

Note: Tetracal measures Atmospheric Pressure in mm Hg or mb or hPa
For mb or hPa divide tetracal result by 1013.25 to change units to atm.
For mmHg divide tetracal result by 760 to change units to atm.

2. Flow Calibration – Conducted YES/NO
PM10
Set point 2.4 Actual:_____
Set point 3.6 Actual:_____
Set point 3.0 Actual:_____ After calibration Final:_____l/min

BYPASS
Set point 10.9 Actual:_____
Set point 16.4 Actual:_____
Set point 13.67 Actual:_____ After calibration Final:_____l/min

3. Post Cal Leak Check – Conducted YES/NO (use leak check wizard. Actual = channel flow-zero flow)
PM2.5 Base actual_____ < Limit 0.15 Reference actual_____< Limit 0.15
BYPASS Base actual_____ < Limit 0.60 Reference actual_____< Limit 0.60
Leak checks PASS/FAIL – If fails, find leak and retest.
Note that a big FAIL here will need the leak resolved and go back to Step 2 as the flow has been calibrated with a leak.

4. Mass calibration (K0) Verification – Conducted YES/NO
Audit Filter Serial Number: _____
Audit Filter Average Weight: _____grams

Channel	TEOM stated KO	Audit K0	% Error	PASS/FAIL
PM10				

Allowed Error +/- 2.5%. If Error > +/- 2.5% then repeat measurement.
Second Error % =PM10_____ PASS/FAIL.
If FAIL confirmed then consult Lear Siegler or manufacturer.
Comments:

5. Prepare for Noise Check – Conducted YES/NO

Channel	Filter Load %	Frequency Hz initial (Time= 0 min)	Frequency check Time= 1 min	Frequency check Time= 3 min	Frequency check Time = 5 min
PM2.5					

PASS/FAIL – If stability test fails, use change filter wizard to reseat the filter.
The next step will not pass until this test passes

6. Annual Noise check - Conducted YES/NO

Zero filter applied to TEOM and TEOM operated for at least 12 hours:

Start date/time: _____Finish date/time:_____

Standard deviation of all recorded data (min 30 min averages) = _____ug/m^3

Noise was less than 5ug/m^3 YES/NO

7. Maintenance

Air Inlet system cleaned YES/NO

Pump Reconditioned YES/NO

Check Waterproofing YES/NO

Comments:

CBased Environmental Pty Limited
ABN 62 611 924 264

Dixon Sand Quarry

Environmental Monitoring
Air Quality

Tapered Element Oscillating Microbalance (TEOM) (PM_{10}) and Meteorological Data

---

April 2026

Colin Davies BSc MEIA CENVP
Environmental Scientist
Date 8 May 2026

CBased Environmental Pty Ltd
Unit 3, 2 Enterprise Crescent SINGLETON NSW 2330
☎ (02) 65713334

1.0 Summary

CBased Environmental Pty Limited is contracted by Dixon Sand to conduct continuous Tapered Element Oscillating Microbalance (TEOM) for fine particulates (PM_{10}) and meteorological monitoring for the Dixon Sand Quarries. The information is required to assess air quality levels. The results for the TEOM and meteorological site are included in this report.

The monitoring programme includes:

- One continuous TEOM PM_{10} monitor; and
- One continuous meteorological station.

This monthly report for April 2026 was prepared by CBased Environmental and includes the following:

- TEOM (PM_{10}) monitoring results; and
- Meteorological results.

In accordance with Dixon Sand Development Consents (DA250-09-01 and DA165-7-2005) and Environmental Protection Licences (EPL3916 and EPL12513)

- 24-hour average PM_{10} results were below the 24-hour maximum criteria of 50ug/m^3.
- The PM_{10} rolling annual average is below the annual average criteria of 30ug/m^3; and
- The calculated TSP is below the annual average criteria of 90ug/m^3.

Note: Based on the available data, statements in green indicate current conformance to Dixon Sand Quarry Air Quality Impact Assessment criteria, statements in red indicate possible non-conformance. Year to date annual average for PM_{10} is calculated from 1 May 2025 to 30 April 2026.

Approximately 83.3% of valid meteorological data was recorded for April 2026

Approximately 79.9% of valid TEOM data was available for April 2026.

Please note: The CellVisor logger was replaced on 8 April 2026. A communication error in the original logger resulted in data loss from 3 April 2026. Further data loss was observed during and immediately after installation of the replacement logger, impacting 8–9 April 2026 inclusive.

2.0 Sampling Programme

The TEOM is sited and operated to the applicable Australian Standard and/or NSW EPA approved methods. The following Australian Standards were used:

- AS3580.9.8 - "*Methods for Sampling and Analysis of Ambient Air. Determination of Suspended Particulates—PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*"; and
- AS/NZS 3580.1.1 - "*Methods for Sampling and Analysis of Ambient Air Part 1.1 Guide to Siting Air Monitoring Equipment*".

TEOM PM_{10} results are 24-hour averages at midnight and are reported as $\mu g/m^3$ corrected to 0 degrees C and 101.3kPa.

All laboratory analysis was conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Air Quality monitoring site descriptions and locations are provided in **Table 1**.

Table 1: Dixon Sand Air Quality Monitoring Description and Locations

Monitor	Site Code	Location Description
TEOM PM_{10}	TEOM	Old Northern Road, Maroota NSW
Meteorological Station	MET	Old Northern Road, Maroota NSW

3.0 Results

3.1 TEOM PM_{10}

24-hour average TEOM PM_{10} results from the AQMS data collection software are provided in **Table 2** and a chart of the data is provided in **Figure 1**.

During the April 2026 monitoring period, individual 24-hour TEOM PM_{10} results were below the DA/EPL short-term (24hr) impact criteria of 50ug/m^3.

Approximately 79.9% of valid TEOM data was available for April 2026.

At present, the current TEOM PM_{10} rolling annual average is below the Dixon Sand Quarry annual average PM_{10} criteria of 30ug/m^3. The current annual average for calculated Total Suspended Particulates (TSP) is below the rolling annual average criterion of 90ug/m^3. The TSP is calculated by multiplying the PM_{10} by 2.5. Note: the rolling annual average is calculated from 1 May 2025 to 30 April 2026.

The quarterly TEOM calibration was conducted on 10 March 2026. The next calibration is due to be completed in June 2026. The calibration certificate is provided in **Appendix 1** (when required).

Table 2: Average Daily 24-hr TEOM PM_{10} and TSP Results for April 2026 from AQMS and Rolling Annual Average PM_{10}.

Date	PM_{10} 24-hr Average ($\mu g/m^3$)	PM_{10} Rolling Annual Average (µg/m3)	TSP 24hr Average* ($\mu g/m^3$)	TSP Rolling Annual Average ($\mu g/m^3$)
1/04/2026	18.3	16.5	45.8	41.3
2/04/2026	18.3	16.5	45.8	41.3
3/04/2026	ND	16.5	ND	41.3
4/04/2026	ND	16.5	ND	41.2
5/04/2026	ND	16.5	ND	41.2
6/04/2026	ND	16.5	ND	41.3
7/04/2026	ND	16.5	ND	41.3
8/04/2026	ND	16.5	ND	41.2
9/04/2026	ND	16.5	ND	41.3
10/04/2026	31.8	16.6	79.5	41.4
11/04/2026	15.6	16.5	39.0	41.3
12/04/2026	18.1	16.5	45.3	41.3
13/04/2026	16.0	16.5	40.0	41.3
14/04/2026	17.3	16.5	43.3	41.3
15/04/2026	17.7	16.5	44.3	41.3
16/04/2026	21.8	16.6	54.5	41.4
17/04/2026	21.2	16.6	53.0	41.4
18/04/2026	12.3	16.6	30.8	41.4
19/04/2026	15.0	16.6	37.5	41.4
20/04/2026	18.8	16.6	47.0	41.5
21/04/2026	15.5	16.6	38.8	41.5
22/04/2026	12.7	16.6	31.8	41.4
23/04/2026	20.7	16.6	51.8	41.5
24/04/2026	16.8	16.6	42.0	41.5
25/04/2026	13.1	16.6	32.8	41.5
26/04/2026	11.9	16.6	29.8	41.5
27/04/2026	16.5	16.6	41.3	41.6
28/04/2026	16.5	16.7	41.3	41.6
29/04/2026	21.8	16.7	54.5	41.7
30/04/2026	13.2	16.7	33.0	41.7

*Calculated from PM10

**Calculated from PM10 Annual Average

Note: results above the Dixon Sand EPL criteria limit of 42 ug/m^3 are highlighted in yellow

No Data (ND) - <18hrs hour of valid data to calculate a 24hr average

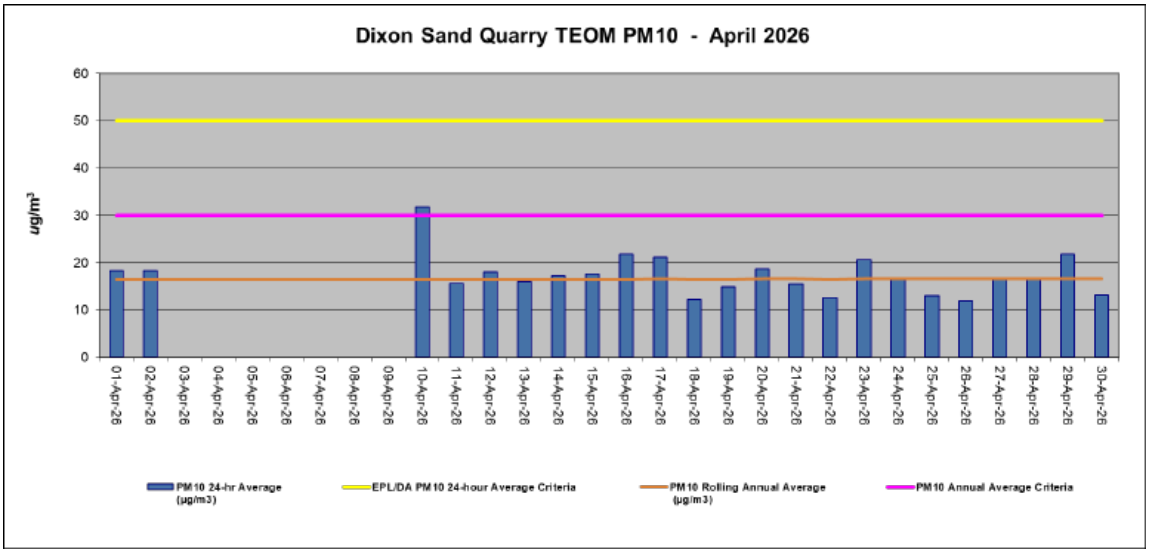


Figure 1: *TEOM PM_{10} 24 hr, Annual Rolling Average and Criteria*

3.2 EPL Reporting Conditions

Dixon Sand is required to comply with the Environmental Protection Licence (EPL) 3916 Condition M2.4 and EPL 12513 Condition M2.3.

During the reporting period Dixon Sand triggered reporting under these conditions on zero occasion(s). Details are listed below (if required):

Details are listed below (if required):

Old Northern Road Quarry - EPL 3916*

Date/Time	24hr Rolling Average (µg/m^3)	Prevailing Wind Direction (°)

**Condition M2.4 - Any rolling 24-hour average PM10 result measured at Point 2 in licence condition M2.2 is greater than 42µg/m3 and the prevailing wind at the site is north-westerly (between 270 degrees and 315 degrees as measured at Point 3).*

Haerses Road Quarry - EPL 12513*

Date/Time	24hr Rolling Average (µg/m^3)	Prevailing Wind Direction (°)

**Condition M2.3 - Any rolling 24-hour average PM10 result measured at Point 1 in licence condition M2.2 IS greater than 42µg/m3 and the prevailing wind at the site is north-westerly (between 270 degrees and 315 degrees as measured at Point 2).*

3.3 Meteorological Data

The weather station logs data at 5-minute intervals and sends the data to a web database by NextG telemetry. The data is accessible from the web site http://console.teledata.com.au/index.html.

A summary of monthly results is presented in **Table 3**. Charts of meteorological parameters are presented in **Figures 2** and **3**. A Windrose is provided in **Figure 4**.

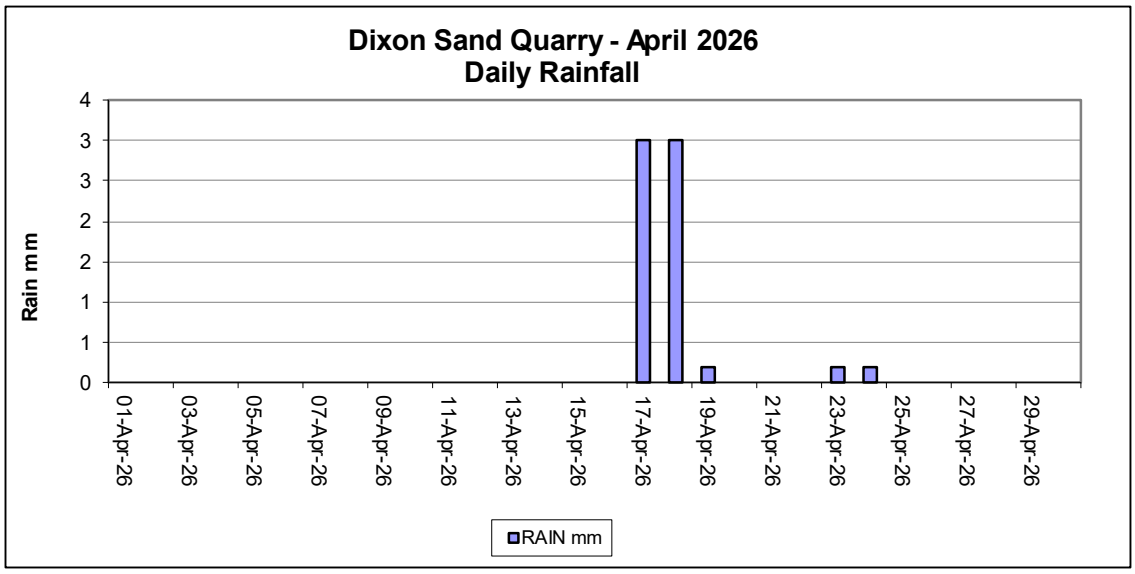
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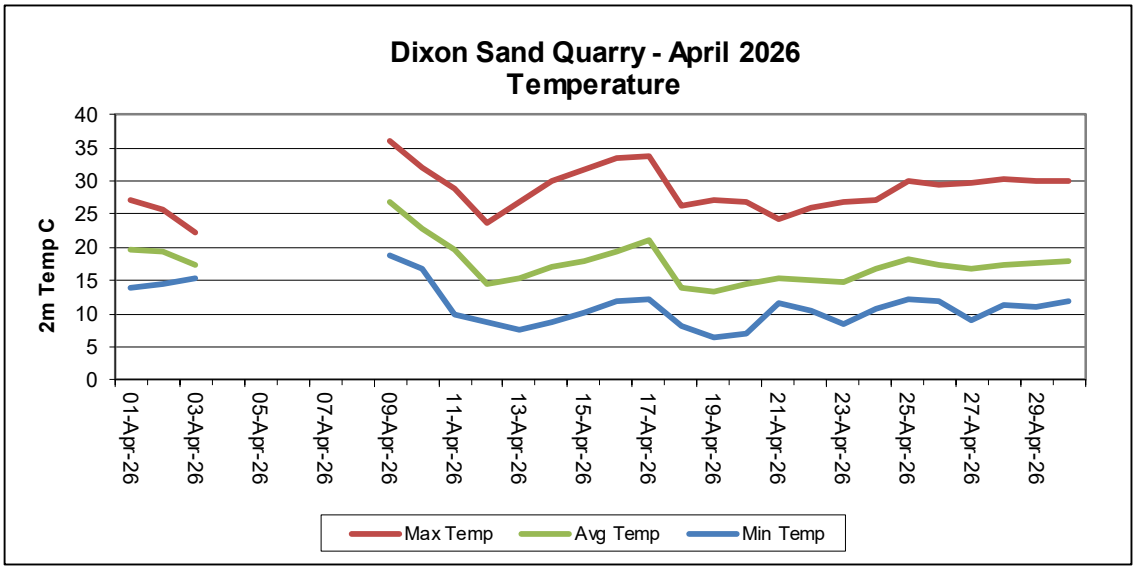
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Date	Min Temp	Avg Temp	Max Temp	RAIN mm	Min WS	Avg WS	Max WS	Min Humidity	Avg Humidity	Max Humidity	Min Pressure	Avg Pressure	Max Pressure
1/04/2026	14.0	19.7	27.0	0.0	0.0	2.7	14.0	45.6	75.9	93.3	994.0	996.0	997.8
2/04/2026	14.4	19.5	25.7	0.0	0.0	2.5	11.8	47.2	80.7	94.1	993.6	995.6	997.7
3/04/2026	15.2	17.3	22.3	0.0	0.1	1.8	5.7	78.9	91.8	94.6	993.0	994.6	996.5
4/04/2026													
5/04/2026													
6/04/2026													
7/04/2026													
8/04/2026													
9/04/2026	18.9	26.7	36.0	0.0	0.7	3.2	7.1	39.0	57.6	73.5	986.0	987.7	991.0
10/04/2026	16.7	22.9	32.0	0.0	0.2	2.1	6.6	53.7	69.0	82.1	981.0	984.3	987.0
11/04/2026	9.8	19.6	28.9	0.0	0.2	2.1	6.1	33.7	55.3	86.9	980.0	981.6	985.0
12/04/2026	8.7	14.5	23.7	0.0	0.5	2.7	6.1	38.0	50.3	64.5	982.0	984.3	988.0
13/04/2026	7.5	15.5	26.7	0.0	0.3	1.9	5.2	39.2	55.8	68.1	987.0	990.1	992.0
14/04/2026	8.6	17.2	30.0	0.0	0.2	2.1	6.4	32.7	64.1	87.4	991.0	992.5	994.0
15/04/2026	10.1	18.0	31.8	0.0	0.1	2.1	8.2	32.2	65.4	89.2	990.0	991.7	993.0
16/04/2026	11.9	19.5	33.4	0.0	0.1	2.2	8.5	33.2	66.7	89.1	987.0	989.8	993.0
17/04/2026	12.3	21.1	33.6	3.0	0.6	2.6	5.5	28.6	51.6	88.8	983.0	986.2	990.0
18/04/2026	8.1	13.9	26.3	3.0	0.1	2.1	8.8	32.2	69.6	94.7	989.0	991.2	994.0
19/04/2026	6.3	13.3	27.0	0.2	0.1	2.0	6.6	42.0	69.9	92.2	993.0	994.0	996.0
20/04/2026	7.1	14.4	26.8	0.0	0.1	2.0	6.3	46.9	71.0	90.3	995.0	996.8	999.0
21/04/2026	11.6	15.4	24.2	0.0	0.9	2.8	5.8	60.9	74.7	87.9	998.0	999.1	1001.0
22/04/2026	10.4	15.0	26.0	0.0	0.2	2.4	6.4	50.8	76.9	92.5	998.0	999.1	1001.0
23/04/2026	8.5	14.6	26.9	0.2	0.3	2.2	5.9	54.7	73.8	91.6	999.0	1001.3	1003.0
24/04/2026	10.6	16.7	27.1	0.2	0.2	2.2	7.7	57.3	74.2	90.1	1002.0	1003.8	1005.0
25/04/2026	12.3	18.2	30.1	0.0	0.1	2.5	9.3	51.5	77.8	92.6	999.0	1002.0	1005.0
26/04/2026	11.8	17.4	29.3	0.0	0.2	2.4	7.4	42.5	70.3	89.0	995.0	997.4	1000.0
27/04/2026	9.0	16.7	29.7	0.0	0.1	2.4	8.8	51.0	73.1	92.3	996.0	997.0	999.0
28/04/2026	11.3	17.4	30.3	0.0	0.1	2.4	9.0	49.1	75.6	93.5	997.0	998.6	1001.0
29/04/2026	10.9	17.7	30.1	0.0	0.1	2.6	9.7	52.8	77.6	91.3	999.0	1000.8	1003.0
30/04/2026	12.0	17.9	30.0	0.0	0.1	2.5	11.0	53.2	82.1	94.8	1001.0	1002.5	1004.0
Monthly	**6.3**	**17.6**	**36.0**	**6.6**	**0.0**	**2.3**	**14.0**	**28.6**	**70.0**	**94.8**	**980.0**	**994.3**	**1005.0**

No Data due to Communications fault and Calibration/Maintenance





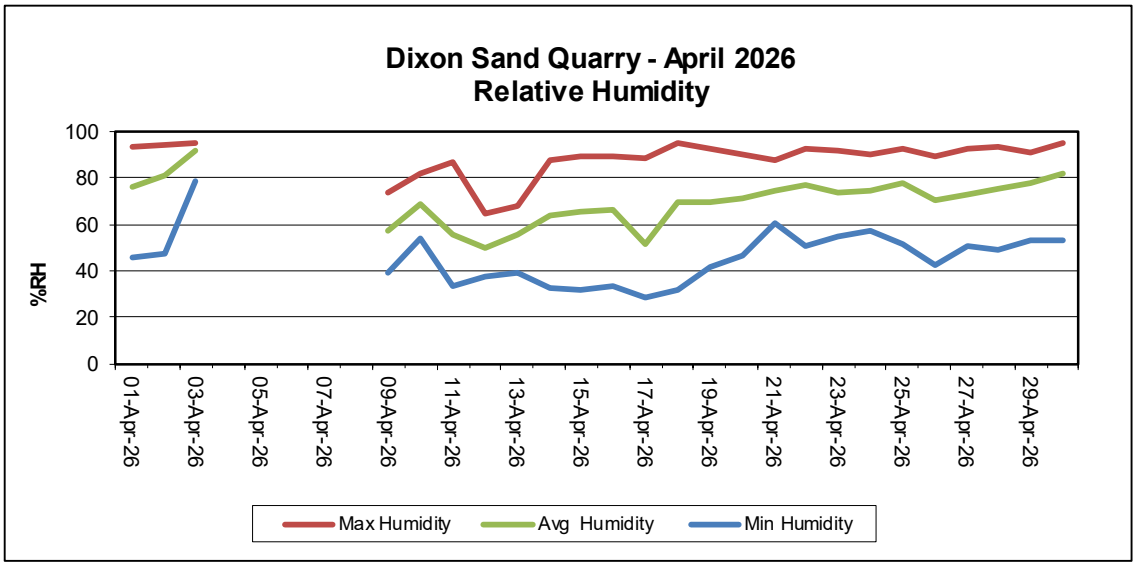


Figure 2: *Daily Rainfall, Temperature and Relative Humidity Charts*

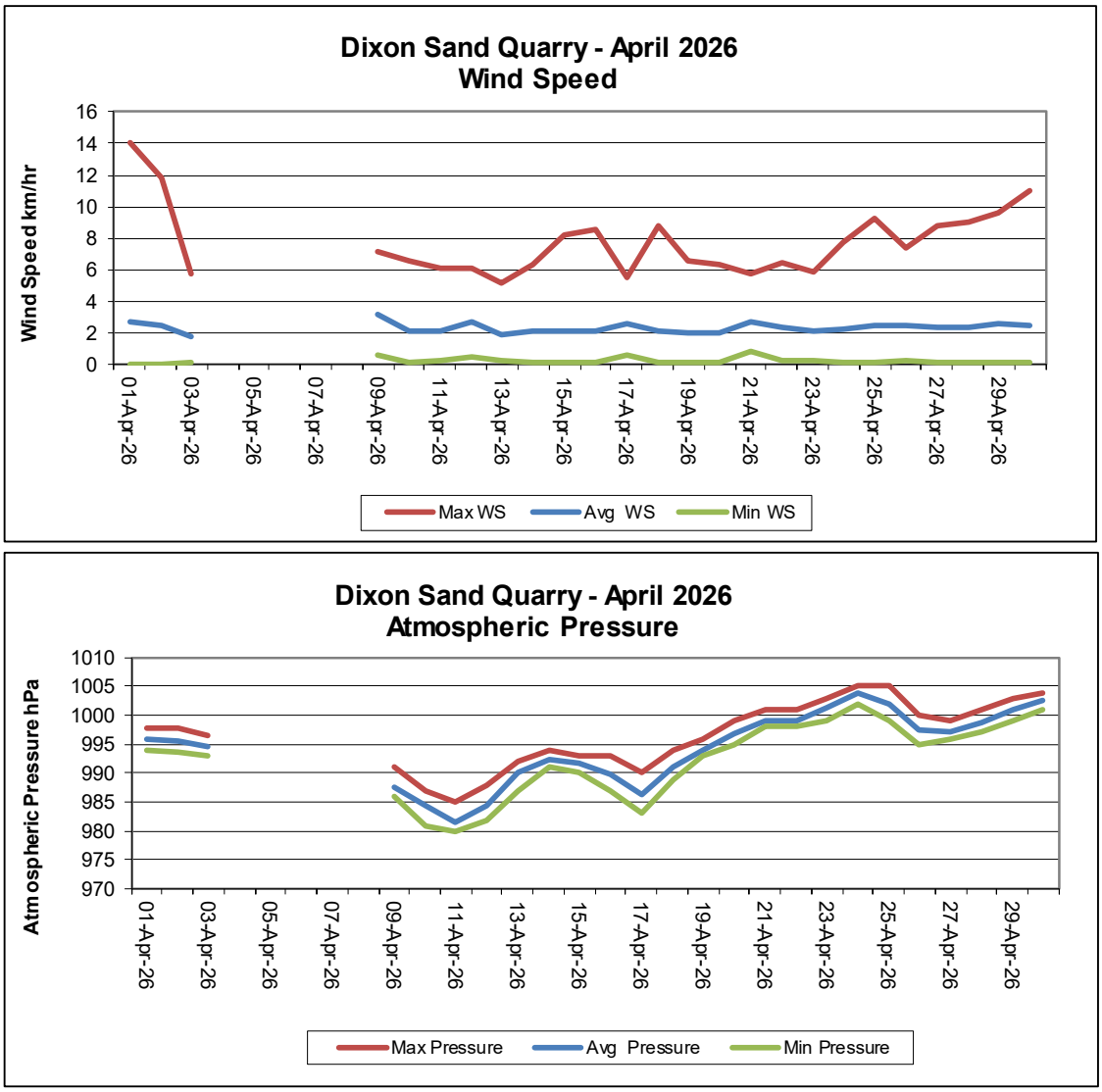


Figure 3: *Wind Speed and Atmospheric Pressure Charts*

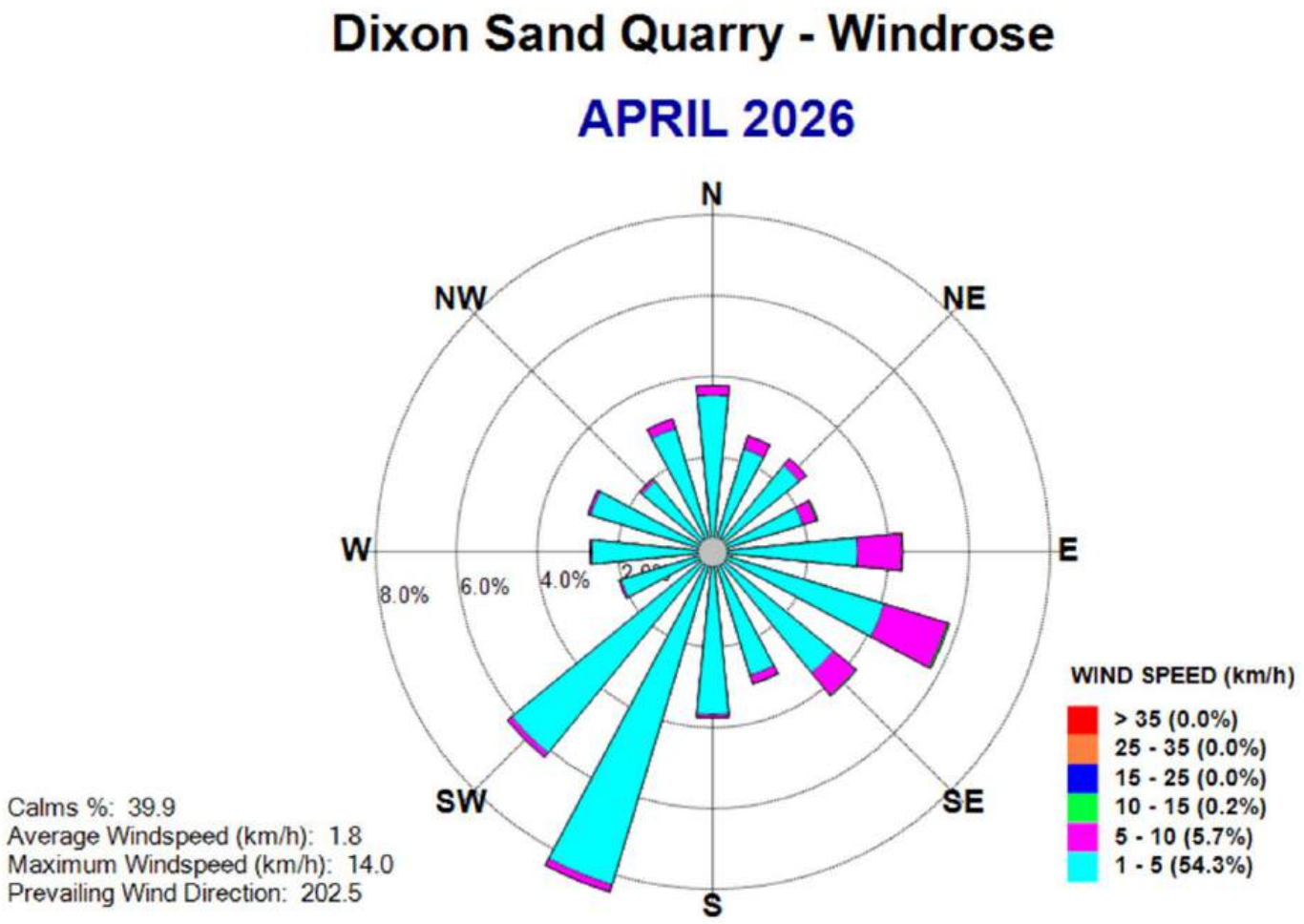


Figure 4: *Windrose*

Appendix 1

Calibration Documents (when required)

CBased Environmental Pty Limited
ABN 62 611 924 264

Dixon Sand Quarry

Environmental Monitoring
Air Quality

Tapered Element Oscillating Microbalance (TEOM) (PM_{10}) and Meteorological Data

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May 2026

Colin Davies BSc MEIA CENVP
Environmental Scientist
Date 5 June 2026

CBased Environmental Pty Ltd
Unit 3, 2 Enterprise Crescent SINGLETON NSW 2330
☎ (02) 65713334

1.0 Summary

CBased Environmental Pty Limited is contracted by Dixon Sand to conduct continuous Tapered Element Oscillating Microbalance (TEOM) for fine particulates (PM_{10}) and meteorological monitoring for the Dixon Sand Quarries. The information is required to assess air quality levels. The results for the TEOM and meteorological site are included in this report.

The monitoring programme includes:

- One continuous TEOM PM_{10} monitor; and
- One continuous meteorological station.

This monthly report for May 2026 was prepared by CBased Environmental and includes the following:

- TEOM (PM_{10}) monitoring results; and
- Meteorological results.

In accordance with Dixon Sand Development Consents (DA250-09-01 and DA165-7-2005) and Environmental Protection Licences (EPL3916 and EPL12513)

- 24-hour average PM_{10} results were below the 24-hour maximum criteria of 50ug/m^3.
- The PM_{10} rolling annual average is below the annual average criteria of 30ug/m^3; and
- The calculated TSP is below the annual average criteria of 90ug/m^3.

Note: Based on the available data, statements in green indicate current conformance to Dixon Sand Quarry Air Quality Impact Assessment criteria, statements in red indicate possible non-conformance. Year to date annual average for PM_{10} is calculated from 1 June 2025 to 31 May 2026.

Approximately 100% of valid meteorological data was recorded for May 2026

Approximately 100% of valid TEOM data was available for May 2026.

2.0 Sampling Programme

The TEOM is sited and operated to the applicable Australian Standard and/or NSW EPA approved methods. The following Australian Standards were used:

- AS3580.9.8 - "*Methods for Sampling and Analysis of Ambient Air. Determination of Suspended Particulates—PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*"; and
- AS/NZS 3580.1.1 - "*Methods for Sampling and Analysis of Ambient Air Part 1.1 Guide to Siting Air Monitoring Equipment*".

TEOM PM_{10} results are 24-hour averages at midnight and are reported as $\mu g/m^3$ corrected to 0 degrees C and 101.3kPa.

All laboratory analysis was conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Air Quality monitoring site descriptions and locations are provided in **Table 1**.

Table 1: Dixon Sand Air Quality Monitoring Description and Locations

Monitor	Site Code	Location Description
TEOM PM_{10}	TEOM	Old Northern Road, Maroota NSW
Meteorological Station	MET	Old Northern Road, Maroota NSW

3.0 Results

3.1 TEOM PM_{10}

24-hour average TEOM PM_{10} results from the AQMS data collection software are provided in **Table 2** and a chart of the data is provided in **Figure 1**.

During the 2026 monitoring period, individual 24-hour TEOM PM_{10} results were below the DA/EPL short-term (24hr) impact criteria of 50ug/m^3.

Approximately 100% of valid TEOM data was available for May 2026.

At present, the current TEOM PM_{10} rolling annual average is below the Dixon Sand Quarry annual average PM_{10} criteria of 30ug/m^3. The current annual average for calculated Total Suspended Particulates (TSP) is below the rolling annual average criterion of 90ug/m^3. The TSP is calculated by multiplying the PM_{10} by 2.5. Note: the rolling annual average is calculated from 1 June 2025 to 31 May 2026.

The quarterly TEOM calibration was conducted in March 2026. The next calibration is due to be completed in June 2026. The calibration certificate is provided in **Appendix 1** (when required).

Table 2: Average Daily 24-hr TEOM PM_{10} and TSP Results for May 2026 from AQMS and Rolling Annual Average PM_{10}.

Date	PM_{10} 24-hr Average ($\mu g/m^3$)	PM_{10} Rolling Annual Average (µg/m3)	TSP 24hr Average* ($\mu g/m^3$)	TSP Rolling Annual Average ($\mu g/m^3$)
1/05/2026	20.8	16.7	52.0	41.7
2/05/2026	25.0	16.7	62.5	41.9
3/05/2026	15.6	16.8	39.0	41.9
4/05/2026	13.6	16.8	34.0	41.9
5/05/2026	13.2	16.8	33.0	42.0
6/05/2026	14.7	16.8	36.8	41.9
7/05/2026	12.2	16.8	30.5	41.9
8/05/2026	12.6	16.8	31.5	41.9
9/05/2026	17.1	16.8	42.8	41.9
10/05/2026	22.3	16.8	55.8	42.0
11/05/2026	15.7	16.8	39.3	42.1
12/05/2026	17.9	16.9	44.8	42.2
13/05/2026	10.2	16.9	25.5	42.2
14/05/2026	10.0	16.9	25.0	42.2
15/05/2026	8.9	16.8	22.3	42.1
16/05/2026	9.6	16.8	24.0	42.1
17/05/2026	10.1	16.8	25.3	42.1
18/05/2026	16.4	16.8	41.0	42.1
19/05/2026	7.1	16.8	17.8	42.1
20/05/2026	10.8	16.8	27.0	42.0
21/05/2026	15.5	16.8	38.8	42.1
22/05/2026	8.9	16.8	22.3	42.1
23/05/2026	8.9	16.8	22.3	42.1
24/05/2026	9.5	16.8	23.8	42.1
25/05/2026	14.3	16.9	35.8	42.1
26/05/2026	11.6	16.8	29.0	42.1
27/05/2026	11.5	16.7	28.8	41.7
28/05/2026	10.2	16.7	25.5	41.7
29/05/2026	9.4	16.6	23.5	41.6
30/05/2026	6.4	16.6	16.0	41.6
31/05/2026	5.9	16.6	14.8	41.5

*Calculated from PM10

**Calculated from PM10 Annual Average

Note: results above the Dixon Sand EPL criteria limit of 42 ug/m^3 are highlighted in yellow
No Data (ND) - <18hrs hour of valid data to calculate a 24hr average

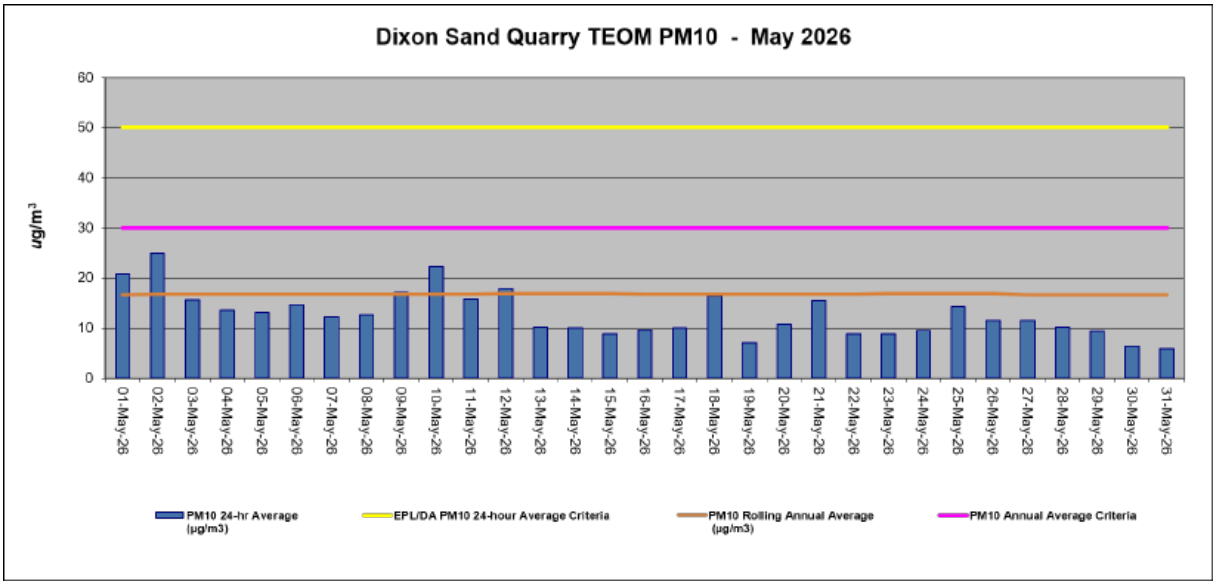


Figure 1: *TEOM PM_{10} 24 hr, Annual Rolling Average and Criteria*

3.2 EPL Reporting Conditions

Dixon Sand is required to comply with the Environmental Protection Licence (EPL) 3916 Condition M2.4 and EPL 12513 Condition M2.3.

During the reporting period Dixon Sand triggered reporting under these conditions on zero occasion(s). Details are listed below (if required):

Details are listed below (if required):

Old Northern Road Quarry - EPL 3916*

Date/Time	24hr Rolling Average (µg/m³)	Prevailing Wind Direction (°)

**Condition M2.4 - Any rolling 24-hour average PM10 result measured at Point 2 in licence condition M2.2 is greater than 42µg/m3 and the prevailing wind at the site is north-westerly (between 270 degrees and 315 degrees as measured at Point 3).*

Haerses Road Quarry - EPL 12513*

Date/Time	24hr Rolling Average (µg/m³)	Prevailing Wind Direction (°)

**Condition M2.3 - Any rolling 24-hour average PM10 result measured at Point 1 in licence condition M2.2 IS greater than 42µg/m3 and the prevailing wind at the site is north-westerly (between 270 degrees and 315 degrees as measured at Point 2).*

3.3 Meteorological Data

The weather station logs data at 5-minute intervals and sends the data to a web database by NextG telemetry. The data is accessible from the web site http://console.teledata.com.au/index.html.

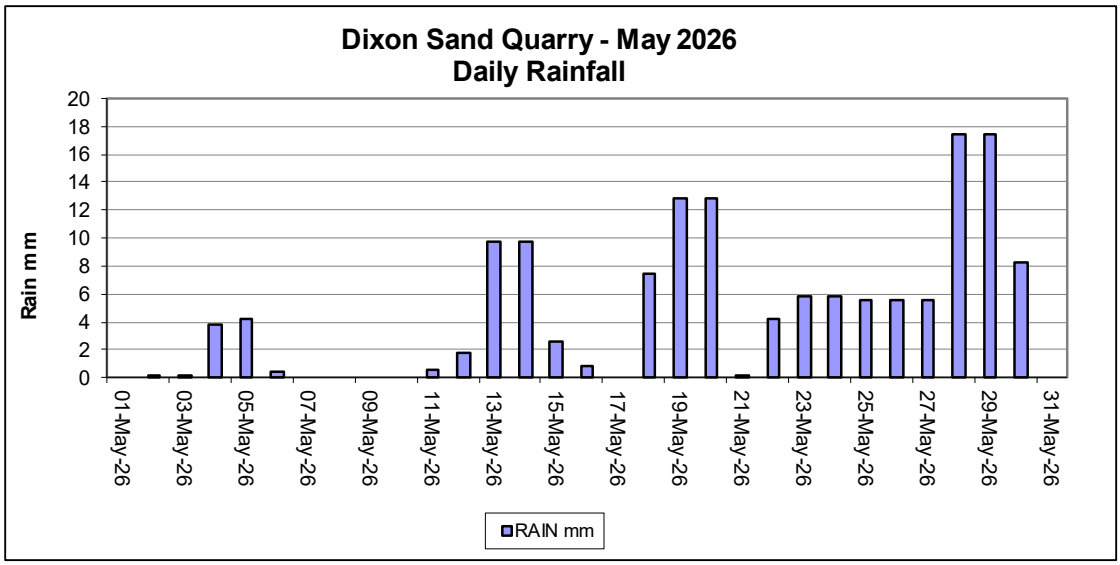
A summary of monthly results is presented in **Table 3**. Charts of meteorological parameters are presented in **Figures 2** and **3**. A Windrose is provided in **Figure 4**.

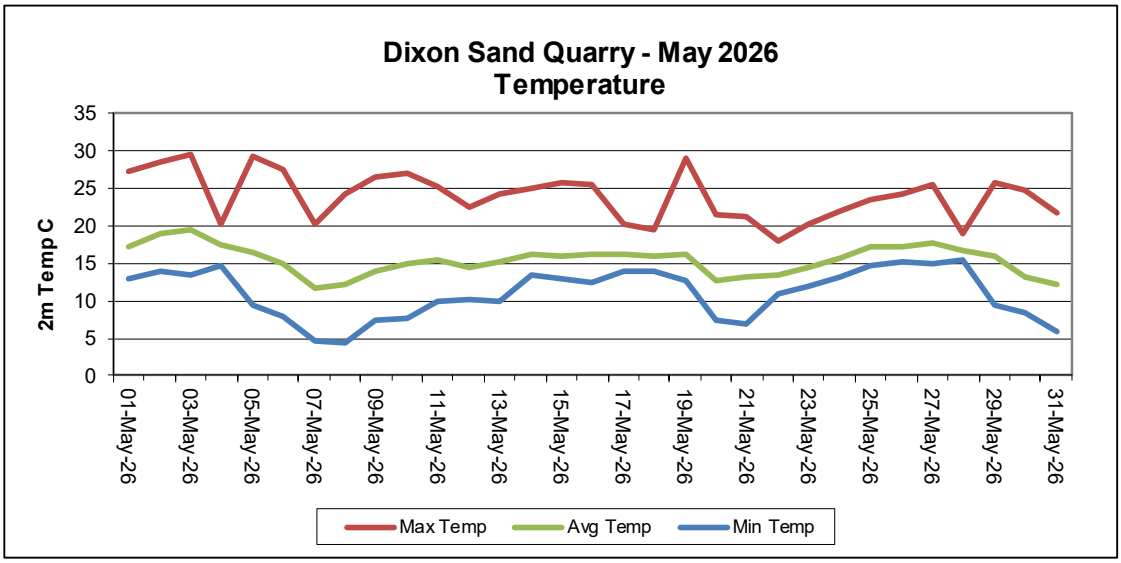
A 6-monthly physical screening and system check of the meteorological station was conducted in January 2026 (for December 2025). The next physical screening and system check is currently scheduled for June 2026. The screening and system check certificates are provided in **Appendix 1** (when required).

Approximately 100% of valid meteorological data was recorded for May 2026.

Table 3: Meteorological Data Summary for May 2026

Date	Min Temp	Avg Temp	Max Temp	RAIN mm	Min WS	Avg WS	Max WS	Min Humidity	Avg Humidity	Max Humidity	Min Pressure	Avg Pressure	Max Pressure
1/05/2026	12.8	17.1	27.3	0.0	0.1	1.6	6.6	58.8	82.2	93.6	999.0	1000.9	1003.0
2/05/2026	13.9	19.0	28.6	0.2	0.1	3.3	8.2	63.3	78.2	89.9	995.0	997.1	1000.0
3/05/2026	13.3	19.4	29.4	0.2	0.2	3.0	7.7	54.0	75.8	92.7	991.0	993.3	996.0
4/05/2026	14.6	17.4	20.1	3.8	0.8	4.8	11.3	69.5	80.4	88.9	988.0	989.2	991.0
5/05/2026	9.4	16.5	29.2	4.2	0.4	2.0	5.4	41.0	68.5	93.8	989.0	991.2	994.0
6/05/2026	7.9	15.0	27.6	0.4	0.1	1.9	6.8	54.0	74.4	90.2	987.0	991.3	994.0
7/05/2026	4.7	11.7	20.2	0.0	0.4	3.4	8.7	28.7	59.0	88.2	986.0	988.4	993.0
8/05/2026	4.3	12.1	24.2	0.0	0.4	2.3	5.9	43.2	61.2	75.3	989.0	991.6	995.0
9/05/2026	7.3	13.9	26.5	0.0	0.2	1.8	6.4	42.0	67.5	85.9	995.0	996.8	999.0
10/05/2026	7.7	15.0	27.0	0.0	0.2	2.3	6.6	53.7	77.2	91.9	999.0	1001.2	1004.0
11/05/2026	9.8	15.5	25.2	0.6	0.4	3.7	11.6	64.6	81.7	90.8	1003.0	1004.9	1007.0
12/05/2026	10.1	14.5	22.5	1.8	0.3	2.5	6.1	74.6	87.0	94.9	1005.0	1006.3	1008.0
13/05/2026	10.0	15.1	24.2	9.8	0.2	2.4	6.4	73.2	87.2	94.2	1004.0	1005.2	1007.0
14/05/2026	13.4	16.2	24.9	9.8	0.4	2.4	10.0	69.0	89.4	95.1	1002.0	1004.1	1006.0
15/05/2026	12.9	15.9	25.8	2.6	0.2	2.1	8.7	70.7	89.7	95.3	999.0	1001.1	1003.0
16/05/2026	12.3	16.2	25.4	0.8	0.2	1.6	6.5	67.9	89.5	95.2	996.0	997.4	1000.0
17/05/2026	13.8	16.2	20.2	0.0	0.2	1.2	3.9	80.5	90.6	94.6	992.0	993.6	996.0
18/05/2026	13.9	15.9	19.4	7.4	0.3	2.0	5.7	84.8	93.1	95.5	985.0	990.0	993.0
19/05/2026	12.7	16.3	28.9	12.8	0.4	2.2	9.9	69.6	89.6	95.3	980.0	982.5	986.0
20/05/2026	7.4	12.8	21.5	12.8	0.2	2.3	11.9	52.9	77.0	94.8	986.0	991.0	996.0
21/05/2026	6.9	13.3	21.1	0.2	0.2	5.0	8.5	57.6	75.6	92.4	996.0	999.0	1001.0
22/05/2026	10.8	13.4	17.9	4.2	1.3	4.1	7.5	81.3	92.0	95.5	998.0	999.4	1001.0
23/05/2026	11.9	14.5	20.2	5.8	0.5	3.3	6.0	79.7	93.3	95.9	998.0	999.1	1001.0
24/05/2026	13.1	15.8	21.9	5.8	0.4	1.5	4.3	78.6	91.4	96.0	995.0	997.0	999.0
25/05/2026	14.8	17.1	23.6	5.6	0.2	2.2	7.8	80.7	92.0	95.1	992.0	993.8	995.0
26/05/2026	15.1	17.3	24.3	5.6	0.4	1.9	6.3	71.2	91.8	95.6	990.0	991.5	993.0
27/05/2026	15.0	17.8	25.5	5.6	0.5	2.5	6.7	73.8	90.4	95.8	989.0	990.8	993.0
28/05/2026	15.4	16.7	19.0	17.4	0.5	3.6	7.8	87.2	94.1	96.0	978.0	983.6	989.0
29/05/2026	9.4	15.9	25.7	17.4	0.4	5.2	11.3	63.3	85.6	96.2	976.0	977.7	980.0
30/05/2026	8.3	13.2	24.7	8.2	0.5	2.4	5.7	48.5	67.2	82.4	979.0	980.2	982.0
31/05/2026	5.8	12.2	21.7	0.0	0.5	3.1	6.7	48.4	68.0	79.1	981.0	982.7	986.0
Monthly	**4.3**	**15.6**	**29.4**	**143.0**	**0.1**	**2.7**	**11.9**	**28.7**	**82.4**	**96.2**	**976.0**	**994.3**	**1008.0**





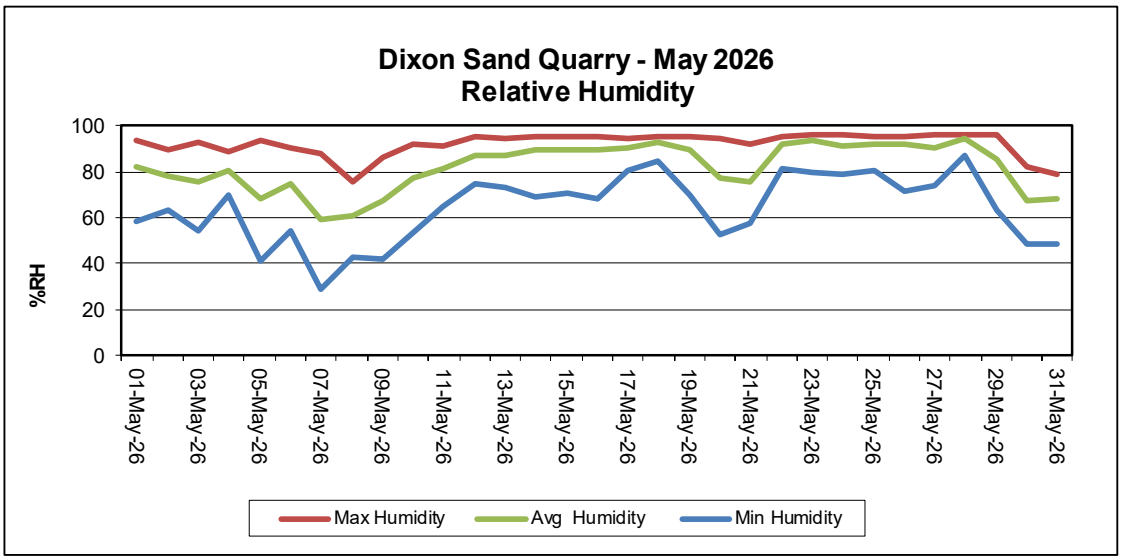


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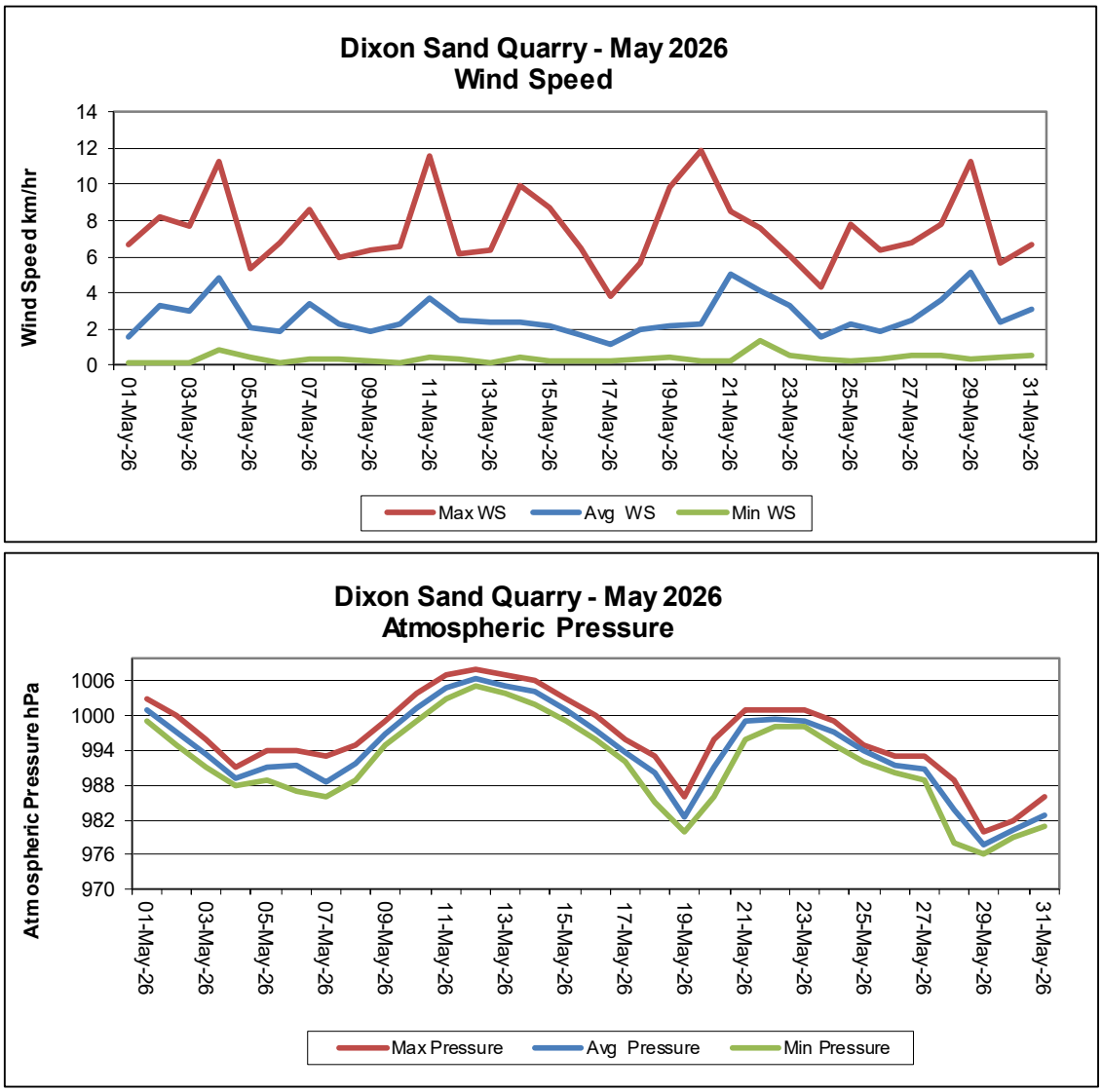


Figure 3: *Wind Speed and Atmospheric Pressure Charts*

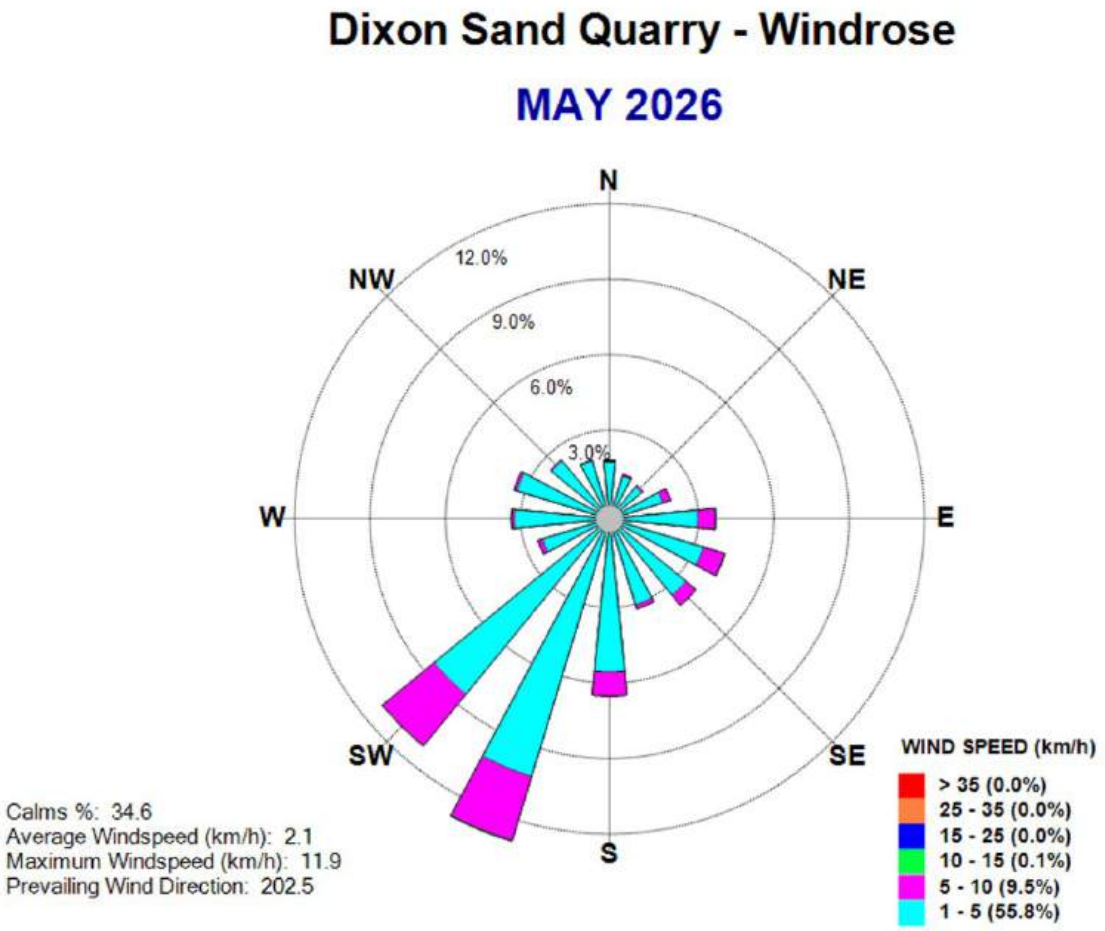


Figure 4: *Windrose*

Appendix 1

Calibration Documents (when required)

CBased Environmental Pty Limited
ABN 62 611 924 264

Dixon Sand Quarry

Environmental Monitoring
Air Quality

Tapered Element Oscillating Microbalance (TEOM) (PM_{10}) and Meteorological Data

---

June 2026

Colin Davies BSc MEIA CENVP
Environmental Scientist
Date 10 July 2026

CBased Environmental Pty Ltd
Unit 3, 2 Enterprise Crescent SINGLETON NSW 2330
☎ (02) 65713334

1.0 Summary

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The monitoring programme includes:

- One continuous TEOM PM_{10} monitor; and
- One continuous meteorological station.

This monthly report for June 2026 was prepared by CBased Environmental and includes the following:

- TEOM (PM_{10}) monitoring results; and
- Meteorological results.

In accordance with Dixon Sand Development Consents (DA250-09-01 and DA165-7-2005) and Environmental Protection Licences (EPL3916 and EPL12513)

- 24-hour average PM_{10} results were below the 24-hour maximum criteria of 50ug/m^3.
- The PM_{10} rolling annual average is below the annual average criteria of 30ug/m^3; and
- The calculated TSP is below the annual average criteria of 90ug/m^3.

Note: Based on the available data, statements in green indicate current conformance to Dixon Sand Quarry Air Quality Impact Assessment criteria, statements in red indicate possible non-conformance. Year to date annual average for PM_{10} is calculated from 1 July 2025 to 30 June 2026.

Approximately 100% of valid meteorological data was recorded for June 2026

Approximately 99.5% of valid TEOM data was available for June 2026.

2.0 Sampling Programme

The TEOM is sited and operated to the applicable Australian Standard and/or NSW EPA approved methods. The following Australian Standards were used:

- AS3580.9.8 - "*Methods for Sampling and Analysis of Ambient Air. Determination of Suspended Particulates—PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*"; and
- AS/NZS 3580.1.1 - "*Methods for Sampling and Analysis of Ambient Air Part 1.1 Guide to Siting Air Monitoring Equipment*".

TEOM PM_{10} results are 24-hour averages at midnight and are reported as $\mu g/m^3$ corrected to 0 degrees C and 101.3kPa.

All laboratory analysis was conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Air Quality monitoring site descriptions and locations are provided in **Table 1**.

Table 1: Dixon Sand Air Quality Monitoring Description and Locations

Monitor	Site Code	Location Description
TEOM PM_{10}	TEOM	Old Northern Road, Maroota NSW
Meteorological Station	MET	Old Northern Road, Maroota NSW

3.0 Results

3.1 TEOM PM_{10}

24-hour average TEOM PM_{10} results from the AQMS data collection software are provided in **Table 2** and a chart of the data is provided in **Figure 1**.

During the 2026 monitoring period, individual 24-hour TEOM PM_{10} results were below the DA/EPL short-term (24hr) impact criteria of 50ug/m^3.

Approximately 99.5% of valid TEOM data was available for June 2026.

At present, the current TEOM PM_{10} rolling annual average is below the Dixon Sand Quarry annual average PM_{10} criteria of 30ug/m^3. The current annual average for calculated Total Suspended Particulates (TSP) is below the rolling annual average criterion of 90ug/m^3. The TSP is calculated by multiplying the PM_{10} by 2.5. Note: the rolling annual average is calculated from 1 July 2025 to 30 June 2026.

The quarterly TEOM calibration was conducted on 2 June 2026. The next calibration is due to be completed in September 2026. The calibration certificate is provided in **Appendix 1** (when required).

Table 2: Average Daily 24-hr TEOM PM_{10} and TSP Results for June 2026 from AQMS and Rolling Annual Average PM_{10}.

Date	PM_{10} 24-hr Average ($\mu g/m^3$)	PM_{10} Rolling Annual Average ($\mu g/m3$)	TSP 24hr Average* ($\mu g/m^3$)	TSP Rolling Annual Average ($\mu g/m^3$)
1/06/2026	13.7	16.6	34.3	41.5
2/06/2026	5.2	16.6	12.9	41.5
3/06/2026	7.6	16.6	19.0	41.4
4/06/2026	7.4	16.6	18.5	41.4
5/06/2026	9.2	16.5	23.0	41.3
6/06/2026	8.6	16.5	21.5	41.3
7/06/2026	10.0	16.5	25.0	41.4
8/06/2026	12.0	16.6	30.0	41.4
9/06/2026	17.9	16.6	44.8	41.5
10/06/2026	11.6	16.6	29.0	41.5
11/06/2026	15.4	16.6	38.5	41.6
12/06/2026	17.0	16.6	42.5	41.6
13/06/2026	8.4	16.6	21.0	41.6
14/06/2026	8.9	16.6	22.3	41.6
15/06/2026	14.1	16.7	35.3	41.6
16/06/2026	12.5	16.7	31.3	41.7
17/06/2026	15.8	16.7	39.5	41.7
18/06/2026	11.5	16.7	28.8	41.7
19/06/2026	8.5	16.6	21.3	41.6
20/06/2026	5.6	16.6	14.0	41.5
21/06/2026	6.6	16.6	16.5	41.5
22/06/2026	16.5	16.6	41.3	41.5
23/06/2026	15.7	16.6	39.3	41.5
24/06/2026	17.8	16.6	44.5	41.6
25/06/2026	12.0	16.6	30.0	41.5
26/06/2026	8.1	16.6	20.3	41.5
27/06/2026	7.9	16.6	19.8	41.4
28/06/2026	8.7	16.5	21.8	41.4
29/06/2026	17.0	16.6	42.5	41.4
30/06/2026	11.0	16.6	27.5	41.4

*Calculated from PM10

**Calculated from PM10 Annual Average

Note: results above the Dixon Sand EPL criteria limit of 42 ug/m^3 are highlighted in yellow

No Data (ND) - <18hrs hour of valid data to calculate a 24hr average

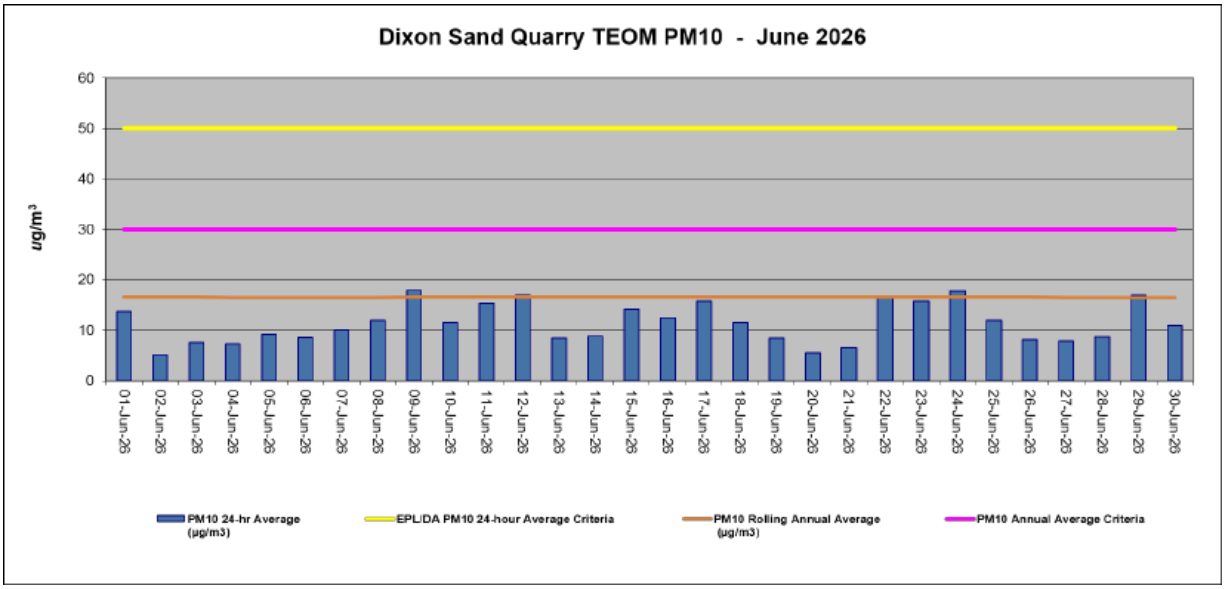


Figure 1: *TEOM PM_{10} 24 hr, Annual Rolling Average and Criteria*

3.2 EPL Reporting Conditions

Dixon Sand is required to comply with the Environmental Protection Licence (EPL) 3916 Condition M2.4 and EPL 12513 Condition M2.3.

During the reporting period Dixon Sand triggered reporting under these conditions on zero occasion(s). Details are listed below (if required):

Details are listed below (if required):

Old Northern Road Quarry - EPL 3916*

Date/Time	24hr Rolling Average (µg/m³)	Prevailing Wind Direction (°)

**Condition M2.4 - Any rolling 24-hour average PM10 result measured at Point 2 in licence condition M2.2 is greater than 42µg/m3 and the prevailing wind at the site is north-westerly (between 270 degrees and 315 degrees as measured at Point 3).*

Haerses Road Quarry - EPL 12513*

Date/Time	24hr Rolling Average (µg/m³)	Prevailing Wind Direction (°)

**Condition M2.3 - Any rolling 24-hour average PM10 result measured at Point 1 in licence condition M2.2 IS greater than 42µg/m3 and the prevailing wind at the site is north-westerly (between 270 degrees and 315 degrees as measured at Point 2).*

3.3 Meteorological Data

The weather station logs data at 5-minute intervals and sends the data to a web database by NextG telemetry. The data is accessible from the web site http://console.teledata.com.au/index.html.

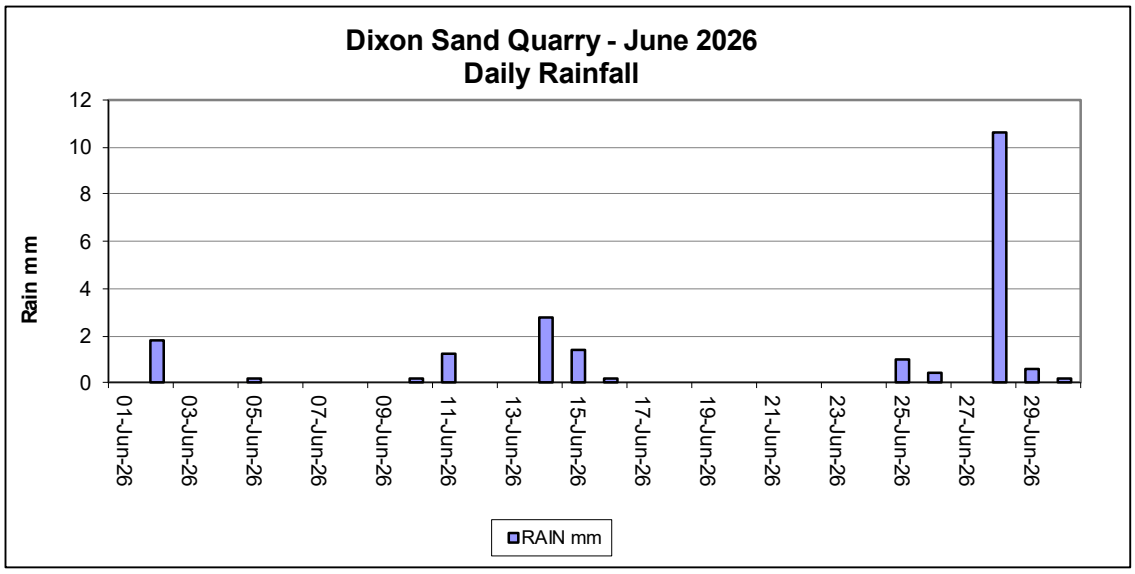
A summary of monthly results is presented in **Table 3**. Charts of meteorological parameters are presented in **Figures 2** and **3**. A Windrose is provided in **Figure 4**.

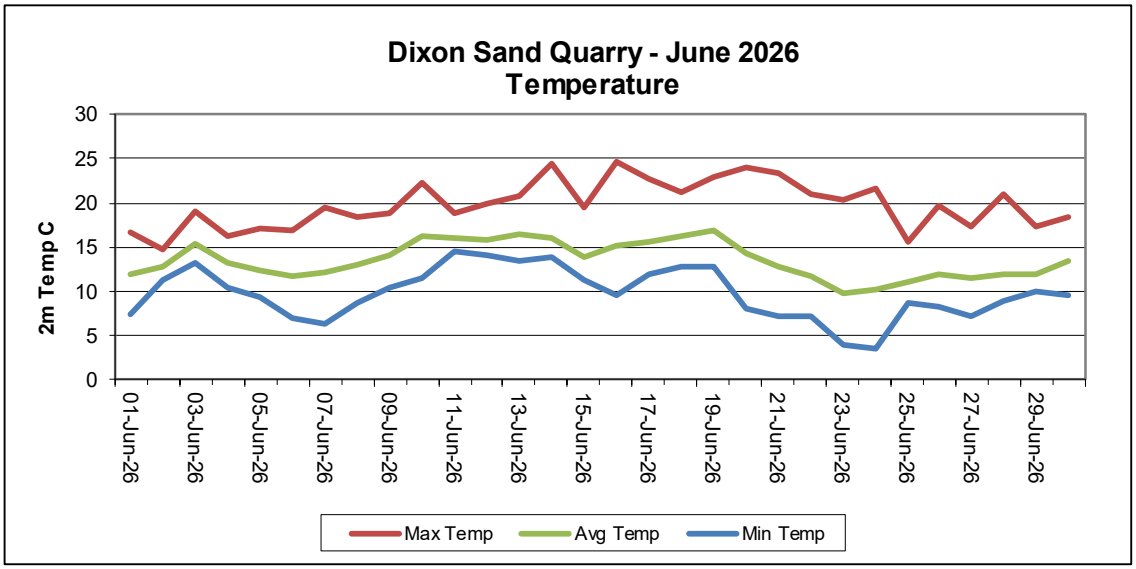
A 6-monthly physical screening and system check of the meteorological station was conducted on 2 June 2026. The next physical screening and system check is currently scheduled for December 2026. The screening and system check certificates are provided in **Appendix 1** (when required).

Approximately 100% of valid meteorological data was recorded for June 2026.

Table 3: Meteorological Data Summary for June 2026

Date	Min Temp	Avg Temp	Max Temp	RAIN mm	Min WS	Avg WS	Max WS	Min Humidity	Avg Humidity	Max Humidity	Min Pressure	Avg Pressure	Max Pressure
1/06/2026	7.5	11.8	16.7	0.0	0.8	3.5	9.2	48.2	61.7	75.9	983.0	985.7	988.0
2/06/2026	11.2	12.9	14.7	1.8	2.2	6.6	20.3	54.8	68.2	88.5	973.0	978.0	983.0
3/06/2026	13.2	15.4	19.1	0.0	1.0	5.8	12.1	43.2	60.7	72.7	975.0	976.5	979.0
4/06/2026	10.5	13.2	16.2	0.0	1.7	5.8	11.2	56.0	63.3	77.6	974.0	976.0	979.0
5/06/2026	9.3	12.4	17.1	0.2	1.1	3.8	10.7	49.1	62.4	76.0	977.0	984.7	994.0
6/06/2026	6.9	11.6	16.9	0.0	0.4	2.3	5.5	45.7	63.9	82.4	993.0	997.3	1001.0
7/06/2026	6.4	12.1	19.4	0.0	0.3	2.1	6.0	52.6	75.2	91.2	1001.0	1002.5	1004.0
8/06/2026	8.7	13.1	18.4	0.0	0.2	1.8	5.9	68.2	83.8	93.9	1003.0	1004.2	1006.0
9/06/2026	10.4	14.2	18.8	0.0	0.3	2.2	7.9	59.6	83.6	94.9	1000.0	1002.1	1004.0
10/06/2026	11.6	16.3	22.3	0.2	0.7	3.9	10.9	57.8	76.6	90.6	999.0	1000.4	1002.0
11/06/2026	14.6	16.0	18.8	1.2	0.4	2.6	6.9	73.0	84.4	90.1	1001.0	1003.1	1005.0
12/06/2026	14.1	15.9	19.9	0.0	0.4	2.8	6.6	68.5	84.7	94.0	1003.0	1004.3	1006.0
13/06/2026	13.4	16.5	20.7	0.0	0.4	3.9	8.4	68.2	83.7	94.8	998.0	1000.7	1004.0
14/06/2026	13.8	16.1	24.4	2.8	0.6	3.3	7.4	71.4	84.1	93.9	998.0	1000.9	1005.0
15/06/2026	11.2	13.8	19.5	1.4	0.2	2.9	7.2	74.5	89.3	94.6	1004.0	1004.9	1007.0
16/06/2026	9.6	15.1	24.6	0.2	0.3	3.5	9.9	62.9	81.3	93.1	1000.0	1002.2	1004.0
17/06/2026	12.0	15.5	22.8	0.0	0.3	2.7	7.6	68.1	81.1	91.0	996.0	998.8	1001.0
18/06/2026	12.9	16.2	21.3	0.0	1.5	5.6	10.7	66.5	75.1	87.9	989.0	992.3	996.0
19/06/2026	12.8	16.9	22.9	0.0	2.0	7.2	12.4	58.6	65.8	74.7	984.0	986.4	989.0
20/06/2026	8.0	14.3	24.0	0.0	0.8	4.1	8.1	50.9	64.8	75.7	988.0	993.6	998.0
21/06/2026	7.3	12.8	23.3	0.0	0.3	2.4	5.0	50.9	69.3	81.5	998.0	999.1	1001.0
22/06/2026	7.2	11.6	20.9	0.0	0.3	1.7	5.9	51.0	72.5	85.2	996.0	998.3	1000.0
23/06/2026	4.0	9.9	20.3	0.0	0.3	1.9	5.2	55.1	74.7	92.7	997.0	998.9	1001.0
24/06/2026	3.6	10.3	21.6	0.0	0.5	2.6	7.3	54.6	75.2	92.7	1000.0	1001.7	1004.0
25/06/2026	8.6	11.0	15.6	1.0	0.9	3.7	7.0	79.0	88.9	94.6	1003.0	1005.3	1007.0
26/06/2026	8.3	11.9	19.7	0.4	0.4	2.7	5.7	70.8	90.1	95.5	1002.0	1003.7	1006.0
27/06/2026	7.2	11.5	17.3	0.0	0.4	2.3	6.1	77.5	89.0	95.4	1000.0	1001.8	1003.0
28/06/2026	8.9	11.9	20.9	10.6	0.4	2.2	6.2	73.9	91.9	95.2	1001.0	1002.6	1004.0
29/06/2026	10.1	11.8	17.4	0.6	0.2	1.5	4.2	82.0	93.0	95.6	997.0	1000.6	1003.0
30/06/2026	9.6	13.5	18.5	0.2	0.3	4.3	9.5	71.4	84.7	94.8	991.0	993.5	997.0
Monthly	**3.6**	**13.5**	**24.6**	**20.6**	**0.2**	**3.4**	**20.3**	**43.2**	**77.4**	**95.6**	**973.0**	**996.7**	**1007.0**





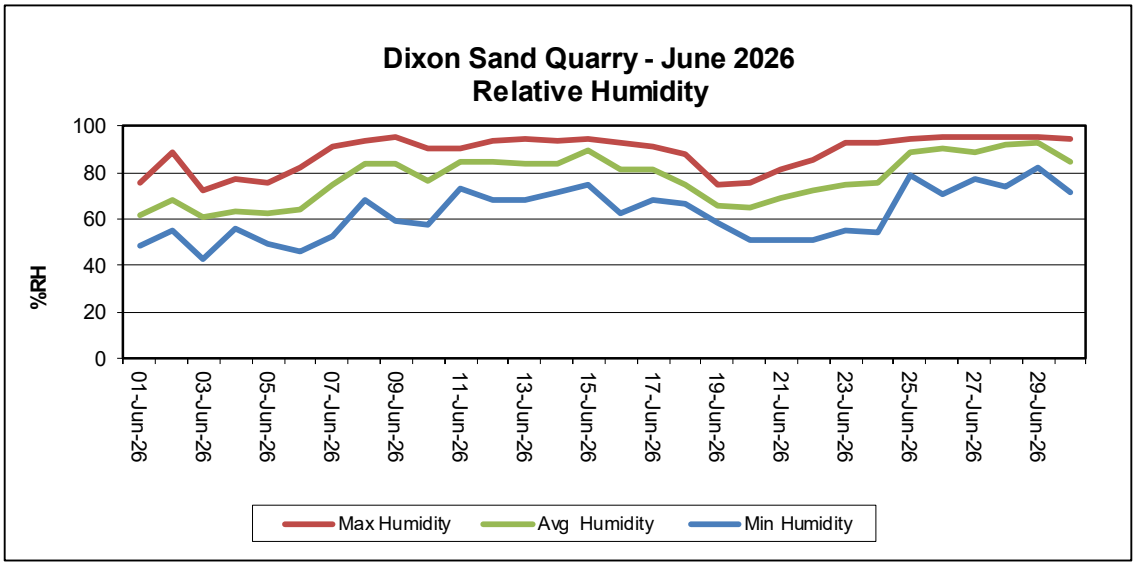


Figure 2: *Daily Rainfall, Temperature and Relative Humidity Charts*

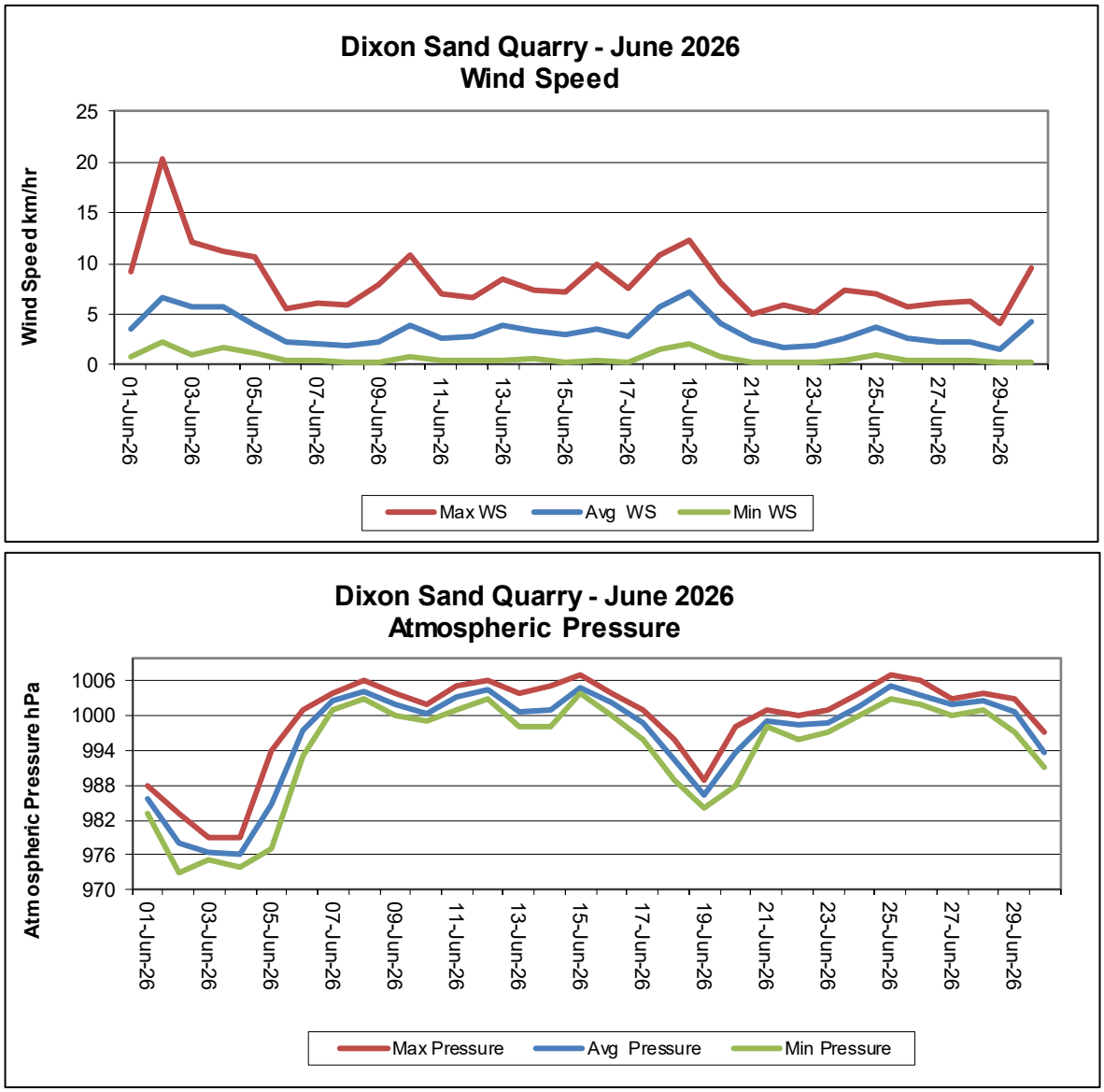


Figure 3: *Wind Speed and Atmospheric Pressure Charts*

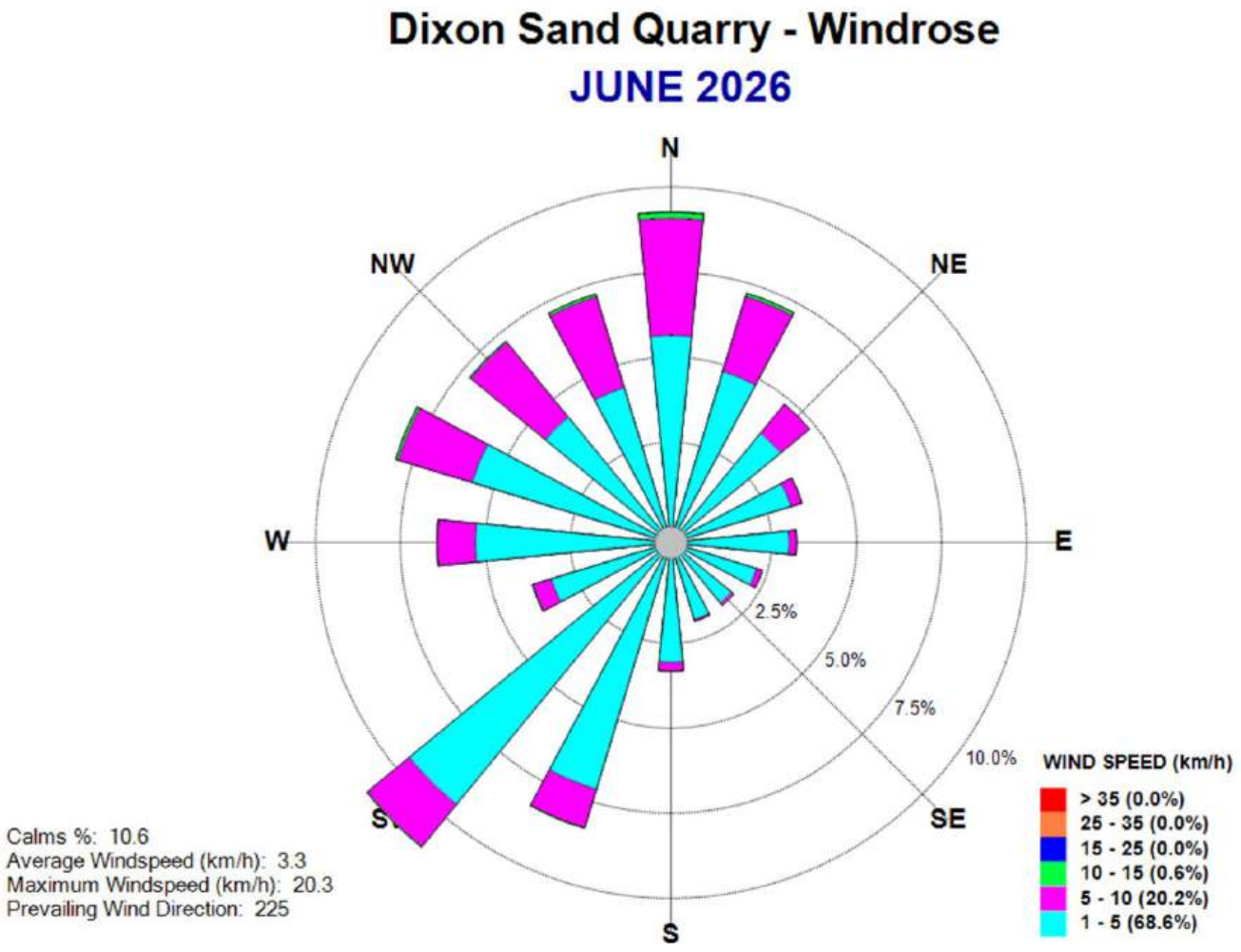


Figure 4: *Windrose*

Appendix 1

Meteorological Monitoring Report

Ambient Air Quality Monitoring Report

Calibration Documents (when required)

Continuous Air Quality Monthly/Quarterly/Six Monthly/Annual TEOM Maintenance and Calibration – 1400AB

CARBON BASED ENVIRONMENTAL

teledata

TEOM Client/Site: Dixon Sands / TEOM **Date:** 2/6/2026

1. TEOM Data Screen **SERIAL No:**

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Operating Condition	Full	Green - Normal		
Date/time	TEOM: 951 Actual: 1001	Current Date/time correct within 5 minutes		✓
PM-10 24hr av		Positive values		
Filter loading PM10	58	<80 %	✓	
Frequency PM-10	253,803 19	200-300 Hz	✓	
Noise PM-10		<0.100ug		

Comment: If filter load >80% but <90% and if flows Ok then data is OK

Comments:

2. System Status

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Vacuum pump pressure	0.49	<0.50 atm	✓	
Warnings		No Warnings	✓	
If any warnings list:				

Comments:

Data Downloaded: YES/NO (circle)

Technician Name : Conrad Nolandy **Signed**

3. Instrument Conditions Ambient Conditions and Temperatures

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Ambient Temperature	15.4	-10 to 50 C	✓	
Ambient Dew Point	—	-10 to 50 C		
Ambient Pressure	0.958	0.9-1.1 atm	✓	
Ambient Relative Humidity	—	10-100 %RH		
Cap temperature	50.00	50.00 +/- 0.10 C	✓	
Case temperature	50.00	50.00 +/- 0.10 C	✓	
Main (PM-10) Air Tube temp	50.00	50.00 +/- 0.10 C	✓	

Comments:

4. Instrument Conditions – Flows

Condition	Current Data	Acceptable Data	Pass (Tick)	Fail (Tick)
Main (PM-10) Flow rate	3.00	2.82 – 3.18 lpm	✓	
Bypass Flow rate	13.67	12.95 – 14.39 lpm	✓	
Total Flow rate	16.67	15.67 – 17.67 lpm	✓	

Comments:

Results: (Tick box)

☑ **There were NO equipment faults found. No action required – (file report)**

☐ **There were faults found (Fails) – Were these fixed on site: YES/NO (circle)**
Any Fails that cannot be repaired on site must be reported to CBased:
Office: 65713334 or email cbased@bigpond.com
Date faults notified to CBased: _____

Comments/Action Required:

Calibration/Maintenance

1. 1405A: Were Filters replaced YES/NO
2. PM10 Inlet head cleaned YES/NO
3. If measurement filters were replaced, confirm stable results after change. Stable particulate results confirmed YES/NO

Channel	Filter Load %	Frequency Hz initial	Frequency check 1min	Frequency check 3min	Frequency check 5min
PM10	20.0	256.08514	256.08514	256.08523	256.08526

Frequency should not drift by more than 0.0010 between readings (if instrument is thermodynamically stable)
Pass/Fail – if Fail – install new filter and redo stability test.

4. Instrument clock verified (Refer Section 1) YES/NO.
If Time changed – clock reset OK YES/NO or NA (not changed)
Comments:
+ a few minutes

5. Were TEOM in line and rear TEOM filters checked for cleanliness and replaced if necessary. YES/NO.

Comments if changed:

6. TEOM Cleaned and Air Conditioner checked YES/NO. Air Conditioner settings or operational status: "6" Low Cool

Tetracal Flow/Temp/Pressure Calibrator Serial No: 1009 **Refer to calibration corrections for Temperature/Pressure and Flows and apply to all readings.**

Quarterly or Six Monthly Calibration

1. Flow Verification – Conducted YES/NO

PM10 Flow verified Flow l/min 2.98 Error % 0.7 (allowed error <6%) PASS/FAIL

Bypass Flow verified Flow l/min 13.85 Error % 2.3 (allowed error <6%) PASS/FAIL

If fail then complete a full multipoint recalibration and review previous data from last good flow check. **Comments if Flows recalibrated:**
3.00 and 13.67

1.095 ↓ 1.000
1.000 ↓ 0.990 ↓ 0.988

2. Leak Check – Conducted YES/NO

PM10 actual 0.10 < Limit 0.15

Bypass actual 0.09 < Limit 0.60

Leak check PASS/FAIL – If fail then find leak and retest.
Comments:

Zero A 2 0.07 0.17
B 1.17 1.25

Annual Calibration/Maintenance

1. Temperature and Pressure Calibration – Conducted YES/NO
Reference Temperature: _____C TEOM Temperature_____C
if difference +/- 1 C recalibrate sensor. Sensor recalibrated YES/NO

Reference Pressure: _____atm TEOM Pressure_____atm
if difference +/- 0.010 atm recalibrate sensor. Sensor recalibrated YES/NO

Note: Tetracal measures Atmospheric Pressure in mm Hg or mb or hPa
For mb or hPa divide tetracal result by 1013.25 to change units to atm.
For mmHg divide tetracal result by 760 to change units to atm.

2. Flow Calibration – Conducted YES/NO
PM10
Set point 2.4 Actual:_____
Set point 3.6 Actual:_____
Set point 3.0 Actual:_____ After calibration Final:_____l/min

BYPASS
Set point 10.9 Actual:_____
Set point 16.4 Actual:_____
Set point 13.67 Actual:_____ After calibration Final:_____l/min

3. Post Cal Leak Check – Conducted YES/NO (use leak check wizard. Actual = channel flow-zero flow)
PM2.5 Base actual_____ < Limit 0.15 Reference actual_____< Limit 0.15
BYPASS Base actual_____ < Limit 0.60 Reference actual_____< Limit 0.60
Leak checks PASS/FAIL – If fails, find leak and retest.
Note that a big FAIL here will need the leak resolved and go back to Step 2 as the flow has been calibrated with a leak.

4. Mass calibration (K0) Verification – Conducted YES/NO
Audit Filter Serial Number: _____
Audit Filter Average Weight: _____grams

Channel	TEOM stated KO	Audit KO	% Error	PASS/FAIL
PM10				

Allowed Error +/- 2.5%. If Error > +/- 2.5% then repeat measurement.
Second Error % =PM10_____ PASS/FAIL.
If FAIL confirmed then consult Lear Siegler or manufacturer.
Comments:

5. Prepare for Noise Check – Conducted YES/NO

Channel	Filter Load %	Frequency Hz initial (Time= 0 min)	Frequency check Time= 1 min	Frequency check Time= 3 min	Frequency check Time = 5 min
PM2.5					

PASS/FAIL – If stability test fails, use change filter wizard to reseat the filter.
The next step will not pass until this test passes

6. Annual Noise check - Conducted YES/NO

Zero filter applied to TEOM and TEOM operated for at least 12 hours:

Start date/time: _____ Finish date/time: _____

Standard deviation of all recorded data (min 30 min averages) = _____ ug/m^3

Noise was less than $5ug/m^3$ YES/NO

7. Maintenance

Air Inlet system cleaned YES/NO

Pump Reconditioned YES/NO

Check Waterproofing YES/NO

Comments:

Meteorological Monitoring Maintenance and Calibration

Maintenance and Calibration as per CBased Environmental Method M202

Client: Dixon Sands	Site Name: AWS
Date: 2/6/2026	Time: 10am
General Climatic Conditions: Cloudy Some gust	
Latitude: 33 ° 27 ' 15.8"	Longitude: 150 ° 59 ' 36.4"
Note: Contact office to confirm coordinates if required. Coordinates required to determine magnetic declination.	

1. Physical Maintenance

Item	Yes (Pass)	No (Fail)	Comments
Grass / Vegetation Impacts			
Compound Grass height <10cm	✓		
Ground Anchor / Guy Wires / Mast Condition			
Bottom guy wires tight (correct tension = 35-50mm deflection, with only moderate hand force at 1.5 metres up the guy wire)	—		
Top Guy wires tensioned (correct tension = 60-75mm deflection, with only moderate hand force at 1.5 metres up the guy wire)	—		
Mast Vertical and in good condition	✓		
Ground anchors/star pickets tight in ground	—		
Guy Wires insignificant corrosion	—		
Ground anchors/D shackles/ winders insignificant corrosion	—		
Bolts/hinge points in mast are secure	✓		
Cables / Connectors / Logger Cabinet / Solar Panel			
Cables attached to mast/guy wires via ties are secure	✓		
Insignificant corrosion to plugs/connectors	✓		
No water ingress in logger/battery cabinet	✓		
Wiring/plugs in cabinet OK, Logger OK	✓		
Battery terminals and condition OK	—		Battery Volts =
Battery volts (charging>13V, not charging >12V)	—		
Solar panel undamaged and clean	✓		
Check for ants/insects and install new ant bait station in enclosure	✓		Sprayed

Item	Yes (Pass)	No (Fail)	Comments
Sensor Maintenance / Checks			
Recent data checked and OK / Logging data OK, review sensor data and station battery voltage.	✓		
Wind Speed/Direction			
Wind direction aligned to ±3 degrees of: True North/Magnetic North (strike out N/A) Refer: https://geomagnetism.ga.gov.au/agrf-calculations/agrf-form#magfield	✓		Magnetic Declination: 12 ° Compass Bearing: 348 ° Looking: ~~North~~ / South
Anemometer/wind vane moving freely (analogue sensors)	—	—	
Mechanical sensors are inaudible (audible bearing noises may indicate sensor issues)	—	—	
Temperature			
Temperature sensor(s), and associated radiation shield(s) inspected and cleaned	✓		
Fan(s) on aspirated radiation shields confirmed running	—	—	
Sensor shields cleaned	✓		
Humidity			
Humidity sensor, and associated radiation shield inspected and cleaned	✓		
Barometric Pressure			
Barometric sensor inspected, and any vents for sensor checked and cleared	✓		
Solar Radiation			
Solar radiation sensor inspected	—	—	
Solar radiation sensor cleaned	—	—	
Solar radiation sensor alignment OK	—	—	
Rainfall/Precipitation			
Rain gauge checked for blockages and cleaned if required	✓		
Rain gauge level on arrival	✓		
Rain gauge re-levelled	—	—	

2. Calibration Equipment / Transfer Standard Details

Wind Speed, Wind Direction		*Temperature, Humidity & Pressure*	
Manufacturer:	Vaisala	Manufacturer:	Vaisala
Model:	WXT536	Model:	WXT536 (PTU Module)
Serial Number:	W4710639	Serial Number:	T1910754
Calibration Date:	17/12/2024	Calibration Date:	18/3/2025
Calibration Expires:	17/12/2026	Calibration Expires:	18/3/2027

Precipitation		*Solar Radiation*	
Manufacturer:	Hydrological Services	Manufacturer:	EKO Instruments
Model:	FCD	Model:	MS-80SH
Serial Number:	FCD001	Serial Number:	S24083856
Calibration Date:	7/3/2025	Calibration Date:	23/1/2025
Calibration Expires:	7/3/2030	Calibration Expires:	23/1/2030

1. Wind Sensor Precision Check

Sensor mounting height: 10m or Other (specify):

Wind Speed Sensor

Calibration Point	Transfer Standard, km/hr or _____	Sensor under test, km/hr or _____	Difference, km/hr or _____
1	9.33	9.21	0.12
2	4.0	4.1	-0.10
3	3.0	3.17	-0.17
4	3.7	3.74	-0.04
5	6.5	6.58	-0.08
6	9.0	9.1	0.1
Average	5.922		-0.062
Determination of Result 5%			Calculate -0.782
Allowable accuracy (average of difference) ± (0.72km/hr + 5% of observed) -0.062 + (0.72 + 0.296) = 0.658			Allowable: 0.658
i.e. ± (0.2m/s + 5% of observed) -0.062 - (0.72 + 0.296) = -0.78			Result: PASS / FAIL
(Refer Section 5-1 of USEPA 454/R-99-005)			

Wind Direction Sensor

Calibration Point	Transfer Standard, degrees	Sensor under test, degrees	Difference, degrees
1	28	26	2
2	325	328	-3
3	318	315	3
4	353	354	-1
5	349	347	2
6	344	343	1
Average			0.667
Determination of Result			Result: PASS / FAIL
Allowable accuracy (average of difference) ± 5 degrees			
(Refer Section 5-1 of USEPA 454/R-99-005)			

2. Temperature Sensor Precision Check

Temperature Sensor # 1

Sensor mounting height: 2m, (10m) or Other (specify):

Operational Precision Check

Time Interval	Calibration Point	Transfer Standard, °C	Sensor under test, °C	Difference, °C
1 min	1	14.0	14.1	-0.1
2 min	2	13.9	14.2	-0.3
3 min	3	14.2	14.5	-0.3
4 min	4	14.2	14.4	-0.2
5 min	5	14.2	14.4	-0.2
Average				-0.220
Determination of Result Acceptable tolerance is ± 0.5°C (*Refer Section 5-1 of USEPA 454/R-99-005*)				Result: (PASS) / FAIL

Temperature Sensor # 2 (If Present)

Sensor mounting height: ~~2m~~, 10m or Other (specify): TEOM Ambient 2m

Operational Precision Check

Time Interval	Calibration Point	Transfer Standard, °C	Sensor under test, °C	Difference, °C
1 min	1	~~14.0~~ 14.2	14. [redacted] 15.4	-1.2
2 min	2	14.1	15.4	-1.3
3 min	3	14.2	15.3	-1.1
4 min	4	14.2	15.3	-1.1
5 min	5	14.1	15.2	-1.1
Average				-1.166
Determination of Result Acceptable tolerance is ± 0.5°C (*Refer Section 5-1 of USEPA 454/R-99-005*)				Result: PASS / (FAIL)

3. Humidity Sensor Precision Check

Operational Precision Check

Precision Test Start Time:

Time Interval	Calibration Point	Transfer Standard, % RH	Sensor under test, % RH	Difference, % RH
5 min	1	60.0	60.7	-0.7
10 min	2	60.3	61.2	-0.9
15 min	3	60.6	62.0	-1.4
Average				-1.0

Determination of Result
Allowable Relative Humidity (average of difference) not specified in *USEPA 454/R-99-005. Using AS3580.14:2014 which specifies* ±5% (when RH <35%) and ±7% (when RH ≥35%),

Result: PASS / FAIL

4. Solar Radiation Sensor Precision Check

Operational Precision Check

Calibration Point	Transfer Standard, W/m²	Sensor under test, W/m²	Difference, W/m²
1			
2			
3			
4			
5			
6			
Average			

Determination of Result
Allowable Solar Radiation (average of difference) ±5% of observed (*Refer Section 5-1 of USEPA 454/R-99-005*) or ±50W/m² (*Refer Section 5.5.2.3 of AS/NZS 3580.14*)

Calculate Allowable:_____
Result: PASS / FAIL

5. Barometric Pressure Operational Precision Check

Operational Precision Check

Time Interval	Calibration Point	Transfer Standard, hPa	Sensor under test, hPa	Difference, hPa
0 min	1	978.10	977.7	0.4
15 min	2	978.30	977.7	0.6
30 min	3	978.10	977.5	0.6
45 min	4	978.10	977.6	0.5
60 min	5	978.10	977.6	0.5
Average				

Determination of Result
Allowable difference: ±3mb (±3hPa) (average difference) (*Refer Section 5-1 of USEPA 454/R-99-005*)

Result: PASS / FAIL

6. Precipitation/Rainfall Operational Precision Check – In Situ

Sensor Under Test

Manufacturer:	Kistler TB4 0.2
Model:	
Resolution / Tipping bucket size:	(circle) 0.2mm , 0.5mm or Other (specify):
Catch diameter:	200mm or Other (specify):

Maintenance

Item	Completed
Record "As Found" details of rain gauge, are any conditions present that would affect data integrity? Comments:	✓
Disassemble the rain gauge and clean thoroughly	✓
Check rain gauge is level	✓
Re-level if needed Comments if unable to re-level:	—
Reassemble the rain gauge and check to confirm no leaks through funnel mechanism	✓

Operational Precision Check

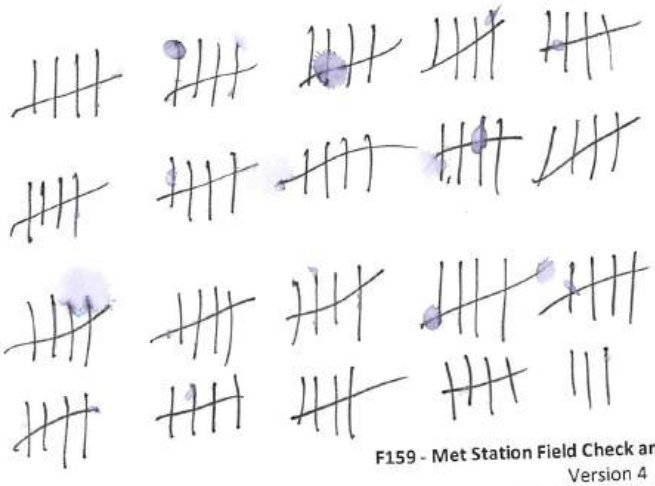
Precision Test Start Time: 1552

Expected	Recorded	Difference
104 tips 20.8 mm	98 tips 19.6 mm	1.2m 6 tips
Determination of Result Allowable difference: ±10% or 0.5mm		Result: (PASS) / FAIL

Comments:

Tips/mm added during cleaning/test preparation: 0.2

Total rainfall volume to be removed from daily rain records due to maintenance and precision test completed: 19.8 mm



Maintenance Summary	Yes	No	Comments
There were NO equipment faults found. No action required – (file report)	✓	X	
There were faults found (Fails) – Were these fixed on site?			

Any Faults / Fails that cannot be repaired on site must be reported to CBased:
Office: (02) 65713334 or email support@cbased.com.au
Date faults notified to CBased: _____
Comments/Action Taken/Action Recommended:
(If sensors are replaced - record serial numbers and details of both the removed and installed sensors and attach calibration certificates)

Lower ~~sensor~~ temp sensor should not be used for compliance monitoring at 2m any more as is now out of spec and not calibratable

Specific Comments on equipment "as found":

Specific Comments on equipment "as left":

NB: CBased Environmental completes maintenance, calibration and diagnostic checks on a six monthly basis as per Section 8.3.5 of USEPA 454/R-99-005, it is the Clients responsibility to complete daily remote operational checks and weekly onsite inspections/maintenance of the meteorological station.

Completed By:

Technician Name(s)	Signed:
Conrad Neilsen	

CBased Environmental Pty Ltd

Unit 3, 2 Enterprise Crescent, Singleton, NSW 2330

Ambient Air Quality Monitoring

Validated Data Report

Report Number: DIX2607061315
Report Date: 6/07/2026
Client: DIXON SAND
Data Period: 01/06/2026 – 30/06/2026

Reported By:	SUSAN DOOLEY
Authorised By:	SUSAN DOOLEY

Accredited for compliance with ISO/IEC 17025 - Testing
Accreditation Number: 21337

CBased Environmental Pty Ltd
ABN: 62 611 924 264
Phone: (02) 6571 3334
Email: monitoringresults@cbased.com.au
Web: www.cbased.com.au

This report supersedes any previous report(s) with this report number.
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1 AMENDMENT HISTORY

Amendment Number	Amendment Date	Reason for Amendment

2 CLIENT DETAILS

Contact Name	Hunny Churcher
Project Address	MAROOTA NSW 2756
Email	environment@dixonsand.com.au
Phone	0405844207

3 INTRODUCTION

CBased Environmental Pty Ltd have been commissioned by the client (detailed in Section 2) to provide validated ambient air quality monitoring data.

Siting details of the monitoring sites are given in Section 4.

The data presented in this report:

- Identifies 24hr average air quality measurements;
- Has been validated;
- Conforms with NATA accreditation criteria, where applicable

4 SITING

Site Details	
Site Name	Dixon Sands
Latitude	33° 27’ 16”
Longitude	150° 59’ 37”
Height (above sea level)	Unknown
Siting	Unless detailed below, the siting of these stations is in accordance with the guidelines *AS/NZS 3580.1.1:2016 Methods for sampling and analysis of ambient air – guide to siting air monitoring equipment* *Site Classification:* Neighbourhood Site - No assessment undertaken

5 MONITORED PARAMETERS

Site Name	Parameter Measured	Instrument	Sampling Method
TEOM 1	PM_{10}	Thermo-Scientific TEOM 1400AB	M101

6 RESULTS

6.1 DATA AVAILABILITY

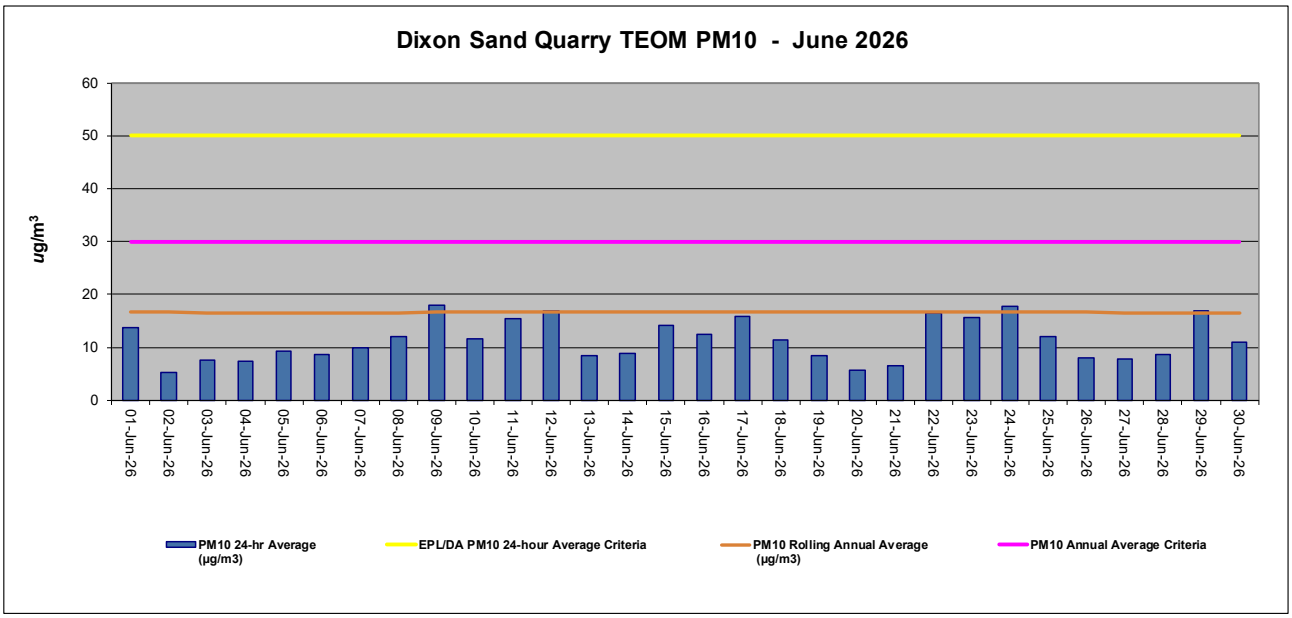
Site Name	Parameter Measured	Data Availability for Report Period – 24hr Average Data	Comment
TEOM 1	PM_{10}	99.5%	3 hours of data removed on 2/06/2026 due to Calibration/Maintenance

6.2 DATA SUMMARY – 24HR AVERAGE DATA

PM10	
Dixon Sands	
Date	ES01 PM10 - 24hr Average (µg/m3)
1/06/2026	13.7
2/06/2026	5.2
3/06/2026	7.6
4/06/2026	7.4
5/06/2026	9.2
6/06/2026	8.6
7/06/2026	10.0
8/06/2026	12.0
9/06/2026	17.9
10/06/2026	11.6
11/06/2026	15.4
12/06/2026	17.0
13/06/2026	8.4
14/06/2026	8.9
15/06/2026	14.1
16/06/2026	12.5
17/06/2026	15.8
18/06/2026	11.5
19/06/2026	8.5
20/06/2026	5.6
21/06/2026	6.6
22/06/2026	16.5
23/06/2026	15.7
24/06/2026	17.8
25/06/2026	12.0
26/06/2026	8.1
27/06/2026	7.9
28/06/2026	8.7
29/06/2026	17.0
30/06/2026	11.0

Days	30
Results	30
Data Availability	99.5%

6.3 DATA SUMMARY – GRAPHS



----------END OF REPORT----------

CBased Environmental Pty Ltd

Unit 3, 2 Enterprise Crescent, Singleton, NSW 2330

Meteorological Monitoring

Validated Data Report

Report Number: DIX2607061340
Report Date: 6/07/2026
Client: DIXON SAND
Data Period: 01/06/2026 – 30/06/2026

Reported By:	Susan Dooley
Authorised By:	Susan Dooley

Accredited for compliance with ISO/IEC 17025 - Testing
Accreditation Number: 21337

CBased Environmental Pty Ltd
ABN: 62 611 924 264
Phone: (02) 6571 3334
Email: monitoringresults@cbased.com.au
Web: www.cbased.com.au

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1 AMENDMENT HISTORY

Amendment Number	Amendment Date	Reason for Amendment

2 CLIENT DETAILS

Contact Name	Hunny Churcher
Project Address	MAROOTA NSW 2756
Email	environment@dixonsand.com.au
Phone	0405844207

3 INTRODUCTION

CBased Environmental Pty Ltd have been commissioned by the client (detailed in Section 2) to provide validated meteorological monitoring data.

Siting details of the monitoring sites are given in Section 4.

The data presented in this report:

- Identifies daily summary meteorological measurements;
- Has been validated;
- Conforms with NATA accreditation criteria, where applicable.

4 SITING

Site Details	
Site Name	Dixon Sands
Latitude	33° 27’ 16”
Longitude	150° 59’ 37”
Height (above sea level)	Unknown
Height of anemometer	- 10m above ground level
Time zone	Data timestamps are adjusted for Daylight Saving Time (DST). Daily data reported will be to AEST when applicable or AEDT when Daylight Saving Time is applicable.
Siting	Unless detailed below, the siting of these stations is in accordance with the guidelines *AS/NZS 3580.1.1 Methods for sampling and analysis of ambient air. Part 1.1 Guide to siting air monitoring equipment* and *AS/NZS 3580.14 Methods for sampling and analysis of ambient air – meteorological monitoring for ambient air quality monitoring applications* Non-Compliances with *AS/NZS 35801.1* and/or *AS/NZS 3580.14* - No assessment undertaken

5 MONITORED PARAMETERS

Site Name	Parameter Measured	Instrument Details	Sampling Method
Dixon Sands	Wind Speed	Vaisala - WXT530. Measurement Range: 0 to 60 m/s Response Time 0.25 s Accuracy ±3% at 10 m/s" Measurement Height: 10m	M202
Dixon Sands	Wind Direction	Vaisala - WXT530 Measurement Range 0° to 360° Response Time 0.25 s Accuracy ±3° at 10 m/s Output Resolution 1° Measurement Height: 10 m	M202
Dixon Sands	Barometric Pressure	Vaisala - WXT530 GMX500s. Range: 500-1100hPa Accuracy: ±0.5 hPa Resolution: 0.1 hPa Measurement Height:10 m	M202

Site Name	Parameter Measured	Instrument Details	Sampling Method
Dixon Sands	Relative Humidity	Vaisala - WXT530 Range: 0 to 100% RH Accuracy 0 to 90% RH: "±3% RH Accuracy 90 to 100% RH: ±5% RH Output Resolution 0.1% RH Measurement Height: 10m	M202
Dixon Sands	Temperature	Vaisala - WXT530 Range: -52- +60 °C Accuracy at +20 °C: ±0.3 °C Resolution: 0.1 °C Measurement Height: 10m	M202
Dixon Sands	Rainfall	Hyquest Solutions TB-4 Mounting Height: >300mm from ground level Resolution: 0.2mm Accuracy: 0-250 mm/hr: ±2% 250-500 mm/hr: ±3% Range: 700 mm/hr	M202

6 RESULTS

6.1 DATA AVAILABILITY

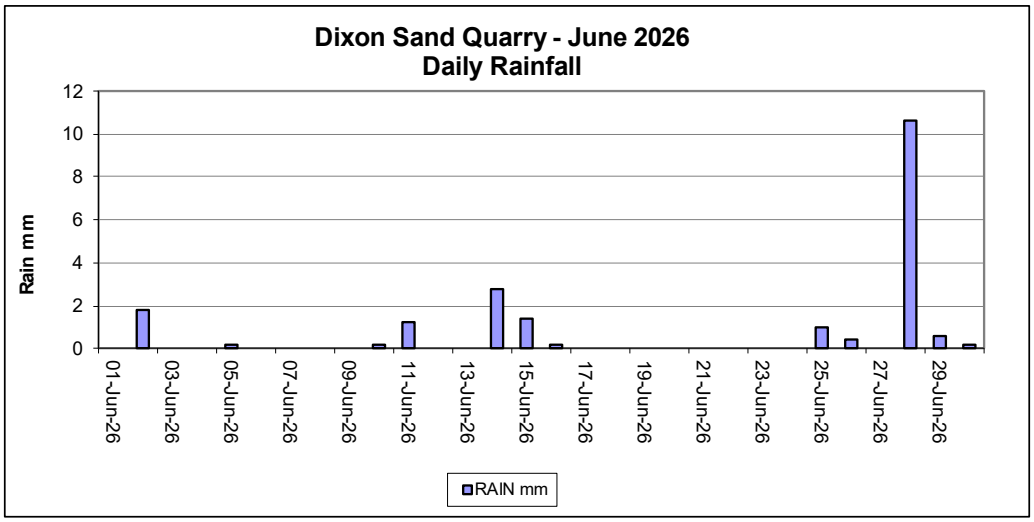
Site Name	Parameter Measured	Data Availability for Report Period – Daily Data	Comment
Dixon Sands	Wind Speed	100%	
Dixon Sands	Wind Direction	100%	
Dixon Sands	Barometric Pressure	100%	
Dixon Sands	Relative Humidity	100%	
Dixon Sands	Temperature	100%	
Dixon Sands	Rainfall	100%	

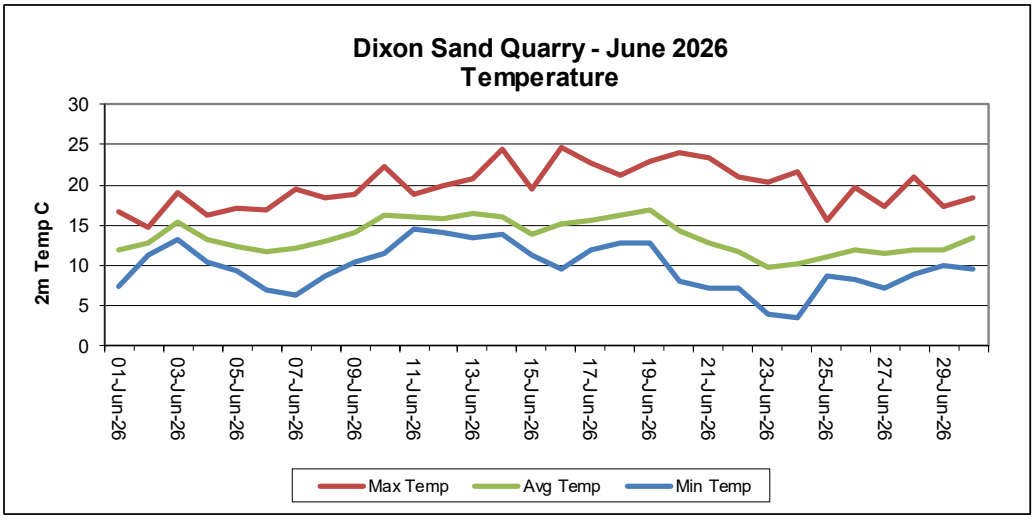
6.2 DATA SUMMARY – DAILY DATA

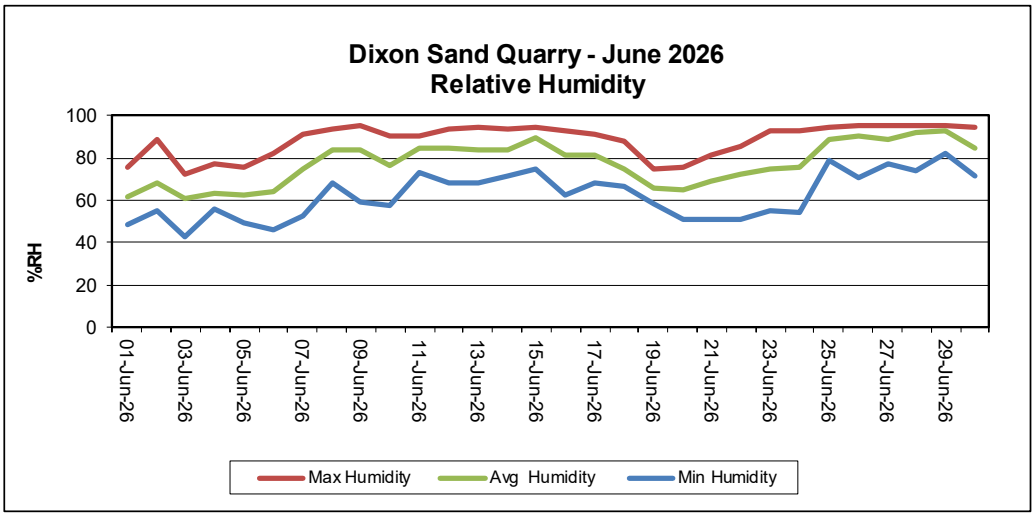
Site Name: Dixon Sand

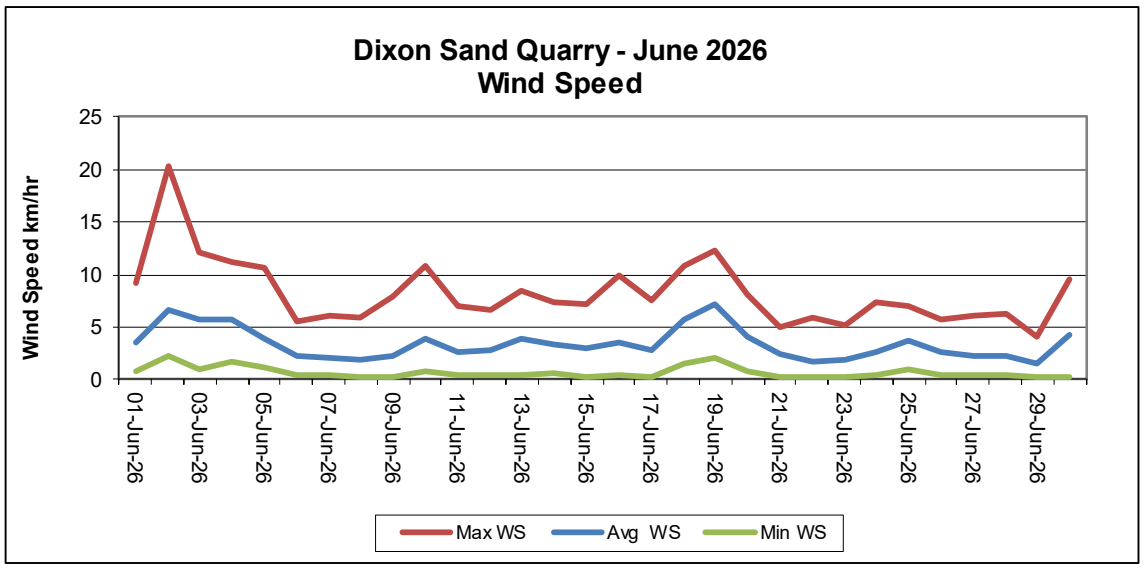
Date	Min Temp	Avg Temp	Max Temp	RAIN mm	Min WS	Avg WS	Max WS	Min Humidity	Avg Humidity	Max Humidity	Min Pressure	Avg Pressure	Max Pressure
1/06/2026	7.5	11.8	16.7	0.0	0.8	3.5	9.2	48.2	61.7	75.9	983.0	985.7	988.0
2/06/2026	11.2	12.9	14.7	1.8	2.2	6.6	20.3	54.8	68.2	88.5	973.0	978.0	983.0
3/06/2026	13.2	15.4	19.1	0.0	1.0	5.8	12.1	43.2	60.7	72.7	975.0	976.5	979.0
4/06/2026	10.5	13.2	16.2	0.0	1.7	5.8	11.2	56.0	63.3	77.6	974.0	976.0	979.0
5/06/2026	9.3	12.4	17.1	0.2	1.1	3.8	10.7	49.1	62.4	76.0	977.0	984.7	994.0
6/06/2026	6.9	11.6	16.9	0.0	0.4	2.3	5.5	45.7	63.9	82.4	993.0	997.3	1001.0
7/06/2026	6.4	12.1	19.4	0.0	0.3	2.1	6.0	52.6	75.2	91.2	1001.0	1002.5	1004.0
8/06/2026	8.7	13.1	18.4	0.0	0.2	1.8	5.9	68.2	83.8	93.9	1003.0	1004.2	1006.0
9/06/2026	10.4	14.2	18.8	0.0	0.3	2.2	7.9	59.6	83.6	94.9	1000.0	1002.1	1004.0
10/06/2026	11.6	16.3	22.3	0.2	0.7	3.9	10.9	57.8	76.6	90.6	999.0	1000.4	1002.0
11/06/2026	14.6	16.0	18.8	1.2	0.4	2.6	6.9	73.0	84.4	90.1	1001.0	1003.1	1005.0
12/06/2026	14.1	15.9	19.9	0.0	0.4	2.8	6.6	68.5	84.7	94.0	1003.0	1004.3	1006.0
13/06/2026	13.4	16.5	20.7	0.0	0.4	3.9	8.4	68.2	83.7	94.8	998.0	1000.7	1004.0
14/06/2026	13.8	16.1	24.4	2.8	0.6	3.3	7.4	71.4	84.1	93.9	998.0	1000.9	1005.0
15/06/2026	11.2	13.8	19.5	1.4	0.2	2.9	7.2	74.5	89.3	94.6	1004.0	1004.9	1007.0
16/06/2026	9.6	15.1	24.6	0.2	0.3	3.5	9.9	62.9	81.3	93.1	1000.0	1002.2	1004.0
17/06/2026	12.0	15.5	22.8	0.0	0.3	2.7	7.6	68.1	81.1	91.0	996.0	998.8	1001.0
18/06/2026	12.9	16.2	21.3	0.0	1.5	5.6	10.7	66.5	75.1	87.9	989.0	992.3	996.0
19/06/2026	12.8	16.9	22.9	0.0	2.0	7.2	12.4	58.6	65.8	74.7	984.0	986.4	989.0
20/06/2026	8.0	14.3	24.0	0.0	0.8	4.1	8.1	50.9	64.8	75.7	988.0	993.6	998.0
21/06/2026	7.3	12.8	23.3	0.0	0.3	2.4	5.0	50.9	69.3	81.5	998.0	999.1	1001.0
22/06/2026	7.2	11.6	20.9	0.0	0.3	1.7	5.9	51.0	72.5	85.2	996.0	998.3	1000.0
23/06/2026	4.0	9.9	20.3	0.0	0.3	1.9	5.2	55.1	74.7	92.7	997.0	998.9	1001.0
24/06/2026	3.6	10.3	21.6	0.0	0.5	2.6	7.3	54.6	75.2	92.7	1000.0	1001.7	1004.0
25/06/2026	8.6	11.0	15.6	1.0	0.9	3.7	7.0	79.0	88.9	94.6	1003.0	1005.3	1007.0
26/06/2026	8.3	11.9	19.7	0.4	0.4	2.7	5.7	70.8	90.1	95.5	1002.0	1003.7	1006.0
27/06/2026	7.2	11.5	17.3	0.0	0.4	2.3	6.1	77.5	89.0	95.4	1000.0	1001.8	1003.0
28/06/2026	8.9	11.9	20.9	10.6	0.4	2.2	6.2	73.9	91.9	95.2	1001.0	1002.6	1004.0
29/06/2026	10.1	11.8	17.4	0.6	0.2	1.5	4.2	82.0	93.0	95.6	997.0	1000.6	1003.0
30/06/2026	9.6	13.5	18.5	0.2	0.3	4.3	9.5	71.4	84.7	94.8	991.0	993.5	997.0
Monthly	**3.6**	**13.5**	**24.6**	**20.6**	**0.2**	**3.4**	**20.3**	**43.2**	**77.4**	**95.6**	**973.0**	**996.7**	**1007.0**

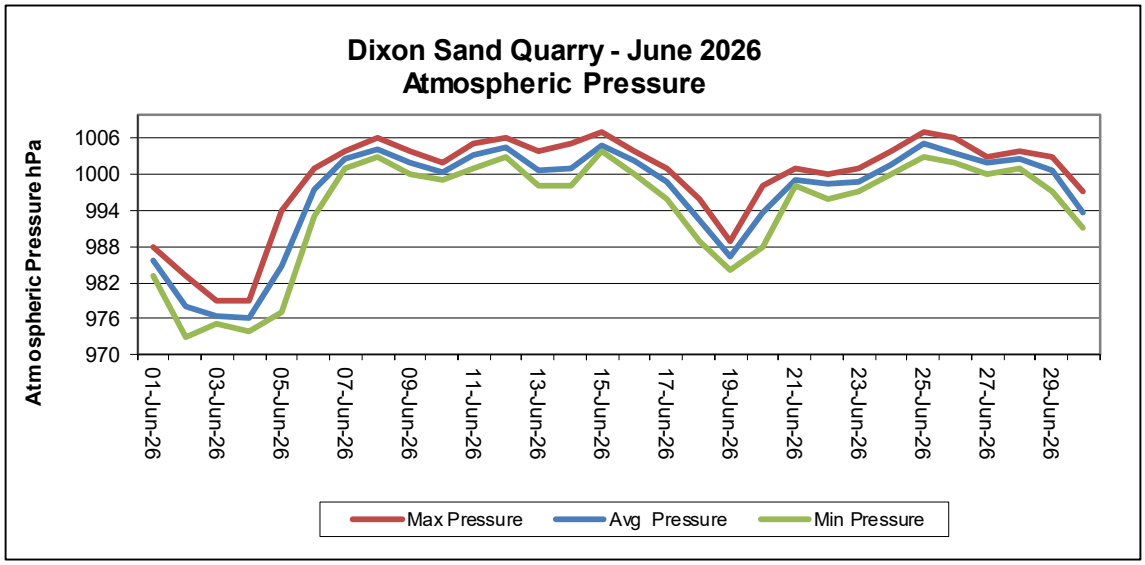
6.3 DATA SUMMARY – GRAPHS

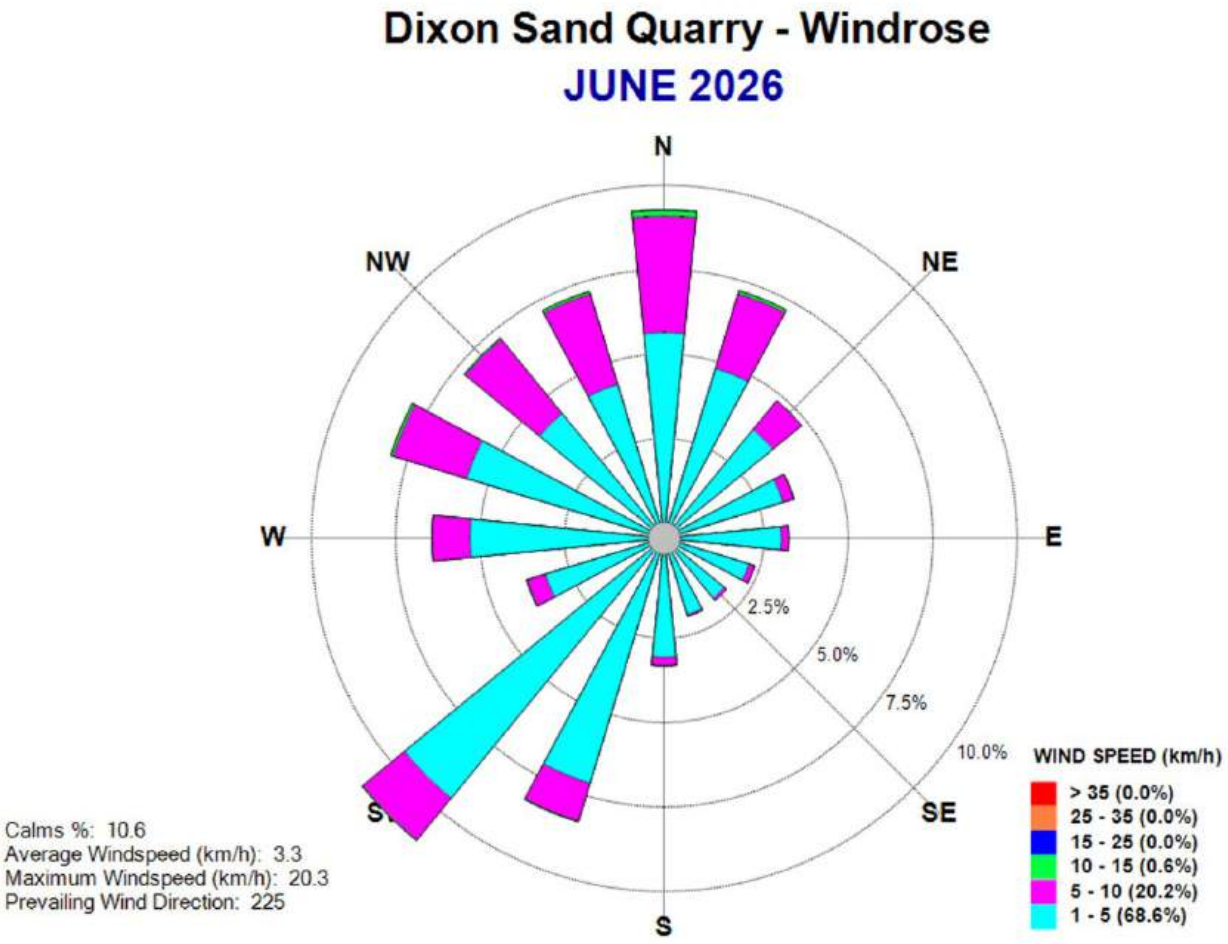







Dixon Sand Quarry - June 2026
Wind Speed
Wind Speed km/hr
25
20
15
10
5
0
01-Jun-26
03-Jun-26
05-Jun-26
07-Jun-26
09-Jun-26
11-Jun-26
13-Jun-26
15-Jun-26
17-Jun-26
19-Jun-26
21-Jun-26
23-Jun-26
25-Jun-26
27-Jun-26
29-Jun-26
Max WS
Avg WS
Min WS


Dixon Sand Quarry - June 2026
Atmospheric Pressure
Atmospheric Pressure hPa
1006
1000
994
988
982
976
970
01-Jun-26
03-Jun-26
05-Jun-26
07-Jun-26
09-Jun-26
11-Jun-26
13-Jun-26
15-Jun-26
17-Jun-26
19-Jun-26
21-Jun-26
23-Jun-26
25-Jun-26
27-Jun-26
29-Jun-26
Max Pressure
Avg Pressure
Min Pressure



----------END OF REPORT----------

Appendix C – Groundwater and Surface Water Monitoring Results

Groundwater Quality

VGT Laboratories Pty Ltd.
ABN 77 621 943 600
NATA Accreditation 20375
Unit 4, 30 Glenwood Drive Thornton NSW 2322
P: (02) 4028 6412 | **E:** lab@vgt.com.au | **www.vgt.com.au**

Report Number: 19192

Date Issued: 16/12/2025 Revision Number: 00

Site/Job: Old Northern Rd Groundwater- 6 Monthly

Client: Dixon Sand Pty Ltd
Address PO Box 4019
Pitt Town NSW 2756
Contact David Dixon

The following groundwater sample(s) were received on 10/12/2025

Client Sample Reference	Date Sampled	Lab ID	Matrix	General Comments
BH1	10/12/2025	19192/1	Water	
BH2	10/12/2025	19192/2	Water	
BH3	10/12/2025	19192/3	Water	
BH6	10/12/2025	19192/4	Water	
BH7	10/12/2025	19192/5	Water	
BH8	10/12/2025	19192/6	Water	
BH9	10/12/2025	19192/7	Water	
MW1	10/12/2025	19192/8	Water	
MW2	10/12/2025	19192/9	Water	
MW3	10/12/2025	19192/10	Water	
MW5	10/12/2025	19192/11	Water	

The sample(s) have been tested as received and results relate specifically to the samples tested.
The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:

Anthony Crane
Laboratory Manager

Results have been approved and report finalised on 16/12/2025.

Test Report Number: 19192

Date Issued: 16/12/2025 Revision No: 00

Results

Well Parameters	Method	Lab ID Sample Date Sample ID Units	19192/1 10/12/2025 BH1	19192/2 10/12/2025 BH2	19192/3 10/12/2025 BH3	19192/4 10/12/2025 BH6	19192/5 10/12/2025 BH7
Depth Reference Point		TORef	TOM	TOM	TOM	TOM	TOM
Depth to Water	AS5667.11	m(bTORef)	60.11	35.49	32.10	30.98	21.68

Well Parameters	Method	Lab ID Sample Date Sample ID Units	19192/6 10/12/2025 BH8	19192/7 10/12/2025 BH9	19192/8 10/12/2025 MW1	19192/9 10/12/2025 MW2	19192/10 10/12/2025 MW3
Depth Reference Point		TORef	TOM	TOM	TOM	TOM	TOM
Depth to Water	AS5667.11	m(bTORef)	26.37	33.97	12.75	17.98	23.22

Well Parameters	Method	Lab ID Sample Date Sample ID Units	19192/11 10/12/2025 MW5
Depth Reference Point		TORef	TOM
Depth to Water	AS5667.11	m(bTORef)	9.22

Field Analysis	Method	Lab ID Sample Date Sample ID Units	19192/1 10/12/2025 BH1	19192/2 10/12/2025 BH2	19192/3 10/12/2025 BH3	19192/4 10/12/2025 BH6	19192/5 10/12/2025 BH7
Temperature	Temp	°C	19.6	19.6	19.4	19.9	19.9
pH	APHA 4500-H B	pH Units	6.0	6.0	5.7	5.2	4.7
Electrical Conductivity	APHA 2510 B	µS/cm 25°C	141	244	164	123	196

Field Analysis	Method	Lab ID Sample Date Sample ID Units	19192/6 10/12/2025 BH8	19192/7 10/12/2025 BH9	19192/8 10/12/2025 MW1	19192/9 10/12/2025 MW2	19192/10 10/12/2025 MW3
Temperature	Temp	°C	17.8	19.5	18.6	17.7	18.8
pH	APHA 4500-H B	pH Units	3.8	5.5	4.1	3.8	5.9
Electrical Conductivity	APHA 2510 B	µS/cm 25°C	303	264	149	373	113

Field Analysis	Method	Lab ID Sample Date Sample ID Units	19192/11 10/12/2025 MW5
Temperature	Temp	°C	18.2
pH	APHA 4500-H B	pH Units	4.3
Electrical Conductivity	APHA 2510 B	µS/cm 25°C	144

Solids	Method	Lab ID Sample Date Sample ID Units	19192/1 10/12/2025 BH1	19192/2 10/12/2025 BH2	19192/3 10/12/2025 BH3	19192/4 10/12/2025 BH6	19192/5 10/12/2025 BH7
Total Dissolved Solids	AS3550.4	mg/L	110	150	94	74	110

Solids	Method	Lab ID Sample Date Sample ID Units	19192/6 10/12/2025 BH8	19192/7 10/12/2025 BH9	19192/8 10/12/2025 MW1	19192/9 10/12/2025 MW2	19192/10 10/12/2025 MW3
Total Dissolved Solids	AS3550.4	mg/L	160	160	88	240	80

Solids	Method	Lab ID Sample Date Sample ID Units	19192/11 10/12/2025 MW5
Total Dissolved Solids	AS3550.4	mg/L	76

Date Tested	Method	Lab ID Sample Date Sample ID Units	19192/1 10/12/2025 BH1	19192/2 10/12/2025 BH2	19192/3 10/12/2025 BH3	19192/4 10/12/2025 BH6	19192/5 10/12/2025 BH7
Date Tested - Field	--	--	10/12/2025	10/12/2025	10/12/2025	10/12/2025	10/12/2025
Date Tested - TDS	AS3550.4	--	15/12/2025	15/12/2025	15/12/2025	15/12/2025	15/12/2025

Date Tested	Method	Lab ID Sample Date Sample ID Units	19192/6 10/12/2025 BH8	19192/7 10/12/2025 BH9	19192/8 10/12/2025 MW1	19192/9 10/12/2025 MW2	19192/10 10/12/2025 MW3
Date Tested - Field	--	--	10/12/2025	10/12/2025	10/12/2025	10/12/2025	10/12/2025
Date Tested - TDS	AS3550.4	--	15/12/2025	15/12/2025	15/12/2025	15/12/2025	15/12/2025

Date Tested	Method	Lab ID Sample Date Sample ID Units	19192/11 10/12/2025 MW5
Date Tested - Field	--	--	10/12/2025
Date Tested - TDS	AS3550.4	--	15/12/2025

Report Comments:

Guideline applied - **No Limits**.

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Field Analysis conducted onsite at Haerses Rd Quarry

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 19192

Date Issued: 16/12/2025 Revision No: 00

Sampling Conditions: Cloudy, 22 - 28 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
19192/1	BH1		T & D.Walker	10/12/2025 9:23 AM	AS5667.11, Bail	AS5667.1
19192/2	BH2		T & D.Walker	10/12/2025 10:43 AM	AS5667.11, Pump	AS5667.1
19192/3	BH3		T & D.Walker	10/12/2025 10:17 AM	AS5667.11, Pump	AS5667.1
19192/4	BH6		T & D.Walker	10/12/2025 11:12 AM	AS5667.11, Bail	AS5667.1
19192/5	BH7		T & D.Walker	10/12/2025 1:10 PM	AS5667.11, Pump	AS5667.1
19192/6	BH8		T & D.Walker	10/12/2025 12:13 PM	AS5667.11, Bail	AS5667.1
19192/7	BH9		T & D.Walker	10/12/2025 12:30 PM	AS5667.11, Pump	AS5667.1
19192/8	MW1		T & D.Walker	10/12/2025 12:54 PM	AS5667.11, Bail	AS5667.1
19192/9	MW2		T & D.Walker	10/12/2025 11:58 AM	AS5667.11, Bail	AS5667.1
19192/10	MW3		T & D.Walker	10/12/2025 11:27 AM	AS5667.11, Bail	AS5667.1
19192/11	MW5		T & D.Walker	10/12/2025 9:48 AM	AS5667.11, Bail	AS5667.1

Lab ID	Client Sample Reference	Sampling Observations
19192/1	BH1	No vehicle access for pump. Unable to purge well due to depth.
19192/2	BH2	
19192/3	BH3	
19192/4	BH6	No vehicle access for pump
19192/5	BH7	
19192/6	BH8	Insufficient recharge to pump
19192/7	BH9	
19192/8	MW1	Insufficient recharge to pump
19192/9	MW2	Ants
19192/10	MW3	No vehicle access for pump
19192/11	MW5	No vehicle access for pump

Sampling procedures have been approved and report finalised on 16/12/2025.
Where method is "unknown" sampling procedures are not endorsed

Well Parameters:

Client: Dixon Sand Pty Ltd

Site/Job: Old Northern Rd Groundwater- 6 Monthly

Well ID	GPS-Easting	GPS-Northing	Reference Point	Reference point AHD (m)*	Depth to Screen (m)
BH1	312290	6297039	TOM		
BH2	313429	6297202	TOM		
BH3	313808	6297093	TOM		
BH6	313153	6296833	TOM		
BH7	313097	6296495	TOM		
BH8	313435	6296617	TOM		
BH9	313294	6296504	TOM		
MW1	313092	6296499	TOM		
MW2	313417	6296733	TOM		
MW3	313161	6296838	TOM		
MW5	312460	6296903	TOM		

Well ID	Date Well Measured	Reference Point Height to GL (m)	Depth to Bottom (m)	Recharge Rate	Approximate Volume (L)
BH1	2/12/2019	0.68	>60	Slow	unkown
BH2	2/12/2019	0.57	>60	slow	unkown
BH3	2/12/2019	0.56	>60	Slow	Unkown
BH6	2/12/2019	0.52	>60	Slow	Unkown
BH7	2/12/2019	0.53	>60	Slow	Unknown
BH8	2/12/2019	0.73	27.53	Slow	2
BH9	2/12/2019	0.64	>60	Medium	Unkown
MW1	2/12/2019	0.28	15.53	Medium	12
MW2	2/12/2019	0.45	24.53	Slow	7.5
MW3	2/12/2019	0.88	34.57	Slow	2.5
MW5	2/12/2019	0.70	21.19	Slow	28

Note: NATA accreditation does not cover information provided in this section

*Reference Point AHD may differ from survey data provided due to the differences in where field measurements taken from when compared to surveyed point (TOC/TOM/GL).

VGT Laboratories Pty Ltd.
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NATA Accreditation 20375
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P: (02) 4028 6412 | **E:** lab@vgt.com.au | **www.vgt.com.au**

Report Number: 19483

Date Issued: 20/02/2026 Revision Number: 00

Site/Job: Old Northern Rd Groundwater- New Boreholes

Client: Dixon Sand Pty Ltd
Address PO Box 4019
Pitt Town NSW 2756
Contact David Dixon

The following groundwater sample(s) were received on 13/02/2026

Client Sample Reference	Date Sampled	Lab ID	Matrix	General Comments
BH10	13/02/2026	19483/1	Water	Initial purge & test
BH11	13/02/2026	19483/2	Water	Initial purge & test

The sample(s) have been tested as received and results relate specifically to the samples tested.
The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:

Anthony Crane
Laboratory Manager

Liane Peyra
Technical Officer

Results have been approved and report finalised on 20/02/2026.

Test Report Number: 19483

Date Issued: 20/02/2026 Revision No: 00

Results

Well Parameters	Method	Lab ID Sample Date Sample ID Units	19483/1 13/02/2026 BH10	19483/2 13/02/2026 BH11
Depth Reference Point		TORef	TOM	TOM
Depth to Water	AS5667.11	m(bTORef)	29.15	12.38

Field Analysis	Method	Lab ID Sample Date Sample ID Units	19483/1 13/02/2026 BH10	19483/2 13/02/2026 BH11
Temperature	Temp	°C	18.6	17.4
pH	APHA 4500-H B	pH Units	11.5	5.3
Electrical Conductivity	APHA 2510 B	µS/cm 25°C	1,110	149

Solids	Method	Lab ID Sample Date Sample ID Units	19483/1 13/02/2026 BH10	19483/2 13/02/2026 BH11
Total Dissolved Solids	AS3550.4	mg/L	360	76

Date Tested	Method	Lab ID Sample Date Sample ID Units	19483/1 13/02/2026 BH10	19483/2 13/02/2026 BH11
Date Tested - Field	--	--	13/02/2026	13/02/2026
Date Tested - TDS	AS3550.4	--	17/02/2026	17/02/2026

Report Comments:

Guideline applied - **No Limits**.

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Field Analysis conducted onsite at Haerses Rd Quarry

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 19483

Date Issued: 20/02/2026 Revision No: 00

Sampling Conditions: 100% Cloudcover, 20 - 22 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
19483/1	BH10		T & D.Walker	13/02/2026 1:50 PM	AS5667.11, Pump	AS5667.1
19483/2	BH11		T & D.Walker	13/02/2026 11:20 AM	AS5667.11, Pump	AS5667.1

Lab ID	Client Sample Reference	Sampling Observations
19483/1	BH10	Dtb 60.56, tom 0.90, toc 0.62 - Could only purge 1.5 well volumes (93L @ 50m)
19483/2	BH11	Dtb 24.92, tom 0.85, toc 0.42 - Purged 4.5 well volumes (112L @ 22m)

Sampling procedures have been approved and report finalised on 20/02/2026.
Where method is "unknown" sampling procedures are not endorsed

Well Parameters:

Client: Dixon Sand Pty Ltd

Site/Job: Old Northern Rd Groundwater- New Boreholes

Well ID	GPS-Easting	GPS-Northing	Reference Point	Reference point AHD (m)*	Depth to Screen (m)
BH10			TOM		
BH11			TOM		

Well ID	Date Well Measured	Reference Point Height to GL (m)	Depth to Bottom (m)	Recharge Rate	Approximate Volume (L)
BH10	13/02/2026	0.90	60.56	low	62
BH11	13/02/2026	0.85	24.92	low	25

Note: NATA accreditation does not cover information provided in this section

*Reference Point AHD may differ from survey data provided due to the differences in where field measurements taken from when compared to surveyed point (TOC/TOM/GL).

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Report Number: 19792

Date Issued: 7/04/2026 Revision Number: 00

Site/Job: Old Northern Rd Groundwater BH12

Client: Dixon Sand Pty Ltd
Address PO Box 4019
Pitt Town NSW 2756
Contact David Dixon

The following groundwater sample(s) were received on 1/04/2026

Client Sample Reference	Date Sampled	Lab ID	Matrix	General Comments
BH12	1/04/2026	19792/1	Water	New hole. Well development required

The sample(s) have been tested as received and results relate specifically to the samples tested.
The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:

Anthony Crane
Laboratory Manager

Liane Peyra
Technical Officer

Results have been approved and report finalised on 7/04/2026.

Test Report Number: 19792

Date Issued: 7/04/2026 Revision No: 00

Results

Well Parameters	Method	Lab ID Sample Date Sample ID Units	19792/1 1/04/2026 BH12
Depth Reference Point		TORef	TOM
Depth to Water	AS5667.11	m(bTORef)	57.33

Field Analysis	Method	Lab ID Sample Date Sample ID Units	19792/1 1/04/2026 BH12
Temperature	Temp	°C	19.0
pH	APHA 4500-H B	pH Units	11.0
Electrical Conductivity	APHA 2510 B	µS/cm 25°C	964

Solids	Method	Lab ID Sample Date Sample ID Units	19792/1 1/04/2026 BH12
Total Dissolved Solids	AS3550.4	mg/L	550

Date Tested	Method	Lab ID Sample Date Sample ID Units	19792/1 1/04/2026 BH12
Date Tested - Field	--	--	1/04/2026
Date Tested - TDS	AS3550.4	--	2/04/2026

Report Comments:

Guideline applied - **No Limits**.

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Field Analysis conducted onsite at Haerses Rd Quarry

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 19792

Date Issued: 7/04/2026 Revision No: 00

Sampling Conditions: Partly cloudy, 25 - 27 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
19792/1	BH12		T & D.Walker	1/04/2026 12:50 PM	AS5667.11, Bail	AS5667.1

Lab ID	Client Sample Reference	Sampling Observations
19792/1	BH12	

Sampling procedures have been approved and report finalised on 7/04/2026.
Where method is "unknown" sampling procedures are not endorsed

Well Parameters:

Client: Dixon Sand Pty Ltd

Site/Job: Old Northern Rd Groundwater BH12

Well ID	GPS-Easting	GPS-Northing	Reference Point	Reference point AHD (m)*	Depth to Screen (m)
BH12	312753	6297250	TOM		

Well ID	Date Well Measured	Reference Point Height to GL (m)	Depth to Bottom (m)	Recharge Rate	Approximate Volume (L)
BH12	1/04/2026	1.00	>90	Slow	unkown

Note: NATA accreditation does not cover information provided in this section

*Reference Point AHD may differ from survey data provided due to the differences in where field measurements taken from when compared to surveyed point (TOC/TOM/GL).

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Report Number: 19982

Date Issued: 3/06/2026 Revision Number: 01

Site/Job: Old Northern Rd Groundwater- 6 Monthly

Client: Dixon Sand Pty Ltd
Address PO Box 4019
Pitt Town NSW 2756
Contact David Dixon

The following groundwater sample(s) were received on 27/05/2026

Client Sample Reference	Date Sampled	Lab ID	Matrix	General Comments
BH1	27/05/2026	19982/1	Water	
BH2	27/05/2026	19982/2	Water	
BH3	27/05/2026	19982/3	Water	
BH6	27/05/2026	19982/4	Water	
BH7	27/05/2026	19982/5	Water	
BH8	27/05/2026	19982/6	Water	
BH9	27/05/2026	19982/7	Water	
BH11	27/05/2026	19982/8	Water	
BH12	27/05/2026	19982/9	Water	
MW1	27/05/2026	19982/10	Water	
MW2	27/05/2026	19982/11	Water	
MW3	27/05/2026	19982/12	Water	
MW5	27/05/2026	19982/13	Water	
Dup (BH11)	27/05/2026	19982/14	Water	

The sample(s) have been tested as received and results relate specifically to the samples tested.
The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:



Anthony Crane
Laboratory Manager

Results have been approved and report finalised on 3/06/2026.

Test Report Number: 19982

Date Issued: 3/06/2026 Revision No: 01

Results

Well Parameters Method	Lab ID Sample Date Sample ID Units	19982/1 27/05/2026 BH1	19982/2 27/05/2026 BH2	19982/3 27/05/2026 BH3	19982/4 27/05/2026 BH6	19982/5 27/05/2026 BH7
Depth Reference Point	TORef	TOM	TOM	TOM	TOM	TOM
Depth to Water AS5667.11	m(bTORef)	60.06	35.34	31.85	31.18	21.84

Well Parameters Method	Lab ID Sample Date Sample ID Units	19982/6 27/05/2026 BH8	19982/7 27/05/2026 BH9	19982/8 27/05/2026 BH11	19982/9 27/05/2026 BH12	19982/10 27/05/2026 MW1
Depth Reference Point	TORef	TOM	TOM	TOM	TOM	TOM
Depth to Water AS5667.11	m(bTORef)	26.31	33.75	11.79	57.33	12.81

Well Parameters Method	Lab ID Sample Date Sample ID Units	19982/11 27/05/2026 MW2	19982/12 27/05/2026 MW3	19982/13 27/05/2026 MW5
Depth Reference Point	TORef	TOM	TOM	TOM
Depth to Water AS5667.11	m(bTORef)	18.05	22.63	7.84

Field Analysis Method	Lab ID Sample Date Sample ID Units	19982/1 27/05/2026 BH1	19982/2 27/05/2026 BH2	19982/3 27/05/2026 BH3	19982/4 27/05/2026 BH6	19982/5 27/05/2026 BH7
Temperature Temp	°C	[NT]	17.7	18.2	18.2	19.5
pH APHA 4500-H B	pH Units	[NT]	6.1	5.8	5.1	4.7
Electrical Conductivity APHA 2510 B	µS/cm 25°C	[NT]	246	162	121	196

Field Analysis Method	Lab ID Sample Date Sample ID Units	19982/6 27/05/2026 BH8	19982/7 27/05/2026 BH9	19982/8 27/05/2026 BH11	19982/9 27/05/2026 BH12	19982/10 27/05/2026 MW1
Temperature Temp	°C	17.6	18.2	17.5	18.1	20.4
pH APHA 4500-H B	pH Units	3.9	5.6	5.0	6.8	4.7
Electrical Conductivity APHA 2510 B	µS/cm 25°C	319	266	105	431	147

Field Analysis Method	Lab ID Sample Date Sample ID Units	19982/11 27/05/2026 MW2	19982/12 27/05/2026 MW3	19982/13 27/05/2026 MW5	19982/14 27/05/2026 Dup (BH11)
Temperature Temp	°C	17.5	18.0	19.3	17.7
pH APHA 4500-H B	pH Units	3.8	5.5	4.3	5.1
Electrical Conductivity APHA 2510 B	µS/cm 25°C	497	119	160	114

Solids	Method	Lab ID Sample Date Sample ID Units	19982/2 27/05/2026 BH2	19982/3 27/05/2026 BH3	19982/4 27/05/2026 BH6	19982/5 27/05/2026 BH7	19982/6 27/05/2026 BH8
Total Dissolved Solids	AS3550.4	mg/L	140	86	36	76	140

Solids	Method	Lab ID Sample Date Sample ID Units	19982/7 27/05/2026 BH9	19982/8 27/05/2026 BH11	19982/9 27/05/2026 BH12	19982/10 27/05/2026 MW1	19982/11 27/05/2026 MW2
Total Dissolved Solids	AS3550.4	mg/L	120	<20	190	52	200

Solids	Method	Lab ID Sample Date Sample ID Units	19982/12 27/05/2026 MW3	19982/13 27/05/2026 MW5	19982/14 27/05/2026 Dup (BH11)
Total Dissolved Solids	AS3550.4	mg/L	30	20	44

Date Tested	Method	Lab ID Sample Date Sample ID Units	19982/1 27/05/2026 BH1	19982/2 27/05/2026 BH2	19982/3 27/05/2026 BH3	19982/4 27/05/2026 BH6	19982/5 27/05/2026 BH7
Date Tested - Field	--	--	27/05/2026	27/05/2026	27/05/2026	27/05/2026	27/05/2026
Date Tested - TDS	AS3550.4	--		2/06/2026	2/06/2026	2/06/2026	2/06/2026

Date Tested	Method	Lab ID Sample Date Sample ID Units	19982/6 27/05/2026 BH8	19982/7 27/05/2026 BH9	19982/8 27/05/2026 BH11	19982/9 27/05/2026 BH12	19982/10 27/05/2026 MW1
Date Tested - Field	--	--	27/05/2026	27/05/2026	27/05/2026	27/05/2026	27/05/2026
Date Tested - TDS	AS3550.4	--	2/06/2026	2/06/2026	2/06/2026	2/06/2026	2/06/2026

Date Tested	Method	Lab ID Sample Date Sample ID Units	19982/11 27/05/2026 MW2	19982/12 27/05/2026 MW3	19982/13 27/05/2026 MW5	19982/14 27/05/2026 Dup (BH11)
Date Tested - Field	--	--	27/05/2026	27/05/2026	27/05/2026	27/05/2026
Date Tested - TDS	AS3550.4	--	2/06/2026	2/06/2026	2/06/2026	2/06/2026

Report Comments:

Guideline applied - **No Limits**.

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Field Analysis conducted onsite at Haerses Rd Quarry

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 19982

Date Issued: 3/06/2026 Revision No: 01

Sampling Conditions: Cloudy, 16 - 21 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
19982/1	BH1		T & D.Walker	27/05/2026 8:50 AM	AS5667.11, Bail	AS5667.1
19982/2	BH2		T & D.Walker	27/05/2026 10:30 AM	AS5667.11, Pump	AS5667.1
19982/3	BH3		T & D.Walker	27/05/2026 10:10 AM	AS5667.11, Pump	AS5667.1
19982/4	BH6		T & D.Walker	27/05/2026 11:12 AM	AS5667.11, Bail	AS5667.1
19982/5	BH7		T & D.Walker	27/05/2026 1:23 PM	AS5667.11, Pump	AS5667.1
19982/6	BH8		T & D.Walker	27/05/2026 12:25 PM	AS5667.11, Bail	AS5667.1
19982/7	BH9		T & D.Walker	27/05/2026 12:39 PM	AS5667.11, Pump	AS5667.1
19982/8	BH11		T & D.Walker	27/05/2026 9:27 AM	AS5667.11, Pump	AS5667.1
19982/9	BH12		T & D.Walker	27/05/2026 9:45 AM	AS5667.11, Bail	AS5667.1
19982/10	MW1		T & D.Walker	27/05/2026 1:06 PM	AS5667.11, Pump	AS5667.1
19982/11	MW2		T & D.Walker	27/05/2026 12:03 PM	AS5667.11, Bail	AS5667.1
19982/12	MW3		T & D.Walker	27/05/2026 11:28 AM	AS5667.11, Bail	AS5667.1
19982/13	MW5		T & D.Walker	27/05/2026 9:08 AM	AS5667.11, Bail	AS5667.1
19982/14	Dup (BH11)		T & D.Walker	27/05/2026 9:35 AM	AS5667.11, Pump	AS5667.1

Lab ID	Client Sample Reference	Sampling Observations
19982/1	BH1	Unable to obtain sample. Casing has moved & blocked near ground level - Tree roots?
19982/2	BH2	
19982/3	BH3	
19982/4	BH6	
19982/5	BH7	
19982/6	BH8	
19982/7	BH9	
19982/8	BH11	
19982/9	BH12	
19982/10	MW1	
19982/11	MW2	
19982/12	MW3	
19982/13	MW5	
19982/14	Dup (BH11)	

Sampling procedures have been approved and report finalised on 3/06/2026.
Where method is "unknown" sampling procedures are not endorsed

Well Parameters:

Client: Dixon Sand Pty Ltd

Site/Job: Old Northern Rd Groundwater- 6 Monthly

Well ID	GPS-Easting	GPS-Northing	Reference Point	Reference point AHD (m)*	Depth to Screen (m)
BH1	312290	6297039	TOM		
BH2	313429	6297202	TOM		
BH3	313808	6297093	TOM		
BH6	313153	6296833	TOM		
BH7	313097	6296495	TOM		
BH8	313435	6296617	TOM		
BH9	313294	6296504	TOM		
BH11			TOM		
BH12	312753	6297250	TOM		
MW1	313092	6296499	TOM		
MW2	313417	6296733	TOM		
MW3	313161	6296838	TOM		
MW5	312460	6296903	TOM		
Dup (BH11)			TOM		

Well ID	Date Well Measured	Reference Point Height to GL (m)	Depth to Bottom (m)	Recharge Rate	Approximate Volume (L)
BH1	2/12/2019	0.68	>60	Slow	unkown
BH2	2/12/2019	0.57	>60	slow	unkown
BH3	2/12/2019	0.56	>60	Slow	Unkown
BH6	2/12/2019	0.52	>60	Slow	Unkown
BH7	2/12/2019	0.53	>60	Slow	Unknown
BH8	2/12/2019	0.73	27.53	Slow	2
BH9	2/12/2019	0.64	>60	Medium	Unkown
BH11	13/02/2026	0.85	24.92	low	25
BH12	1/04/2026	1.00	>90	Slow	unkown
MW1	2/12/2019	0.28	15.53	Medium	12
MW2	2/12/2019	0.45	24.53	Slow	7.5
MW3	2/12/2019	0.88	34.57	Slow	2.5
MW5	2/12/2019	0.70	21.19	Slow	28
Dup (BH11)	13/02/2026	0.85	24.92	low	25

Note: NATA accreditation does not cover information provided in this section

*Reference Point AHD may differ from survey data provided due to the differences in where field measurements taken from when compared to surveyed point (TOC/TOM/GL).

VGT Laboratories Pty Ltd.
ABN 77 621 943 600
NATA Accreditation 20375
Unit 4, 30 Glenwood Drive Thornton NSW 2322
P: (02) 4028 6412 | **E:** lab@vgt.com.au | **www.vgt.com.au**

Report Number: 20217

Date Issued: 6/07/2026 Revision Number: 00

Site/Job: Old Northern Rd Groundwater- 6 Monthly

Client: Dixon Sand Pty Ltd
Address PO Box 4019
Pitt Town NSW 2756
Contact David Dixon

The following groundwater sample(s) were received on 24/06/2026

Client Sample Reference	Date Sampled	Lab ID	Matrix	General Comments
BH1	24/06/2026	20217/1	Water	

The sample(s) have been tested as received and results relate specifically to the samples tested.
The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:

Anthony Crane
Laboratory Manager

Liane Peyra
Technical Officer

Results have been approved and report finalised on 6/07/2026.

Test Report Number: 20217

Date Issued: 6/07/2026 Revision No: 00

Results

Well Parameters	Method	Lab ID Sample Date Sample ID Units	20217/1 24/06/2026 BH1
Depth Reference Point		TORef	TOM
Depth to Water	AS5667.11	m(bTORef)	60.13

Field Analysis	Method	Lab ID Sample Date Sample ID Units	20217/1 24/06/2026 BH1
Temperature	Temp	°C	18.0
pH	APHA 4500-H B	pH Units	6.4
Electrical Conductivity	APHA 2510 B	µS/cm 25°C	199

Solids	Method	Lab ID Sample Date Sample ID Units	20217/1 24/06/2026 BH1
Total Dissolved Solids	AS3550.4	mg/L	140

Date Tested	Method	Lab ID Sample Date Sample ID Units	20217/1 24/06/2026 BH1
Date Tested - Field	--	--	24/06/2026
Date Tested - TDS	AS3550.4	--	1/07/2026

Report Comments:

Guideline applied - **No Limits**.

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

https://www.vgt.com.au/measurement-uncertainty

Field Analysis conducted on site as listed

[NT]: Not tested

Where present, indicates NATA accreditation does not cover the performance of this service.

Sampling Report Number: 20217

Date Issued: 6/07/2026 Revision No: 00

Sampling Conditions: Fine, 13 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
20217/1	BH1		T.Walker	24/06/2026 11:10 AM	AS5667.11, Bail	AS5667.1

Lab ID	Client Sample Reference	Sampling Observations
20217/1	BH1	

Sampling procedures have been approved and report finalised on 6/07/2026.
Where method is "unknown" sampling procedures are not endorsed

Well Parameters:

Client: Dixon Sand Pty Ltd

Site/Job: Old Northern Rd Groundwater- 6 Monthly

Well ID	GPS-Easting	GPS-Northing	Reference Point	Reference point AHD (m)*	Depth to Screen (m)
BH1	312290	6297039	TOM		

Well ID	Date Well Measured	Reference Point Height to GL (m)	Depth to Bottom (m)	Recharge Rate	Approximate Volume (L)
BH1	2/12/2019	0.68	>60	Slow	unkown

Note: NATA accreditation does not cover information provided in this section

*Reference Point AHD may differ from survey data provided due to the differences in where field measurements taken from when compared to surveyed point (TOC/TOM/GL).

Surface Water Quality

CERTIFICATE OF ANALYSIS

Work Order	: **ES2530483**	Page	: 1 of 2
Client	: **DIXON SAND PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: HUNNY CHURCHER	Contact	: Customer Services ES
Address	: 4610 Old Northern Road Maroota	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 4566 8348	Telephone	: +61-2-8784 8555
Project	: ONR	Date Samples Received	: 30-Sep-2025 14:30
Order number	: ----	Date Analysis Commenced	: 30-Sep-2025
C-O-C number	: ----	Issue Date	: 03-Oct-2025 12:01
Sampler	: MELISSA MASS		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Sample ID	**SW19**	**----**	**----**	**----**	**----**
			Sampling date / time	30-Sep-2025 11:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2530483-001**	**--------**	**--------**	**--------**	**--------**
				Result	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**6.12**	**----**	**----**	**----**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**146**	**----**	**----**	**----**	**----**
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**5**	**----**	**----**	**----**	**----**
EA045: Turbidity								
Turbidity	----	0.1	NTU	**15.0**	**----**	**----**	**----**	**----**

CERTIFICATE OF ANALYSIS

Work Order	: **ES2540371**	Page	: 1 of 2
Client	: **DIXON SAND PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: HUNNY CHURCHER	Contact	: Customer Services ES
Address	: 4610 Old Northern Road Maroota	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 4566 8348	Telephone	: +61-2-8784 8555
Project	: ONR	Date Samples Received	: 17-Dec-2025 17:10
Order number	: ----	Date Analysis Commenced	: 19-Dec-2025
C-O-C number	: ----	Issue Date	: 23-Dec-2025 18:19
Sampler	: Melissa Mass		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 1		
No. of samples analysed	: 1		

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Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SW19	----	----	----	----
			Sampling date / time	17-Dec-2025 11:55	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2540371-001	--------	--------	--------	--------
				Result	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**5.78**	**----**	**----**	**----**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**165**	**----**	**----**	**----**	**----**
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**9**	**----**	**----**	**----**	**----**
EA045: Turbidity								
Turbidity	----	0.1	NTU	**8.9**	**----**	**----**	**----**	**----**

CERTIFICATE OF ANALYSIS

Work Order	: **ES2611836**	Page	: 1 of 2
Client	: **DIXON SAND PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: HUNNY CHURCHER	Contact	: Customer Services ES
Address	: 4610 Old Northern Road Maroota	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 4566 8348	Telephone	: +61-2-8784 8555
Project	: Old Northern Road Quarry	Date Samples Received	: 15-Apr-2026 14:15
Order number	: ----	Date Analysis Commenced	: 15-Apr-2026
C-O-C number	: ----	Issue Date	: 22-Apr-2026 11:03
Sampler	: Melissa Mass		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
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Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SW19	----	----	----	----
			Sampling date / time	15-Apr-2026 10:05	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2611836-001	--------	--------	--------	--------
				Result	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**6.01**	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**143**	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**16**	----	----	----	----
EA045: Turbidity								
Turbidity	----	0.1	NTU	**26.5**	----	----	----	----

CERTIFICATE OF ANALYSIS

Work Order	: **ES2621014**	Page	: 1 of 2
Client	: **DIXON SAND PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: HUNNY CHURCHER	Contact	: Customer Services ES
Address	: 4610 Old Northern Road Maroota	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 4566 8348	Telephone	: +61-2-8784 8555
Project	: Old Northern Road Quarry	Date Samples Received	: 30-Jun-2026 14:30
Order number	: ----	Date Analysis Commenced	: 30-Jun-2026
C-O-C number	: ----	Issue Date	: 07-Jul-2026 11:48
Sampler	: Melissa Mass		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
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Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)				Sample ID	**SW19**	----	----	----	----
				Sampling date / time	30-Jun-2026 09:30	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		**ES2621014-001**	--------	--------	--------	--------
					Result	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**4.27**	**----**	**----**	**----**	**----**
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**210**	**----**	**----**	**----**	**----**
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		**25**	**----**	**----**	**----**	**----**
EA045: Turbidity									
Turbidity	----	0.1	NTU		**16.1**	**----**	**----**	**----**	**----**

Discharge Point – Water Quality

(No planned discharge during this reporting period)

Appendix D – Noise Monitoring Reports

Dixon Sand Pty Ltd

Old Northern Road Quarry, Maroota

Noise monitoring report
December 2025

Doc no. 19020-NV-RP-22-2



Dixon Sand Pty Ltd
Old Northern Road Quarry, Maroota

Title	Noise monitoring report
Document no.	19020-NV-RP-22-2
Revision	2
Date	16 September 2026
Author	James Daramola
Reviewer	John Hutchison

Hutchison Weller Pty Ltd
ABN 37 001 024 095
13/357 Military Road
Mosman NSW 2008

www.hutchisonweller.com

Revision history

0	21 April 2026	Report issued to client
1	6 May 2026	Report updated as per client comments
2	16 September 2026	Report updated as per clients comments

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3. Monitoring methodology **4**

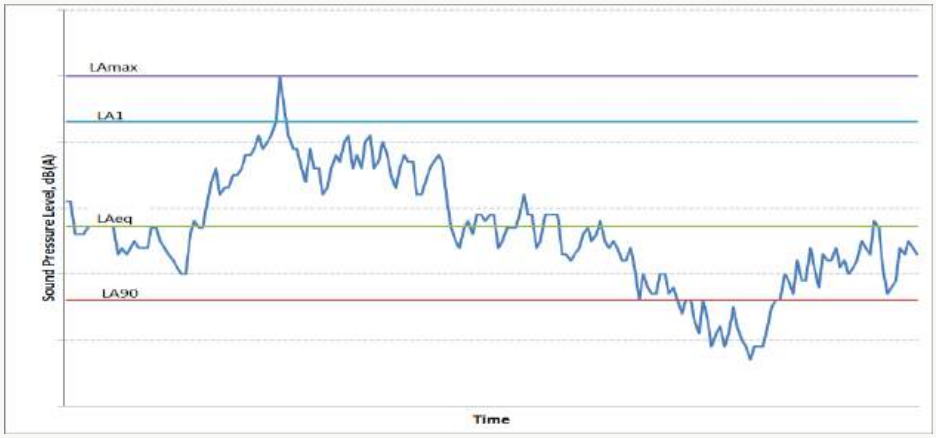
4. Monitoring results **5**

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4.2 Extrapolated measurements 9

4.3 Compliance summary 10

Definition of terms

Background noise	The underlying level of noise present in the ambient noise, excluding the noise source under investigation.
Decibel (dB)	A measure of sound equivalent to 20 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure, and 10 times the logarithm (to base 10) of the ratio of a given sound power to a reference power.
dB(A)	Unit used to measure 'A-weighted' sound pressure levels. A-weighting is an adjustment made to sound-level measurement to approximate the response of the human ear.
dB(C)	Unit used to measure 'C-weighted' sound pressure levels, an adjustment made to sound level to approximate low frequency noise between 10 Hz and 200 Hz.
EPA	Environment Protection Authority
Extraneous noise	Noise resulting from activities that are not typical of the area such as construction, and traffic generated by holiday periods or special events such as concerts or sporting events. Normal daily traffic is not considered to be extraneous.
Noise level statistics	L_{A90} – The A-weighted sound pressure level exceeded 90% of the monitoring period. This is considered to represent the background noise. L_{Aeq} – The equivalent continuous A-weighted noise level—the level of noise equivalent to the energy average of noise levels occurring over a measurement period. L_{A1} – The A-weighted sound pressure level exceeded 1% of the monitoring period. L_{Amax} – The maximum A-weighted noise level associated with the measurement period. 
RBL	The Rating Background Level for each period is the medium value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period (day, evening and night)
Receiver	The land use at which noise is heard
SLM	Sound Level Meter
Sound Power Level (SWL)	The A-weighted sound power level is a logarithmic ratio of the acoustic power output of a source relative to 10^{-12} watts and expressed in decibels. Sound power level is calculated from measured sound pressure levels and represents the level of total sound power radiated by a sound source.
Sound Pressure Level (SPL)	This is the level of noise, usually expressed in dB(A), as measured by a standard sound level meter (SLM) with a pressure microphone. The sound pressure level in dB(A) gives a close indication of the subjective loudness of noise. A technical definition for the sound pressure level, in decibels, is 20 times the logarithm (base 10) of the ratio of any two quantities related to a given sound pressure to a reference pressure (typically 20 µPa equivalent to 0 dB).
Tonal noise	Noise with perceptible and definite pitch or tone

1. Introduction

Dixon Sand Pty Ltd operates the Old Northern Road Quarry in Maroota, NSW (the Quarry). The Quarry is located off Old Northern Road, as illustrated in Figure 1.

Operations at the quarry include extraction of sand and sandstone blocks, processing by screening and grading and direct sales involving loading of trucks for shipment.

The Quarry operates under Development Consent 250-09-01 and Environment Protection Licence (EPL) 3916, which set noise limits for its operation and require noise monitoring to be completed on a six-monthly basis to ensure compliance with the conditions.

Hutchison Weller was commissioned by Dixon Sand to undertake the six-monthly noise monitoring in accordance with the conditions of consent, EPL and requirements of the Noise Management Plan.

This document outlines the consent conditions, monitoring methodology and results of the monitoring undertaken on 4 December 2025.



Figure 1 Location of the Quarry

2. Noise compliance criteria

Conditions 1 and 2 of Schedule 3 of development consent DA250-09-01 outline the Quarry operating hours and condition 3 defines the noise criteria for compliance.

1. The Applicant must comply with the operating hours set out in Table 1.

Table 1 Operating hours

Activity	Permissible hours
Quarrying operations (excluding truck arrival, loading and dispatch)	7.00 am to 6.00 pm Monday to Saturday At no time on Sundays or public holidays
Truck arrival (unladen)	5.45 am to 6.00 pm Monday to Saturday At no time on Sundays or public holidays
Truck loading Truck dispatch Truck arrival (laden)	6.00 am to 6.00 pm Monday to Saturday At no time on Sundays or public holidays
Bund construction or rehabilitation works within 250 m of Maroota Public School	7.00 am to 6.00 pm Monday to Friday during school holiday periods unless otherwise approved in writing by the EPA
Maintenance	May be conducted at any time, provided that these activities are not audible at any privately-owned residence

2. The following activities may be carried out outside the hours specified in condition 1 above:

(a) delivery or dispatch of materials as requested by the NSW Police Force or other public authorities; and

(b) emergency work to avoid the loss of lives, property or to prevent environmental harm.

In such circumstances, the Applicant must notify the Secretary and affected residents prior to undertaking the activities, or as soon as is practical thereafter.

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

Table 2 Noise criteria dB(A)

Receiver	Averaging period	Shoulder (6.00 am to 7.00 am)	Day (7.00 am to 6.00 pm)
Any residence on privately owned land	LAeq (15 minute)	37	44
Any classroom at Maroota Public School	LAeq (1 hour)	-	45

Noise generated by the development is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions and modification factors) of the NSW Noise Policy for Industry (2017). Appendix 6 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.

However, the noise criteria in Table 2 do not apply if the Applicant has an agreement with the relevant landowner to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

3. Monitoring methodology

Operator-attended noise monitoring was undertaken by Hutchison Weller, an independent acoustic specialist and Member of the Australian Acoustical Society. Monitoring locations included those described in the Quarry Noise Management Plan plus additional sensitive receivers, as illustrated in Figure 1 and summarised in Table 3.

Table 3 Monitoring locations

Receiver[1]	Address	Description
OR1	Maroota public school	Classroom closest to quarry operations
OR2	4624 Old Northern Road	Private residence
OR3	4634 Old Northern Road	Private residence
R2	4579 Old Northern Road	Private residence
R3	4567 Old Northern Road	Private residence
R4/5	4547 – 4543 Old Northern Road	Mid-point between private residence
OAS1	Lot 196 of the Quarry	At source monitoring, close to operations
OAS2	Lots 1 and 2 of the Quarry	At source monitoring, close to operations
OAS3	Lots 1 and 2 of the Quarry	At source monitoring, close to operations

Note 1: An agreement between Dixon Sand and receiver R1 is in place and, therefore, noise management levels defined by the development consent are not applicable.

Monitoring was conducted in accordance with procedures outlined in the Noise Policy for Industry and Section 6 of the Noise Management Plan.

At-receiver monitoring locations were within 30 metres of residential dwellings, whilst onsite measurement locations were selected for safe access and to be representative of the operations, without extraneous noise from sources such as traffic and insects.

Instrumentation included a Bruel & Kjaer Class 1 sound level meter (SLM), serial no. 3008237, field-calibrated prior to and following monitoring. The SLM was within current calibration, next due September 2026.

Monitoring was undertaken with the SLM set on a tripod at 1.5 metres above ground and measuring A-weighted sound pressure levels under fast response. Each measurement period was 15 minutes and recorded the LAeq, LA90 and LAmax statistics.

Meteorological data was recorded during each monitoring period adjacent to the Maroota public school to establish whether meteorological conditions were suitable for monitoring. Data includes wind speed, direction, temperature, relative humidity, and sigma-theta (to establish the Pascall-Guifford stability category).

Where extraneous noise such as road traffic and fauna (insects/birds) were the dominant noise sources, making it impractical to discern the contribution of the Quarry to ambient noise levels, noise levels measured at alternative locations closer to the Quarry were utilised, in line with procedures outlines in Noise Policy for Industry (NSW EPA 2017). This involved extrapolation from the near-distance location to the sensitive receiver location, as described in Section 4.2.

4. Monitoring results

4.1 Attended measurements

Results of noise monitoring for each location are presented in Table 4 to Table 6.

In general, quarry operations were inaudible from most locations, with traffic the dominant source of noise for residents on the Old Northern Road.

Quarry operations in December 2025 fell into four categories representing the main sources of noise. These were:

- Sand processing and truck loading (main plant, front end loaders, trucks)
- Extraction of bulk sandstone by cutting, sawing, and log popping.
- Stockpile management with articulated dump trucks
- Watercart (moxie)

Depending on the receiver location, these sources played a varying role in contributing to the total noise level.

Measured results indicated quarry operations during the shoulder period (from 6.00am to 7.00am) were inaudible, including during breaks in traffic noise, and complied with the noise criteria at all measurement locations.

On-site measurements were taken to determine the noise level of various noise sources without the influence of traffic noise. Measurements were undertaken over 15-minute periods to establish representative sound power levels of the operation to allow extrapolation to receiver locations where background noise was too high to discern quarry noise contributions. This is discussed further in Section 4.2.

During the day (standard hours), measurement at the school and residential receivers established traffic was the dominant source of noise in the area and heavily influenced measured LAeq, 15-minute noise levels. Quarry noise was inaudible throughout the duration of the monitoring.

Estimated contributions of quarry noise on the total noise level indicated compliance with the noise limit. However, due to ambient noise (traffic, birds, breeze in trees), extrapolation from at-source measurements has been undertaken to support this assertion (See Section 4.2.)

Table 4 Monitoring results – Shoulder Period - 6.00am to 7.00am – Measurements at Sensitive Receivers

Time	Location	Noise criterion	Measured 15-minute noise level			Estimated LAeq, 15 min quarry contribution	Observations	Meteorological conditions
			LAeq	LA90	LAmax			
4/12/2025 5:55	OR3	37	46	35	63	<37	Site inaudible. Audible noise: Access road approx. 40-55 dBA SPL, Old Northern Road (ONR) up to 50 dBA SPL, insects, and birds.	Clear skies NW to SSW @ 0.3 - 3.6km/h. Extremely unstable to slightly unstable conditions, (A to C class) 16 - 18 °C
4/12/2025 6:13	OR2		51	39	66	<37	Site inaudible. Audible noise: Access road up to 56 dBA SPL, Old Northern Road up to 63 dBA SPL, insects, and dog barking in the distance.	
4/12/2025 6:32	R3		65	40	86	<37	Site inaudible. Dominant noise: Old Northern Road 67-77 dBA SPL (defining Leq and maximums). Other audible noise dominant during lulls in road traffic noise: birds and insects. Ambient around 39 dBA.	
4/12/2025 6:49	R4/5		68	41	89	<37	Site inaudible. Dominant noise: Old Northern Road up to 89 dBA (defining Leq and maximums). Other audible noise dominant during lulls in road traffic noise: birds and insects. Ambient around 39 dBA.	

Table 5 Monitoring results – Day Period - 7.00am to 6.00pm – Site Boundary Measurements

Time	Location	Noise criterion	Measured 15-minute noise level			Estimated LAeq, 15 min quarry contribution	Observations	Meteorological conditions
			LAeq	LA90	LAmax			
4/12/2025 8:39	OAS1 (Top of ledge NW of carpark)	N/A	66	64	79	-	Dominant noise: Plant/hopper. 100m away from the SLM. Continuous and dominant. Truck emptying load 80m away from the SLM and FEL emptying load 85m away from the SLM. Noise masked by plant noise and not influencing the measurement.	Clear skies WNW to WSW @1.1 – 2.4 km/h Extremely unstable (A Class), 22 – 23 °C
4/12/2025 8:12	OAS2	N/A	57	52	70	-	Audible noise: • Excavator with triple saw (cutting) measured 59 dBA at 150 m from the SLM. • Excavator with large single saw (sawing) measured 59 dBA at 330 m from the SLM. • Intermittent reverse beepers/squawkers, as well as insects and birds, were also audible. When both saws operated simultaneously, noise levels increased to above 60 dBA. Other activities, including FEL stacking sandstone blocks and a water tanker, were observed but were masked by the saws and did not influence the measured noise levels.	Clear skies WNW to NE @0.6 – 1.4 km/h Extremely unstable (A Class) 20 – 21 °C
4/12/2025 12:18	OAS3	N/A	64	60	77	-	Audible noise: • Excavator sawing 60-61 dBA at 89m from the SLM (max 70 dBA). • Combined sawing (continuous) and log popping (intermittent) at 160m measured 62-65 dBA • Combined sawing (continuous) and cutting (continuous) at 193m measured 63-67 dBA Observations imply log popping 60-61 dBA, and cutting 63-64dBA.	Clear skies N to ENE @ 6.2 – 8.9 km/hr Extremely unstable and slightly unstable conditions, (A and C class), 29 – 30 °C

Table 6 Monitoring results – Day Period - 7.00am to 6.00pm – Measurements at Sensitive Receivers

Time	Location	Noise criterion	Measured 15-minute noise level			Estimated LAeq, 15 min quarry contribution	Observations	Meteorological conditions
			LAeq	LA90	LAmax			
4/12/2025 9:16 (1-hour)	OR1 (School)	45	53	41	74	< 45	Site inaudible. Dominant noise: Old Northern Road Other noise: insect noise, birds, faint shovel impacts in the distant not influencing the measured noise level.	Clear skies SSW to WSW @ 1 – 4.8 km/hr Extremely unstable (A Class) 29 – 30 °C
4/12/2025 11:37	OR3	44	43	38	64	<44	Site inaudible. Audible noise: Access road, Old Northern Road, insects, and birds. Pickers on farm, not influencing the measured noise levels.	Clear skies NW to NNE @ 1 – 22 km/hr Extremely unstable (A Class) 28 – 30 °C
4/12/2025 11:18	OR2	44	48	40	63	<44	Site inaudible. Audible noise: Access road, Old Northern Road, insects, and birds. Dog barking in the distance, not influencing the measured noise levels.	
4/12/2025 10:59	R2	44	74	42	99	<44	Site inaudible. Audible noise: Old Northern Road dominant, defining Leq and maximums. Other noise: insects, birds, ambient activity.	
4/12/2025 10:41	R3	44	71	39	95	<44		
4/12/2025 10:23	R4/5	44	69	39	94	<44		

4.2 Extrapolated measurements

A conclusive noise level attributable to the Quarry was not possible in all locations due to ambient noise levels. Therefore, measurements captured on-site without substantial influence from extraneous noise were used to calculate sound pressure levels at each receiver.

Based on observations close to the quarry, the following plant and equipment was in use during the monitoring period.

1. Processing plant - conveyors and drives, screens, front end loaders, Moxies (plant to stockpile)
2. Pit – Excavators – (1) sawing, (2) 'popping', and (3) 'cutting'

Measurements close to these plant items were undertaken to establish a representative noise model of the quarry operations. A summary of noise emission data for these items is presented in Appendix A.

Predictions of noise at nearby receivers were based on measured onsite noise levels and propagation methods described in ISO 9613-2:1996 *Acoustics — Attenuation of sound during propagation outdoors — Part 2: General method of calculation,* which accounts for geometric spreading, air and ground absorption as well as barrier effects, assuming worst case meteorology of a gentle breeze from source to receiver and stable conditions.

Based on the above, modelled noise levels for each monitoring location are presented in Table 6. Results are shown for equipment operating in each quarry area and processing plant. Modelled noise levels are within 2 dB of measured values indicating the model is sufficiently accurate to represent operating conditions.

Table 7 Extrapolated monitoring results to intermediate measurement locations

Location	Modelled noise level, dBA	Measured noise level, LAeq, 15 minute	dB Difference
OAS1	68	66	2
OAS2	59	57	2
OAS3	64	64	0

Based on measurements described in Table 5, extrapolated noise results for each receiver are presented in Table 8. Results are shown for all equipment operating. Extrapolated results indicate the Quarry demonstrates a contribution to the ambient noise environment that meets the noise limit for the day period in all locations.

Noise contour maps from the model are presented in Appendix B and illustrate noise propagation from the Quarry to all surrounding sensitive receiver locations.

Table 8 Extrapolated monitoring results

Receiver	Noise criteria		Extrapolated noise level, LAeq, 15 minute	Comment
	Shoulder	Day		
OR1	-	45	44	Predicted noise levels meet the noise limits during the day period.
OR2	37	44	44	
OR3			41	
R2			33	
R3			39	
4/5			43	

4.3 Compliance summary

Results of the assessment demonstrate the following.

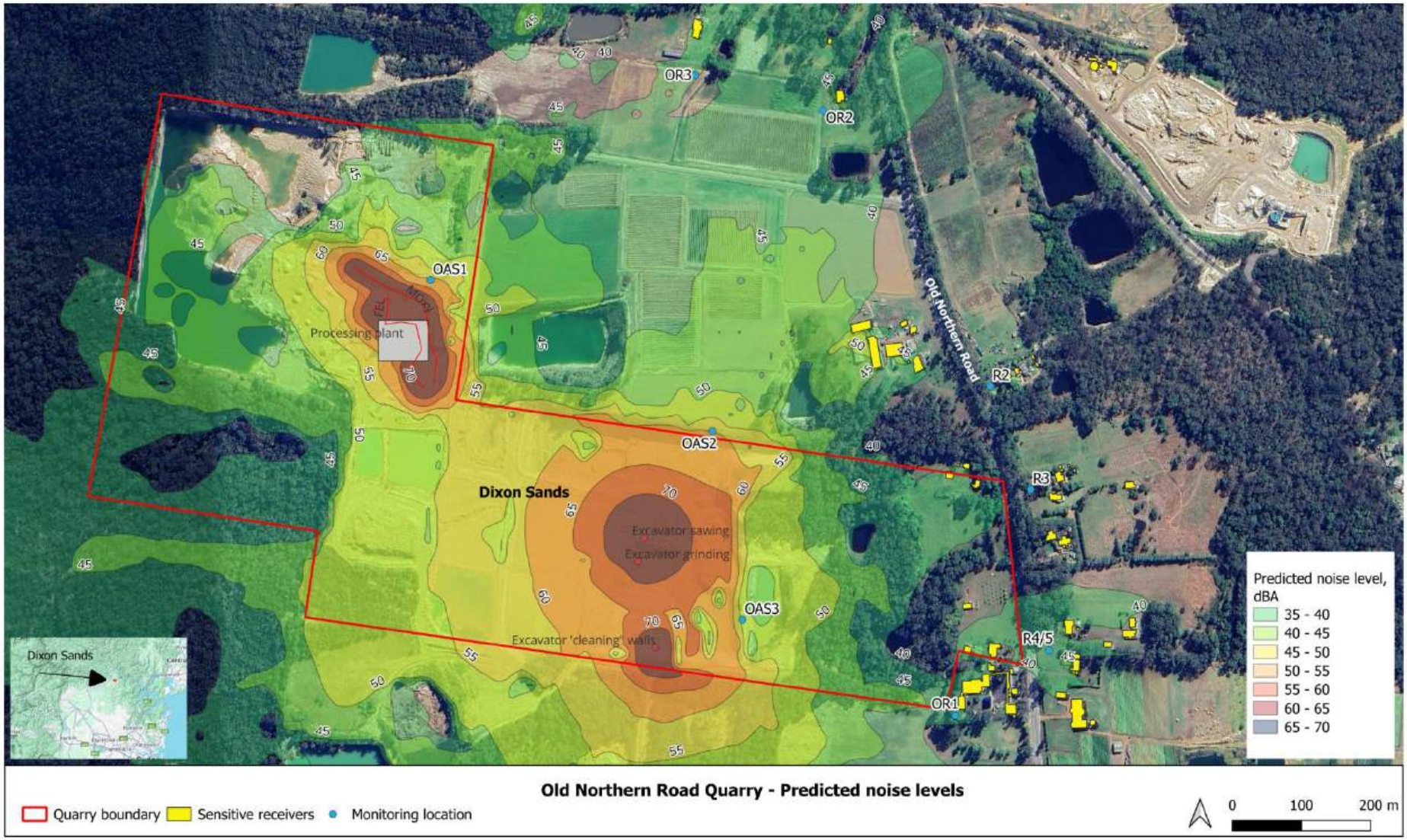
1. Observed operations during the day period were compliant with the noise limit at each receiver under the meteorological conditions at the time.

2. Observed operations during the shoulder period were compliant with the noise criteria at all receivers under the meteorological conditions at the time.

Appendix A. On-site measurements

Location	Plant item	Height, m	Sound Power Level, (third octave, Hz), dBA																													
			Sum (A)	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k
Process area	Screens, conveyors	4	**106**	42	58	53	59	74	74	83	81	81	80	82	83	84	84	87	90	92	91	93	95	96	94	93	93	96	95	99	92	86
Pit operations	FEL only	4	**98**	39	52	52	55	66	67	71	75	77	75	78	78	79	79	81	84	86	88	88	89	90	88	87	85	83	77	72	70	67
	Excavator cutting	1.5	**113**	104	103	100	102	105	101	105	106	108	114	106	111	102	98	100	105	101	103	103	103	102	104	105	102	96	94	90	86	81
	Excavator popping	1.5	**107**	98	97	94	96	99	95	99	100	102	108	100	105	96	92	94	99	95	97	97	97	96	98	99	96	90	88	84	80	75
	Excavator sawing	1.5	**112**	82	84	84	84	90	98	98	99	99	100	94	94	101	101	101	104	104	103	98	94	94	93	93	89	87	83	80	77	73

Appendix B. Noise contours



Dixon Sand Pty Ltd

Old Northern Road Quarry, Maroota

Noise monitoring report
June 2026

Doc no. 19020-NV-RP-24-1



Dixon Sand Pty Ltd
Old Northern Road Quarry, Maroota

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Revision history

0	7 August 2026	Report issued to client
1	10 August 2026	Report issued to client

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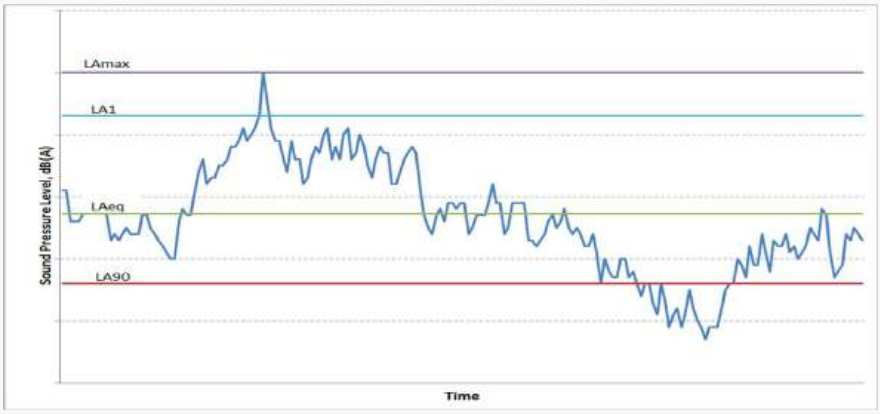
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Definition of terms

Background noise	The underlying level of noise present in the ambient noise, excluding the noise source under investigation.
Decibel (dB)	A measure of sound equivalent to 20 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure, and 10 times the logarithm (to base 10) of the ratio of a given sound power to a reference power.
dB(A)	Unit used to measure 'A-weighted' sound pressure levels. A-weighting is an adjustment made to sound-level measurement to approximate the response of the human ear.
dB(C)	Unit used to measure 'C-weighted' sound pressure levels, an adjustment made to sound level to approximate low frequency noise between 10 Hz and 200 Hz.
EPA	Environment Protection Authority
Extraneous noise	Noise resulting from activities that are not typical of the area such as construction, and traffic generated by holiday periods or special events such as concerts or sporting events. Normal daily traffic is not considered to be extraneous.
Noise level statistics	L_{A90} – The A-weighted sound pressure level exceeded 90% of the monitoring period. This is considered to represent the background noise. L_{Aeq} – The equivalent continuous A-weighted noise level—the level of noise equivalent to the energy average of noise levels occurring over a measurement period. L_{A1} – The A-weighted sound pressure level exceeded 1% of the monitoring period. L_{Amax} – The maximum A-weighted noise level associated with the measurement period. 
RBL	The Rating Background Level for each period is the medium value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period (day, evening and night)
Receiver	The land use at which noise is heard
SLM	Sound Level Meter
Sound Power Level (SWL)	The A-weighted sound power level is a logarithmic ratio of the acoustic power output of a source relative to 10^{-12} watts and expressed in decibels. Sound power level is calculated from measured sound pressure levels and represents the level of total sound power radiated by a sound source.
Sound Pressure Level (SPL)	This is the level of noise, usually expressed in dB(A), as measured by a standard sound level meter (SLM) with a pressure microphone. The sound pressure level in dB(A) gives a close indication of the subjective loudness of noise. A technical definition for the sound pressure level, in decibels, is 20 times the logarithm (base 10) of the ratio of any two quantities related to a given sound pressure to a reference pressure (typically 20 µPa equivalent to 0 dB).
Tonal noise	Noise with perceptible and definite pitch or tone

1. Introduction

Dixon Sand Pty Ltd operates the Old Northern Road Quarry in Maroota, NSW (the Quarry). The Quarry is located off Old Northern Road, as illustrated in Figure 1.

Operations at the quarry include extraction of sand and sandstone blocks, processing by screening and grading and direct sales involving loading of trucks for shipment.

The Quarry operates under Development Consent 250-09-01 and Environment Protection Licence (EPL) 3916, which set noise limits for its operation and require noise monitoring to be completed on a six-monthly basis to ensure compliance with the conditions.

Hutchison Weller was commissioned by Dixon Sand to undertake the six-monthly noise monitoring in accordance with the conditions of consent, EPL and requirements of the Noise Management Plan.

This document outlines the consent conditions, monitoring methodology and results of the monitoring undertaken on 11 June 2026.



Figure 1 Location of the Quarry

2. Noise compliance criteria

Conditions 1 and 2 of Schedule 3 of development consent DA250-09-01 outline the Quarry operating hours and condition 3 defines the noise criteria for compliance.

1. The Applicant must comply with the operating hours set out in Table 1.

Table 1 Operating hours

Activity	Permissible hours
Quarrying operations (excluding truck arrival, loading and dispatch)	7.00 am to 6.00 pm Monday to Saturday At no time on Sundays or public holidays
Truck arrival (unladen)	5.45 am to 6.00 pm Monday to Saturday At no time on Sundays or public holidays
Truck loading Truck dispatch Truck arrival (laden)	6.00 am to 6.00 pm Monday to Saturday At no time on Sundays or public holidays
Bund construction or rehabilitation works within 250 m of Maroota Public School	7.00 am to 6.00 pm Monday to Friday during school holiday periods unless otherwise approved in writing by the EPA
Maintenance	May be conducted at any time, provided that these activities are not audible at any privately-owned residence

2. The following activities may be carried out outside the hours specified in condition 1 above:

(a) delivery or dispatch of materials as requested by the NSW Police Force or other public authorities; and

(b) emergency work to avoid the loss of lives, property or to prevent environmental harm.

In such circumstances, the Applicant must notify the Secretary and affected residents prior to undertaking the activities, or as soon as is practical thereafter.

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

Table 2 Noise criteria dB(A)

Receiver	Averaging period	Shoulder (6.00 am to 7.00 am)	Day (7.00 am to 6.00 pm)
Any residence on privately owned land	LAeq (15 minute)	37	44
Any classroom at Maroota Public School	LAeq (1 hour)	-	45

Noise generated by the development is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions and modification factors) of the NSW Noise Policy for Industry (2017). Appendix 6 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.

However, the noise criteria in Table 2 do not apply if the Applicant has an agreement with the relevant landowner to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

3. Monitoring methodology

Operator-attended noise monitoring was undertaken by Hutchison Weller, an independent acoustic specialist and Member of the Australian Acoustical Society. Monitoring locations included those described in the Quarry Noise Management Plan plus additional sensitive receivers, as illustrated in Figure 1 and summarised in Table 3.

Table 3 Monitoring locations

Receiver[1]	Address	Description
OR1	Maroota public school	Classroom closest to quarry operations
OR2	4624 Old Northern Road	Private residence
OR3	4634 Old Northern Road	Private residence
R2	4579 Old Northern Road	Private residence
R3	4567 Old Northern Road	Private residence
R4/5	4547 – 4543 Old Northern Road	Mid-point between private residence
OAS1	Lot 196 of the Quarry	At source monitoring, close to operations
OAS2	Lots 1 and 2 of the Quarry	At source monitoring, close to operations
OAS3	Lots 1 and 2 of the Quarry	At source monitoring, close to operations

Note 1: An agreement between Dixon Sand and receiver R1 is in place and, therefore, noise management levels defined by the development consent are not applicable.

Monitoring was conducted in accordance with procedures outlined in the Noise Policy for Industry and Section 6 of the Noise Management Plan.

At-receiver monitoring locations were within 30 metres of residential dwellings, whilst onsite measurement locations were selected for safe access and to be representative of the operations, without extraneous noise from sources such as traffic and insects.

Instrumentation included a Bruel & Kjaer Class 1 sound level meter (SLM), serial no. 3008237, field-calibrated prior to and following monitoring. The SLM was within current calibration, next due September 2026.

Monitoring was undertaken with the SLM set on a tripod at 1.5 metres above ground and measuring A-weighted sound pressure levels under fast response. Each measurement period was 15 minutes and recorded the LAeq, LA90 and LAmax statistics.

Meteorological data was recorded during each monitoring period adjacent to the Maroota public school to establish whether meteorological conditions were suitable for monitoring. Data includes wind speed, direction, temperature, relative humidity, and sigma-theta (to establish the Pascall-Guifford stability category).

Where extraneous noise such as road traffic and fauna (insects/birds) were the dominant noise sources, making it impractical to discern the contribution of the Quarry to ambient noise levels, noise levels measured at alternative locations closer to the Quarry were utilised, in line with procedures outlines in Noise Policy for Industry (NSW EPA 2017). This involved extrapolation from the near-distance location to the sensitive receiver location, as described in Section 4.2.

4. Monitoring results

4.1 Attended measurements

Results of noise monitoring for each location are presented in Table 4 to Table 6.

In general, quarry operations were inaudible from most locations, with traffic the dominant source of noise for residents on the Old Northern Road.

Quarry operations in June 2026 fell into the following categories representing the main sources of noise. These were:

- Sand processing and truck loading (main plant, front end loaders, trucks)
- Extraction of bulk sandstone by cutting, sawing, and log popping.

Depending on the receiver location, these sources played a varying role in contributing to the total noise level.

Measured results indicated quarry operations during the shoulder period (from 6.00am to 7.00am) were inaudible, including during breaks in traffic noise, and complied with the noise criteria at all measurement locations.

On-site measurements were taken to determine the noise level of various noise sources without the influence of traffic noise. Measurements were undertaken over 15-minute periods to establish representative sound power levels of the operation to allow extrapolation to receiver locations where background noise was too high to discern quarry noise contributions. This is discussed further in Section 4.2.

During the day (standard hours), measurement at the school and residential receivers established traffic was the dominant source of noise in the area and heavily influenced measured LAeq, 15-minute noise levels. Quarry noise was inaudible throughout the duration of the monitoring.

Estimated contributions of quarry noise on the total noise level indicated compliance with the noise limit. However, due to ambient noise (traffic, birds, breeze in trees), extrapolation from at-source measurements has been undertaken to support this assertion (See Section 4.2.)

Table 4 Monitoring results – Shoulder Period - 6.00am to 7.00am – Measurements at Sensitive Receivers

Time	Location	Noise criterion	Measured 15-minute noise level			Estimated LAeq, 15 min quarry contribution	Observations	Meteorological conditions
			LAeq	LA90	LAmax			
11/06/2026 5:55	OR3	37	61	34	86	<37	Site inaudible. Audible noise: Access road and Old Northern Road (ONR) dominant and defining measurement period.	N to WSW @ 1.9 - 5.0 km/h. Extremely unstable conditions, (A class) 15 °C
11/06/2026 6:13	OR2		48	36	61	<37	Site inaudible. Audible noise: Access road and ONR dominant and defining measurement period	
11/06/2026 6:31	R3		71	41	94	<37	Site inaudible. Audible noise: ONR road traffic dominant and defining measurement period	
11/06/2026 6:48	R4/5		69	50	87	<37	Site inaudible. Audible noise: ONR road traffic dominant and defining measurement period	

Table 5 Monitoring results – Day Period - 7.00am to 6.00pm – Site Boundary Measurements

Time	Location	Noise criterion	Measured 15-minute noise level			Estimated LAeq, 15 min quarry contribution	Observations	Meteorological conditions
			LAeq	LA90	LAmax			
11/06/2026 8:49	OAS1 (Top of ledge NW of carpark)	N/A	60	58	86	-	General plant noise measured approximately 58–59 dBA at 70–80 m from the measurement location. Low-level workshop noise was also audible.	SSW to SW @ 0.8 - 1.1 km/h. Extremely unstable conditions, (A to C class) 15 - 16 °C
11/06/2026 9:31	OAS2	N/A	51	49	63	-	Water pump closest to the pit was the dominant audible noise source. Secondary water pump was not operating. All excavators were parked during the measurement period.	WNW to W @ 1.2 - 2.2 km/h. Extremely unstable to neutral conditions, (A to D class) 15 - 16 °C
11/06/2026 8:13	OAS3	N/A	61	59	74	-	Kobelco multi-saw operating approximately 98 m from the measurement location measured 61–62 dBA and was the dominant plant noise source. Hitachi excavator operating approximately 135 m from the measurement location. Dump truck loading activities measured 68–69 dBA, with loading events occasionally reaching the mid-60 dBA range. A second Kobelco excavator located approximately 124 m away was not operating. Intermittent dump truck movements entering the pit were audible but did not significantly influence the measured noise level	NNW to NW @ 0.8 - 1.3 km/h. Extremely unstable to moderately unstable conditions, (A to B class) 15 °C

Table 6 Monitoring results – Day Period - 7.00am to 6.00pm – Measurements at Sensitive Receivers

Time	Location	Noise criterion	Measured 15-minute noise level			Estimated LAeq, 15 min quarry contribution	Observations	Meteorological conditions
			LAeq	LA90	LAmax			
11/06/2026 11:04 (1-hour)	OR1 (School)	45	56	44	75	< 45	Site audible. Audible noise: ONR dominant and defining the measurement period. Intermittent school activities audible. Sporadic shovel movements from the site were audible but did not significantly influence the measured noise level.	SW to W @ 1.8 - 3.6 km/h. Extremely unstable to slightly unstable conditions, (A to C class) 16 - 17 °C
11/06/2026 9:10	OR3	44	59	36	86	<44	Site audible. Audible noise: Access road ONR road traffic dominant and defining the measurement period. Intermittent hammering from the site audible at approximately 37–38 dBA.	SSW to WNW @ 0.7 - 1.3 km/h. Extremely unstable conditions, (A class) 15 - 16 °C
11/06/2026 9:51	OR2	44	52	42	66	<44	Site inaudible. Audible noise: Access road and ONR road traffic dominant and defining measurement period	WSW to W @ 1.3 - 1.9 km/h. Extremely unstable conditions, (A class) 16 °C
11/06/2026 10:09	R2	44	69	40	91	<44	Site inaudible. Audible noise: ONR road traffic dominant and defining the measurement period.	SW to W @ 1.2 - 2.1 km/h. Extremely unstable conditions, (A class) 16 °C
11/06/2026 10:26	R3	44	69	43	91	<44	Site inaudible. Audible noise: ONR road traffic dominant and defining the measurement period.	SW to WNW @ 1.2 - 2.5 km/h. Extremely unstable to moderately unstable conditions, (A to B class) 16 °C

Time	Location	Noise criterion	Measured 15-minute noise level			Estimated LAeq, 15 min quarry contribution	Observations	Meteorological conditions
			LAeq	LA90	LAmax			
11/06/2026 10:44	R4/5	45	70	44	91	<45	Site inaudible. Audible noise: ONR road traffic dominant and defining the measurement period.	S to SW @ 1.6 - 2.5 km/h. Extremely unstable to slightly unstable conditions, (A to C class) 16 °C

4.2 Extrapolated measurements

A conclusive noise level attributable to the Quarry was not possible in all locations due to ambient noise levels. Therefore, measurements captured on-site without substantial influence from extraneous noise were used to calculate sound pressure levels at each receiver.

Based on observations close to the quarry, the following plant and equipment was in use during the monitoring period.

1. Processing plant - conveyors and drives, screens, front end loaders, Moxies (plant to stockpile)
2. Pit – Excavators – (1) sawing, (2) 'popping', and (3) 'cutting'.

Measurements close to these plant items were undertaken to establish a representative noise model of the quarry operations. A summary of noise emission data for these items is presented in Appendix A.

Predictions of noise at nearby receivers were based on measured onsite noise levels and propagation methods described in ISO 9613-2:1996 *Acoustics — Attenuation of sound during propagation outdoors — Part 2: General method of calculation,* which accounts for geometric spreading, air and ground absorption as well as barrier effects, assuming worst case meteorology of a gentle breeze from source to receiver and stable conditions.

Based on the above, modelled noise levels for each monitoring location are presented in Table 6.

Results are shown for equipment operating in each quarry area and processing plant. Modelled noise levels are within 2 dB of measured values indicating the model is sufficiently accurate to represent operating conditions.

Table 7 Extrapolated monitoring results to intermediate measurement locations

Location	Modelled noise level, dBA	Measured noise level, LAeq, 15 minute	dB Difference
OAS1	59	60	1
OAS2	51	51	0
OAS3	62	61	1

Based on measurements described in Table 5, extrapolated noise results for each receiver are presented in Table 8. Results are shown for all equipment operating. Extrapolated results indicate the Quarry demonstrates a contribution to the ambient noise environment that meets the noise limit for the day period in all locations.

Noise contour maps from the model are presented in Appendix B and illustrate noise propagation from the Quarry to all surrounding sensitive receiver locations.

Table 8 Extrapolated monitoring results

Receiver	Noise criteria		Extrapolated noise level, LAeq, 15 minute	Comment
	Shoulder	Day		
OR1	-	45	33	Predicted noise levels meet the noise limits during the shoulder and day period.
OR2	37	44	35	
OR3			35	
R2			34	
R3			34	
4/5			37	

4.3 Compliance summary

Results of the assessment demonstrate the following.

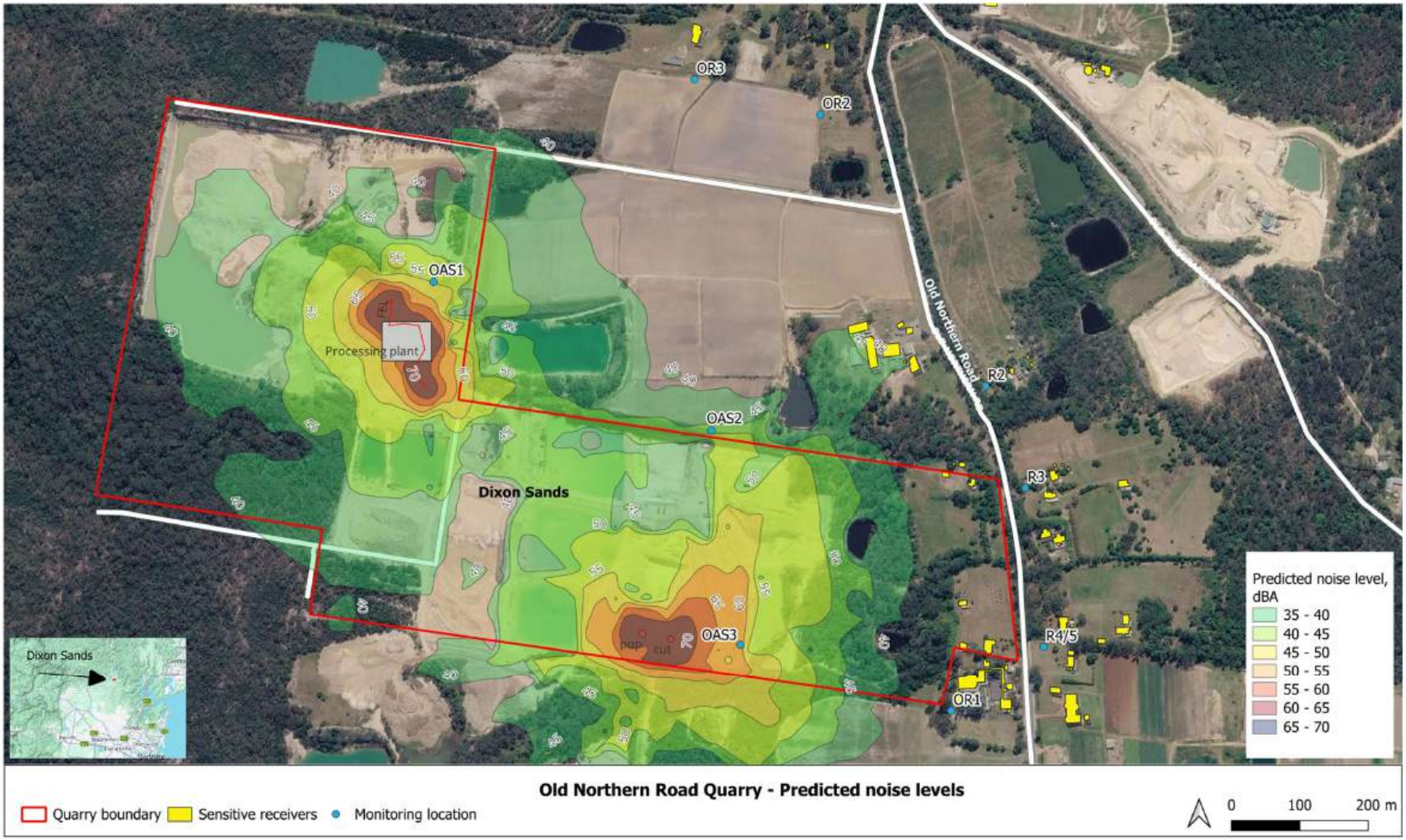
1. Observed operations during the shoulder and day period were compliant with the noise limit at each receiver under the meteorological conditions at the time.

2. Observed operations during the shoulder period were compliant with the noise criteria at all receivers under the meteorological conditions at the time.

Appendix A. On-site measurements

Location	Plant item	Height, m	Sound Power Level, (third octave, Hz), dBA																													
			Sum (A)	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k
Process area	Screens, conveyors	4	**106**	42	58	53	59	74	74	83	81	81	80	82	83	84	84	87	90	92	91	93	95	96	94	93	93	96	95	99	92	86
Pit operations	FEL only	4	**98**	39	52	52	55	66	67	71	75	77	75	78	78	79	79	81	84	86	88	88	89	90	88	87	85	83	77	72	70	67
	Excavator cutting	1.5	**113**	104	103	100	102	105	101	105	106	108	114	106	111	102	98	100	105	101	103	103	103	102	104	105	102	96	94	90	86	81
	Excavator popping	1.5	**107**	98	97	94	96	99	95	99	100	102	108	100	105	96	92	94	99	95	97	97	97	96	98	99	96	90	88	84	80	75
	Excavator sawing	1.5	**112**	82	84	84	84	90	98	98	99	99	100	94	94	101	101	101	104	104	103	98	94	94	93	93	89	87	83	80	77	73

Appendix B. Noise contours



Appendix E – Monthly Site Inspection

DIXON QUARRY GROUP

OLD NORTHERN ROAD QUARRY
DIXON SAND, MAROOTA
MONTHLY SITE CONDITION CHECKLIST

This checklist is to be completed monthly by the Environmental Officer.
Completed checklists are to be retained and included in the Annual Review.

Date of inspection:	27/02/2026
Inspection by:	Melissa Mass
Measured monthly rainfall (mm)	30/01/2026 - 27/02/2026 Rainfall = 123.8 mm

	Yes (✓) No (X) NA	Comments	Actions	Actions Complete (Date/Sign)
SEDIMENT CONTROLS				
Site checked for potential erosion issues or transport of sediment from batters, vehicle access points, excavations, haul roads, vegetation clearing etc.	✓	No erosion or transport of sediment noted.		
Effectiveness and capacity of Erosion and Sediment controls checked (drains, basins, filters etc.)	✓	All basins, drains etc clear.		
Stockpiles located and maintained correctly	✓			
Tree clearance restricted to required area	N/A			
WATER QUALITY AND QUANTITY				
Water sample taken daily for quality testing prior to discharge of water. Water quality tested and EPL#3916 criteria for pH, TSS and turbidity complied prior to discharge.	N/A			
Weir: Daily volume of water discharged recorded.	N/A			
4 monthly monitoring of surface water quality at SW19.	✓	undertaken 17/12/2025		
6 monthly monitoring of groundwater quality at six bores on Lots 1&2 and two bores on Lots 196.	✓	undertaken by UCT		
Monthly depth measurement of all groundwater bores and comparison with rainfall	✓	undertaken on 27/02/2026		
Monthly inspection of drainage & sediment controls including water storages, pumps, pipes and dams' walls	✓	undertaken on 27/02/2026		
Any Fuel or oil spills reported and maintained	✓			
Fuels/chemicals stored in bunded areas	✓	EPA approved bunding		
AIR QUALITY				
Continuous static dust (collected for analysis monthly)	✓	undertaken by UCT		
On site dust suppression	✓	water cart in use when required.		
Loads covered entering and leaving site	✓	in compliance with TMP		
No burning of vegetation	✓			

Wind speed, direction and rainfall recorded	✓	TEOM and weather station managed by CBASES.		
NOISE				
Operation only during hours of operation	✓	In compliance with NMP.		
No complaints received from school, residences or local community members.	✓			
6 monthly monitoring at Maroota PS	✓	undertaken by Hutchison and Weller		
Bulldozer not being used concurrently with any other plant on strips 4, 5 and 6 of Lots 1 and 2 DP547255 at depths between EGL and 6 metres below EGL	N/A			
Bulldozer being used for clearing, topsoil stripping and bund construction on Lots 1 and 2 DP547255 only during calm wind conditions	N/A			
Between 0-6 metres depth below EGL, dozer-dump truck combination replaced by excavator-dump truck combination to strip overburden on Strips 2-6 inclusive	✓			
Quarrying at ground level on Lot 196 not occurring during southwest to northwest winds	✓	In compliance with NMP.		
Construction and rehabilitation of eastern highwall of quarry within 250 metres of Maroota Public School occurring in school holiday periods only	✓			
FLORA & FAUNA/ REHABILITATION				
Sightings of threatened species reported	✓			
No disturbance of buffer/conservation areas	✓			
All buffer/conservation area fencing/marking intact	✓			
Rehabilitation undertaken to schedule	✓	monthly visit by Bush-It.		
Success of rehabilitation of buffers, conservation areas & rehabilitation areas	✓			
Rehabilitation near school during holidays	✓			
Flora and fauna monitoring program undertaken to schedule	✓			
ARCHAEOLOGY				
Stop work if sites located – OEH notified	✓			
WASTE AND SITE CONDITION				
No rubbish visible or buried on site	✓			
Recyclables removed by licensed Contractors	✓	By council contractors		
Putrescible waste covered and regularly removed	✓	By council contractors.		
EXTRACTION PROGRAM				
Extraction depths from monthly checked control points in accordance with extraction program.	✓			

ROADS AND TRANSPORT				
Weekly inspection of Old Northern Rd/Crown Rd intersection and sand/clay removed as necessary.	✓			
Crown Road, Old Northern Road near site, intersection & haul roads in good state of repair.	✓			
Truck movements have not exceeded 180/day, or 40 between 6-7am.	✓	Refer to Hunny to check.		
Weighbridge/log book records forwarded to Council monthly	✓	Refer to Hunny to check.		
REPORTING				
Complaints register maintained	✓	updated and published monthly		
Environmental incidents reported to EPA and DPIE	✓	None this period.		
PIRMP / SPILL KIT				
Spill kits inspected and used items replaced	✓			
A copy of PIRMP flowchart available in each Spill Kit	✓			

Signed: M. M. ..... (Environmental Officer or Delegate)

Appendix F – Waste Register

Old Northern Road
Waste Tracking Register FY 2025-2026

Date	Waste Type	Amount	Measurement	Contractor	Disposal / Recycle	Receipt No
01/07/24 - 30/06/25	General Solid Waste - recyclable	12.48	cubic metre	Council Waste Contractor	Recycle	Council Rate
01/07/24 - 30/06/25	Genral Solid Waste - putrescible	37.44	cubic metre	Council Waste Contractor	Disposal	Council Rate
29/04/2026	Liquid Waste	1700	litres	ABC Waste Oil Collection	Treatment	2664
1/06/2026	Liquid Waste	1800	litres	ABC Waste Oil Collection	Treatment	2665
1/07/2026	Liquid Waste	2000	litres	ABC Waste Oil Collection	Treatment	2666
27/07/2026	Liquid Waste	1200	litres	ABC Waste Oil Collection	Treatment	2667
18/08/2026	Liquid Waste	1500	litres	ABC Waste Oil Collection	Treatment	2668
25/02/2025	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	9916
31/02/2025	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	9993
19/09/2025	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	10023
14/10/2025	Non-Putrescible skip	2	cubic metre	Asquith Mini Skips	Disposal	10033
11/11/2025	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	10042
6/01/2026	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	10071
28/01/2026	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	10076
28/01/2026	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	10078
16/03/2026	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	10097
19/09/2025	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	10023
14/10/2025	Non-Putrescible skip	2	cubic metre	Asquith Mini Skips	Disposal	10033
11/11/2025	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	10042
6/01/2026	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	10071
28/01/2026	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	10076
28/01/2026	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	10078
16/03/2026	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	10097
21/05/2026	Non-Putrescible skip	1	cubic metre	Asquith Mini Skips	Disposal	10118
	Hydrocarbon waste	300	litres	Greaseaters	Treatment	104577
26/08/2025	Hydrocarbon waste	300	litres	Greaseaters	Treatment	104867
22/09/2025	Hydrocarbon waste	300	litres	Greaseaters	Treatment	105159
22/10/2025	Hydrocarbon waste	300	litres	Greaseaters	Treatment	105536
18/11/2025	Hydrocarbon waste	300	litres	Greaseaters	Treatment	105861
16/12/2025	Hydrocarbon waste	300	litres	Greaseaters	Treatment	106203
14/01/2026	Hydrocarbon waste	300	litres	Greaseaters	Treatment	106474
9/02/2026	Hydrocarbon waste	300	litres	Greaseaters	Treatment	106826
11/03/2026	Hydrocarbon waste	300	litres	Greaseaters	Treatment	107174
10/04/2026	Hydrocarbon waste	300	litres	Greaseaters	Treatment	107501
8/05/2026	Hydrocarbon waste	300	litres	Greaseaters	Treatment	107818
5/06/2026	Hydrocarbon waste	300	litres	Greaseaters	Treatment	108187
01/07/24 - 30/06/25	Printer Ink Catridge	0.1	cubic metre	Post Office or Officeworks	Disposal	N/A
15/10/2025	Scrap Metal	7.64	tonne	Westland Metals	Recycle	WM-26649
27/10/2025	Scrap Metal	3	tonne	Westland Metals	Recycle	WM-26649
5/06/2025	Scrap Metal	8.62	tonne	Westland Metals	Recycle	WM -26637
26/06/2025	Scrap Metal	8.92	tonne	Westland Metals	Recycle	WM -26637
21/07/2025	Scrap Metal	6.22	tonne	Westland Metals	Recycle	WM -26637
5/08/2025	Scrap Metal	8.4	tonne	Westland Metals	Recycle	WM -26637
17/09/2025	Scrap Metal	5.1	tonne	Westland Metals	Recycle	WM -26637
11/02/2026	Scrap Metal	3.24	tonne	Westland Metals	Recycle	18/08/2026
1/04/2026	Scrap Metal	6.5	tonne	Westland Metals	Recycle	18/08/2026
7/04/2026	Scrap Metal	4.32	tonne	Westland Metals	Recycle	18/08/2026
5/06/2026	Scrap Metal	2.3	tonne	Westland Metals	Recycle	18/08/2026
8/04/2026	Scrap Metal	8.145	tonne	Tungsten & Mining Scrap	Recycle	1907
01/07/24 - 30/06/25	Sewage	anufacturer's specification		Onsite treatment	Treatment	N/A
29/07/2025	Scrap Tyres (25" and over)	0.317	tonne	Marathon Tyres	Recycle	234399
29/07/2025	Scrap Tyres (25" and over)	0.188	tonne	Marathon Tyres	Recycle	234102
29/07/2025	Scrap Tyres (25" and over)	1.741	tonne	Marathon Tyres	Recycle	234396
15/07/2025	Scrap Tyres (25" and over)	0.435	tonne	Marathon Tyres	Recycle	233632
18/06/2026	Scrap Tyres (25" and over)	0.871	tonne	Marathon Tyres	Recycle	248279
17/03/2026	Scrap Tyres (25" and over)	0.871	tonne	Marathon Tyres	Recycle	243532
17/03/2026	Scrap Tyres (25" and over)	0.871	tonne	Marathon Tyres	Recycle	243534
3/09/2026	Scrap Tyres (25" and over)	0.317	tonne	Marathon Tyres	Recycle	236193
28/08/2025	Scrap Tyres (25" and over)	0.317	tonne	Marathon Tyres	Recycle	235938
01/07/24 - 30/06/25	Batteries	<0.1	cubic metre	Officeworks/Post Office	Recycle	N/A
01/07/24 - 30/06/25	Coffee Pods	<0.1	cubic metre	Return to manufacturer for recycling and composting	Recycle	N/A

Total			
	Scrap Metal	72.41	tonnes
	Non-Putrescible (Skip Bin)	19	m3
	Hydrocarbon waste	3600	litres
	Council Putrescible	37	m3
	Council Recycle	12	m3
	Printer Ink Catridge	0.1	m3
	Liquid Waste	8200	litres
	Coffee Pods	<0.1	m3
	Sewage	As per manufacturer's specification	
	Waste Tyre Recyling	5.9	tonne
	Batteries	<0.1	m3

Appendix G – Bush Regeneration Report

Bush-it
Your Bushland...Our Passion

Dixon Sand Pty Ltd

Old Northern Road Quarry

(Development Consent DA 250-09-01)



Annual Report

July 2025 – June 2026

Assisted bush regeneration and rehabilitation works

Author: Tim Baker

Date finalised: 06/09/2026 after revision

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INTRODUCTION

This report summarises the assisted bush regeneration work undertaken by Bush-it Pty Ltd for Dixon Sand Pty Ltd between July 2025 and June 2026 as part of the Old Northern Road Quarry Development Consent DA 250-09-01. A total of 343.5 hours ($24,031.26 excluding GST) were worked throughout the financial year with an average team size of three-four per visit, not including the preparation of this report. The distribution of hours over the financial year are not uniform, as resources are focused on undertaking primary/planting works in the cooler months and targeting exotic grasses from seeding and spreading at the tail end of summer.

Dixon Sand Pty Ltd operate a mineral sand quarry on the Old Northern Road at Maroota, NSW. On their behalf Bush-it manages the native vegetation of 8.4 hectares at the Old Northern Road (ONR) quarry as illustrated in Figure 1. The area managed by Bush-it at the ONR quarry is comprised of a mix of remnant native vegetation; rehabilitated quarry sand and abandoned agricultural land.

The vegetation at the ONR quarry site is managed according to the operating requirements of the quarry. As the quarry expands its area of extraction, existing native vegetation will be cleared, and the soil translocated to rehabilitate other areas.

In carrying out our work for Dixon Sand, Bush-it:

- Practices low impact weed management techniques such as manual removal in plant communities containing threatened species.

- Regularly identifies the density and extent of weed infestations especially those covering an area of greater than 25 m²

- Undertakes appropriate, targeted weed control activities to ensure minimum disturbance to natives and minimum off-target damage.

- Conducts site specific induction training for staff working at the quarry, including field identification of all threatened species.

- Routinely assesses the effectiveness of the control programs and in response makes necessary modifications.

- We undertake bi-monthly inspections noting the presence of weeds in drainage lines, and along access tracks.

- And we follow industry standard protocols for bushland hygiene by ensuring all our tools, boots and equipment are clean before entering the work site.

Overview of management zones and work areas



Figure 1a. – Old Northern Road Quarry – Lots and area of works 2025-2026.

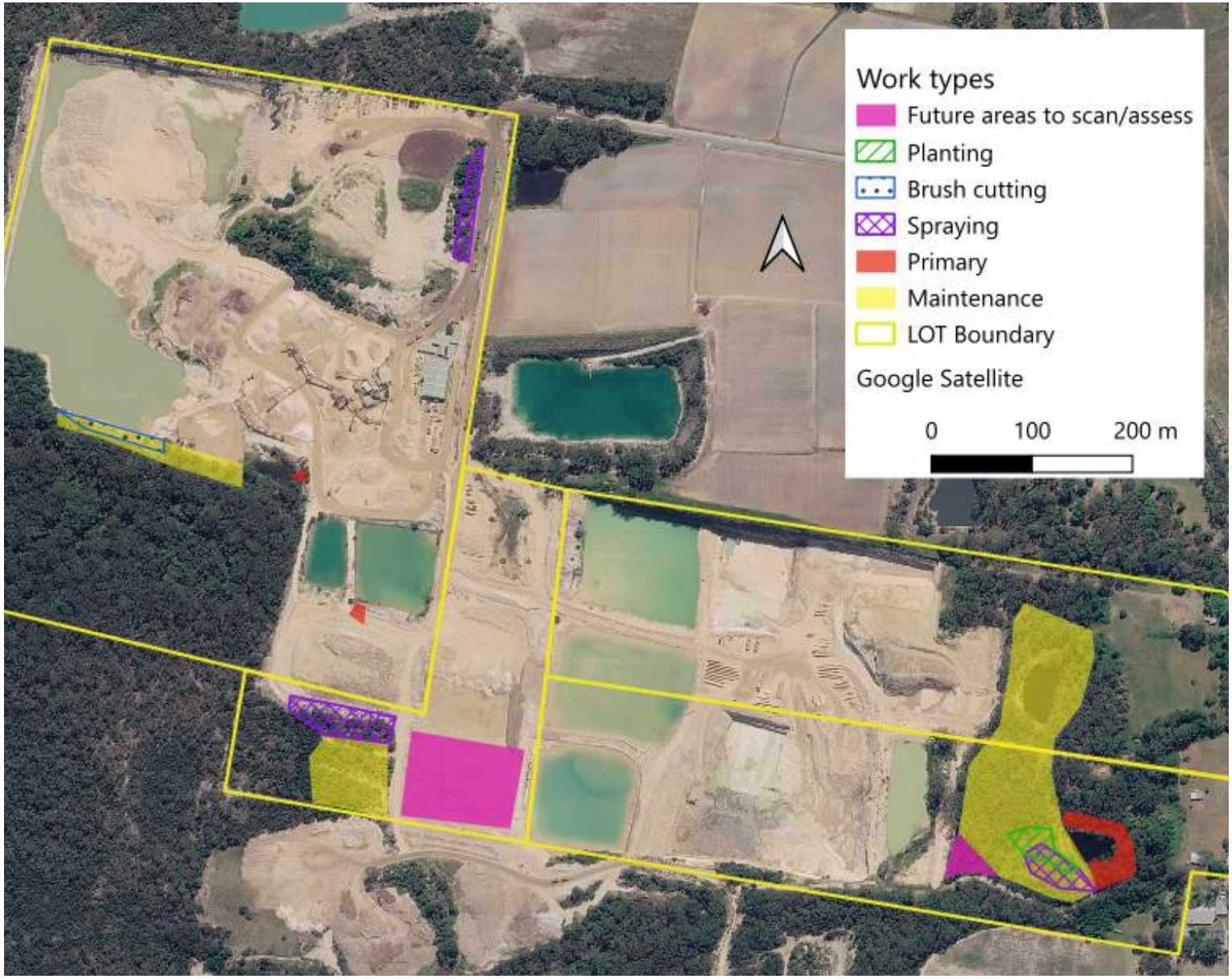


Figure 1b – Old Northern Road Quarry– type of works 2025-2026.

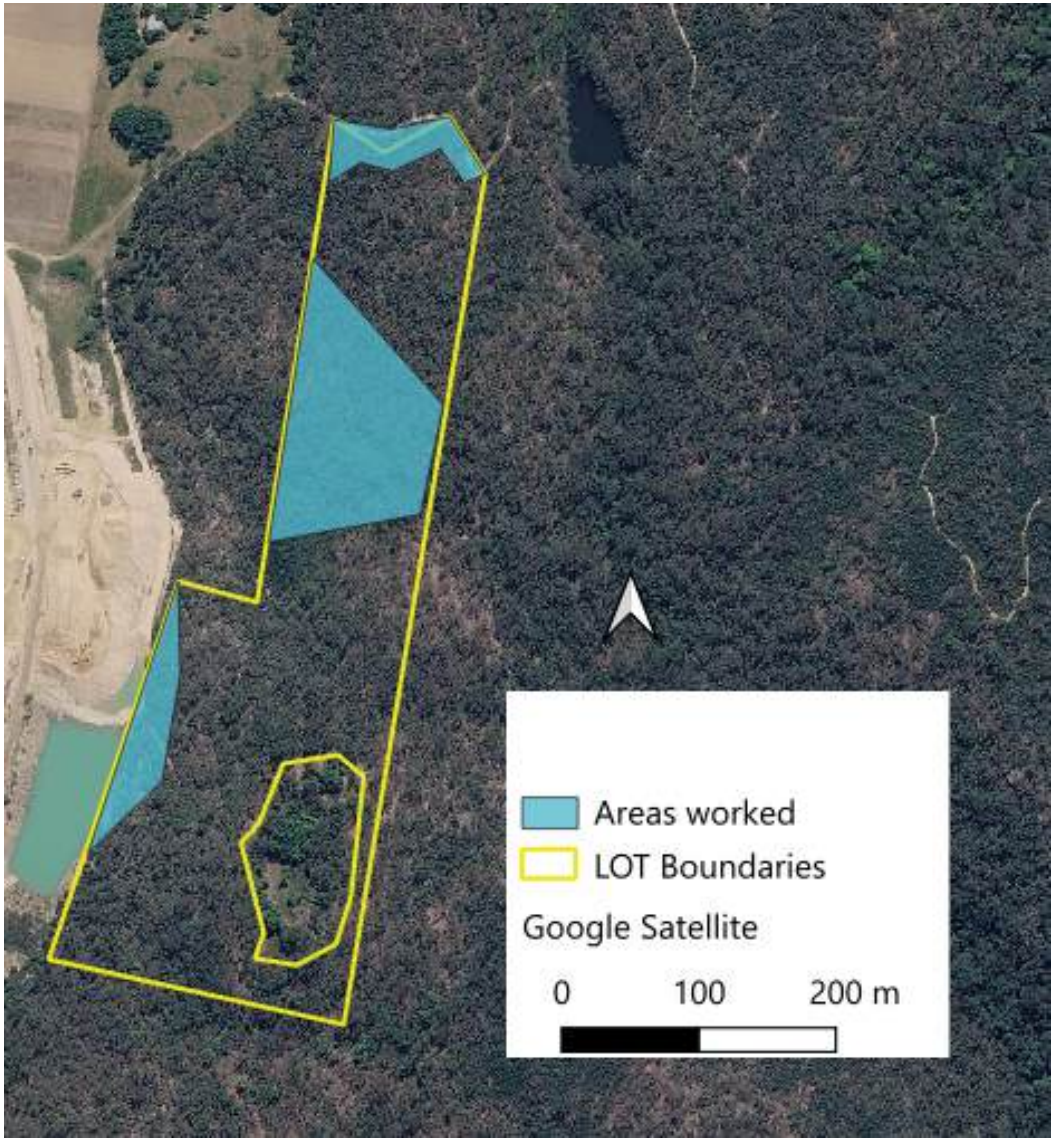


Figure 2a - ONR Biodiversity Offset Area at Haerses Rd - areas of work for 2025-26.

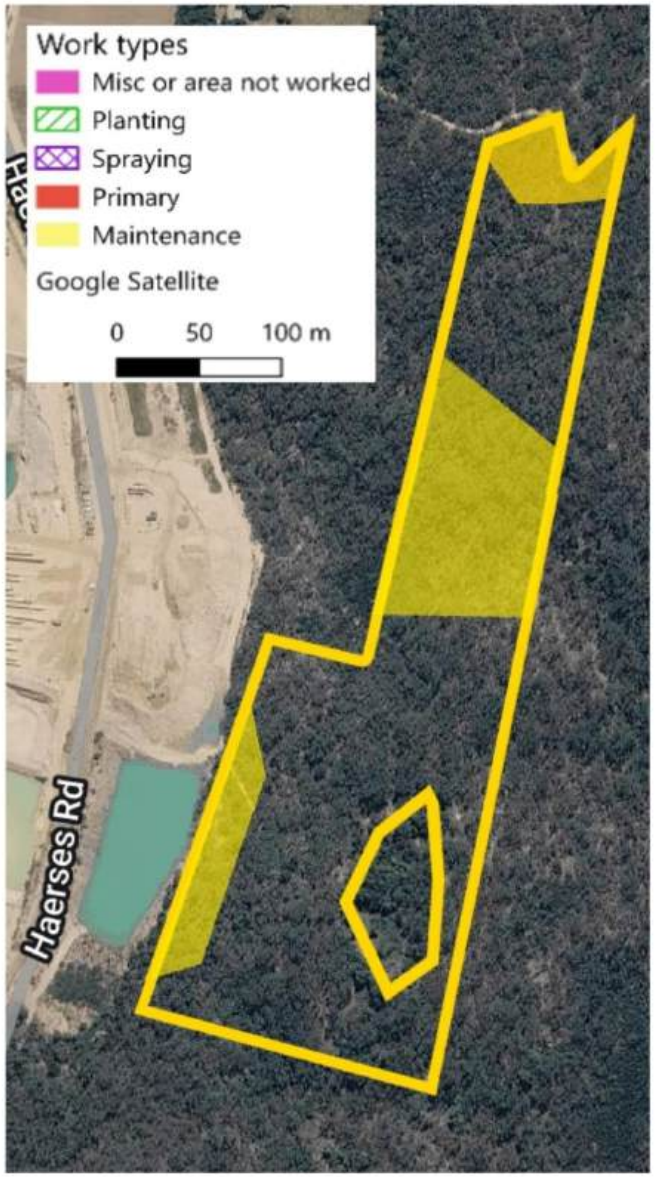


Figure 2b – ONR Biodiversity Offset Area at Haerses Rd - type of works 2025-2026

Old Northern Road Quarry

Embankment At Front Gate

Scope

The embankment at the front gate (see **Figure 1a**) is an exposed area of the quarry located between the roadway and an area used to stockpile quarry products and machinery.
The embankment is roughly 100m long and 20 m wide. A mix of native shrubs have been planted to stabilise the soil and improve the appearance of the mound.

Resources – 3 Hours

Monitored for *Cortaderia selloana* but none were found. Spot sprayed exotic grasses in the spring of 2025.

Recommendations

A small planting with some remnant canopy and shrub species in the area would also prove beneficial, especially in exposed areas prone to the spread of invasive grasses. This could be undertaken in April-May 2027.

LOT 1 AND 2

SCOPE

Lot 1 (see **Figure 1a**) is a 1.4 ha bush block located on the eastern side of the extraction site of native vegetation. The canopy consists of Red Bloodwood (*Corymbia gummifera*) and Smooth-barked Apple (*Angophora costata*). There are also species here, such as the woody pear (*Xylomellum pyraform*) and the Graceful Bush Pea (*Pultenea flexilis)* that favour residual shale or laterite soils.

As Dixon Sand expands its quarry operations, Lot 1 will be cleared of vegetation and the topsoil will be stored for future rehabilitation or direct along the designated native vegetation corridor to form a connection between existing areas of bushland roughly 6.8 ha in size. *Old Northern Road Quarry BRMP* (2020).

In the meantime, the vegetation on Lot 1 is conserved in its current natural state. The work undertaken by Bush-it ensures that the biodiversity of the vegetation remains intact and free from invasive species. Bush-it also works to preserve important habitat elements on the site by minimising soil disturbance or the relocation of deadwood or other plant material.

Lot 2 (see **Figure 1a**) is a 3.4 ha block also located on the eastern side of the excavation area. The canopy here is composed of Grey Gums (*Eucalyptus punctata*) and Peppermint Gums (*Eucalyptus piperita*) intergrading with Black She Oak (*Allocasuarina littoralis*) and *Acacia parramattensis.*

There are two water storage dams located in Lot 2 and a service trail connecting the quarry and the Old Northern Road runs along the southern side. The core areas of Lot 2 are to be conserved in their current natural state. The abandoned farm and orchards that currently harbors various exotic grasses are steadily being revegetated. Areas to be conserved and restored in some places are within the 250m buffer of the school.

A noise bund on the western end of Lot 2 was constructed in 2023, which allowed Bush-it to recommence works in the lot. Since then, there has been a large focus on secondary work, and the revegetation of the areas previously cleared of Lantana. Predation from Swamp Wallabies is an issue. Bell Miner associated dieback (BMAD) has affected large canopy trees and we aim to replace these in the coming years.





Figure 3 – Areas cleared of Lantana where supplementary planting has occurred – Lot 2



Figure 4 – Example of Lantana stands before treatment.



Figure 5 – Recovery of shrub layer at Lot 2

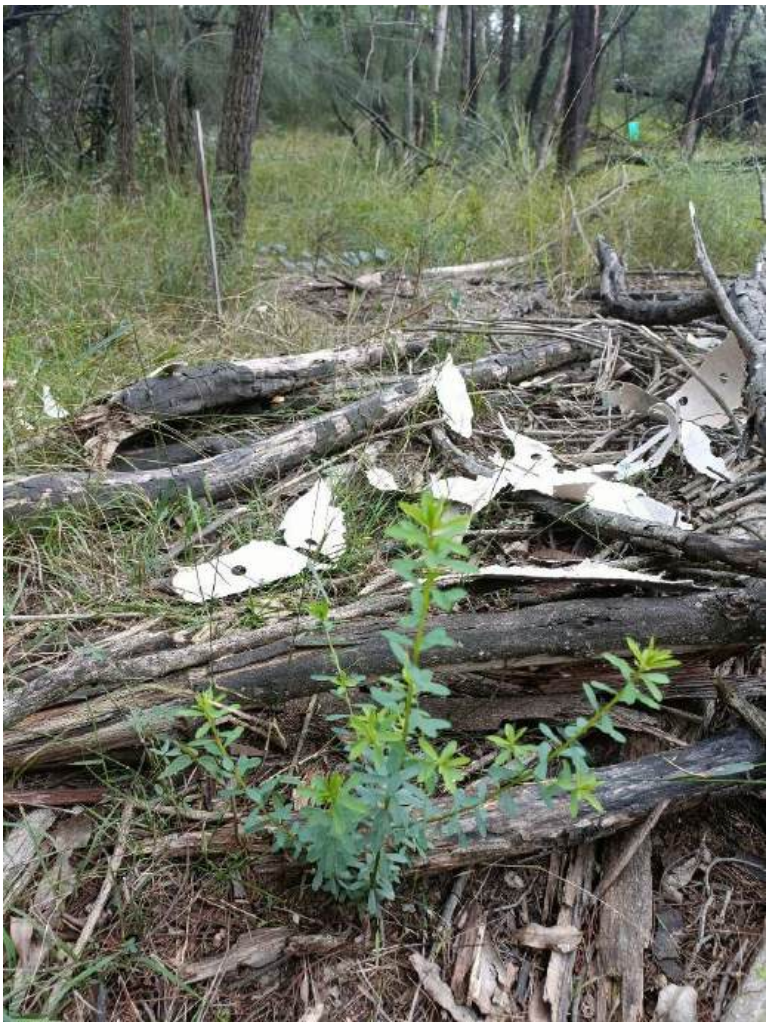


Figure 6 – *Pultanea flexilis* planting doing well

RESOURCES – 187.5 HRS (114.5 LAST YEAR)

Works in Lot 1 were very minimal this financial year, as efforts were especially focused on the ongoing reduction of Bell Minor habitat and revegetation of Lot 2. However, the lot was periodically scanned to ensure no new weed incursions were going unnoticed.

The majority of works were focus within Lot 2, where 130 shrubs/trees (*Ozothamnus diosmifolius, Dodonea triquetra, Angophora costata & Allocasaurina littoralis)* were planted in June 2026 following on from maintenance works. This was implemented as a long-term strategy to rehabilitate the shrub and canopy structure of Lot 2 where large areas of Lantana have been cleared in previous years. The rate of predation of the plantings in Lot 2 was underestimated, as such, larger tree guards were implemented for some of the existing plantings that have survived. In addition, annual exotic species were preserved to lower the impact of predation on the

plantings. Owing to the predation rates and the harsh conditions (dry and exposed soil), survival rates have been lower than originally anticipated. However, as the native vegetation establishes this should be less of an issue in the years ahead.

Primary and secondary works continued into this financial year for the aforementioned removal of Bell Minor habitat, i.e. *Lantana camara*. Various techniques were used, namely drilling, spraying with 9:1 glyphosate and cut/painting. This was predominantly carried out around the Dam area in Lot 2.

Routine slashing of exotic grass species such as *Eragrostis curvula, Andropogon virginicus* and *Paspalum urvellei* (as well as flowering *Ageratina adenophora*) was undertaken. *Ageratina Adenophora* was also removed manually or with the cut-paint method. An occasional spot spray was also used to treat exotic grasses.

Pellaea viridis was detected within Lot 2 in areas of previous Lantana primary works. The outbreak was sprayed with a trans-mix of Glyphosate 50:1 and Metsulfuron-methyl (1.5 g per 10L). A small amount of hand removal was also undertaken. The outbreak is being closely monitored.

Recommendations

As primary works of Lantana with Lot 2 has been extensive, in addition to the Bell minor canopy dieback, exposed areas still exist that would benefit from enrichment/revegetation of native trees and shrubs. Owing to the dry and exposed soil, upholding survival rates in these areas is challenging. Translocation of soil-laden seed from Lot 1 with the aid of machinery may also assist the rehabilitation of Lot 2. There is an area that hasn't been worked close to the chain gate and the bund wall that could do with capping with fresh sandstone crush. These works are not critical and can be done whenever there is surplus of clean top-soil. Installation of steel mesh guards would also help protect plantings, although it is costly.

Significant areas of Lantana within Lot 2 have been cleared, therefore the focus in the immediate future is chiefly on secondary and maintenance of Lantana and exotic species establishing following the primary works of the Lantana. Canopy replacement is required in some areas.

Lot 1 would benefit from continued monitoring and targeted works around areas prone to weed invasion, in particular areas facing the large mounds. The same can be said of the areas close to the bunds in Lot 2, although Lantana stands there should be preserved to a narrow buffer to aid in the suppress germination of new invasive specimens.

Exotic grasses should continue to be routinely sprayed and suppressed in areas previously worked.

LOT 196

SCOPE

The vegetation at Lot 196 (see **Figure 1a**) resembles Coastal Enriched Sandstone Dry Forest intergrading with Sandstone Gully Forest containing *Angophora costata, Corymbia gummifera*, *Eucalyptus piperita* with scattered *Eucalyptus haemastoma*. The understory is comprised *of Ceratapetalum gummiferum* and *Banksia serata*, and a grove of *Kunzea ambigua* has established itself on the old nursery site.

An old access road on the most northern edge of the parcel of bushland, referred to as the old commander, is now dominated by exotic perennial grass species *Andropogon virginicus* and *Eragrostis curvula*. The area requires regular maintenance to supress seed dispersal of the aforementioned grasses.

RESOURCES – 23 HOURS (54.5 HOURS LAST YEAR)

Works in the past (2024-25) have focused on revegetating the commander area with fast growing shrubs aiming to improve soil condition for future revegetation projects by breaking up soil compaction and increase soil enrichment through the plantings. The following shrub species were planted including; *Acacia falcata, Acacia longifolia, Acacia ulicifolia , Acacia suaveolens, Angophora hispida, Banksia ericifolia, Hakea dactyloides, Hakea sericea, Ozothamnus diosmifolius, Isopogon anethifolius.* Herbivore predation is also a key factor in plant survival here and guards have played a crucial role in providing protection. Overall the area is starting to show signs of recovery and requires further species enrichment, especially canopy species.

Regular brush-cutting and slashing of exotic grasses, primarily *Andropogon virginicus,* was conducted between October and January in efforts to supress spread of seed throughout the area. Hand removal techniques were also used around more sensitive enrichment nodes comprised of juvenile *Kunzea ambigua.* Hand removal was also conducted for the odd *Ageratina adenophora* in the area.

RECOMMENDATIONS

Follow-up maintenance and monitoring of planted shrub species is required.

The long-term goal is to revegetate the compact and exposed areas of the site and to increase the foliage projection cover. Bush-it recommends that

further plantings of remnant canopy species and competitive native grasses such as *Imperata cylindrica* be established along the strip adjoining Lot 196. Such a plantings provide competition for exotic grasses and will benefit the site moving forward. Soil inoculation would also assist the recovery of the soil biome.

Regular slashing of *Andropogon virginicus* prior to seeding (October-January) is recommended in addition to hand removal of any emerging *Ageratina adenophora.*



Figure 7 – Example of *Andropogon virginicus* control around plantings



Figure 8 – Example of *Banksia ericifolia* growing well at Commander

Native Vegetation Corridor (NVC)

Scope

The Native Vegetation Corridor (NVC) as shown in **Figure 1a**. Native heath in the rehabilitation area continues to flourish and the soil translocation in this area has been very successful. The locally threatened *Darwinia fascicularis subsp. oligantha* has established itself well, as have the *Melaleuca deanei* cuttings that were planted in 2017. The more recent *M. deanei* plantings have put on new growth and were able to have their guards removed a few years ago and are now a metre or so in height.

The biomass of the mother *Melaleuca deanei* was relocated from a developed area to the NVC in 2024. Despite appearing otherwise dead, it had small shoots emerging from it. Although chances of revival are most improbable, this shall be monitored for further evidence of remaining life.

The adjoining area in PF Formations that was a large source of seed, is now active and this is a major win for the NVC.

RESOURCES – 54 HOURS (53.5 hours LAST yEAR)

The largest threat to the NVC continues to be exotic perennial grass species, namely *Andropogon virginicus* and *Cortaderia selloana* blowing in from neighbouring properties. Bush-it has been successful in preventing any new infestations of the exotic grass species through regular sweeps of the NVC and adjacent mounds.

Cynodon dactylon was treated within the vegetated mounds abutting the NVC. The incursion was treated with Glyphosate this year. However, we use a strategy of alternating between using Fusilade forte which is a selective herbicide and is very helpful where Couch is growing amongst native shrub species.

Bush-it continues to routinely thin out dominating shrubs, namely *Banksia ericifolia*, aiming to promote biodiversity. The excess material was used to brush mat on exposed bare ground throughout the site, aiming to create microclimates that promote further regeneration from the seed bank.

Continue to monitor and manage competitive native shrubs and trees in the translocation, especially where they overshadow and/or encroach on the threatened species. Bush-it will selectively cull or cut back growth to encourage the most diverse assemblage of plants possible.

Continued monitoring of exotic perennial grasses throughout and bordering NVC. Regular monitoring of previously treated *Cynodon dactylon* outbreaks is recommended.

With the upcoming extension to the NVC, we instructed Australian Eco-flora to hold on and pot up Angophora hispida seed that was collected in January 2026. Establishing canopy trees will be a major key to the success of this area, as well as heavily brush matting the site to introduce seed, organic matter and protection for small seedlings. Once, the mounds have been spread we will be continuously perusing the area for *Cynodon dactylon* and spot spraying where needed.



Figure 9 – Example of *Cynodon dactylon* sprayed in stockpiles NVC



Figure 10 – Example of edge of NVC, where Pampas Grass was treated

SCOPE

The vegetation communities represented at Haerses Road Biodiversity Offset Area (HRBOA) (see **Figure 2a**) include Sydney Sandstone Ridgetop Woodland, Sydney Sandstone Gully Forest, and Sydney Sandstone Heath.

The dominant canopy species include *Corymbia gummifera* and *Eucalyptus racemosa*. While on the lower portions of the site, A*ngophora costata* and *Eucalyptus piperita* overshadow an understorey of *Syncarpia glomulifera* and *Ceratopetalum gummiferum*. The sandstone heath is prominent throughout the areas close to Haerses Road. The dominant species here include A*ngophora hispida, Banksia ericifolia and, Leptospermusm trinervium.*

The HRBOA is an example healthy of remnant native vegetation. It's connected to an area of natural bushland and evidence suggests the trophic complexity and abundance of characteristic native species is high.

The threats to the HRBOA are well managed. On casual observation the soils on site are undisturbed and capable of supporting a diverse range of plants at various life stages. There is also evidence of colonisation of native plants around the perimeter of the HRBOA in areas that have been previously cleared of vegetation.

Given the protection it receives from the HR offset, the number of non-native invasive or undesirable species is low.

RESOURCES – 38.5 HOURS

Works undertaken within the last twelve months was primarily throughout the creeklines and upper edge of the site, scouting and treating exotic grasses, occasionally *Ageratina Adenophora,* and any other weed incursion. No significant outbreaks were found.

Visits to HRBOA are limited in frequency to minimise the risk of introducing weed incursions and causing damage to the largely good quality bushland.

RECOMMENDATIONS

Continued work in the HRBOA would be assisted by identifying the successional stages of the floristic community and the habitat needs of resident fauna conducive to an ecological burn. A burn would need to be undertaken in accordance with EHG's guidelines with RFS support or could be sub-contracted to Endemic Environmental who undertake cool ecological burns also.

APPENDIX

WEED SPECIES CONTROLLED AT ONR

Common name	**Scientific name**
Crofton Weed	*Ageratina adenophora*
Mistflower	*Ageratina riparia*
Whisky Grass	*Andropogon virginicus*
Moth vine	Araujia sericifera
Fleabane	*Conyza bonariensis*
Pampas Grass	*Cortaderia selloana*
Common Couch	*Cynodon dactylon var. dactylon*
Summer Grass	*Digitaria ciliaris*
African Lovegrass	*Eragrostis curvula*
Cat's Ear	*Hypochaeris radicata*
Lantana	*Lantana camara*
Mickey Mouse Plant	*Ochna serrulata*
Paspalum	*Paspalum dilatatum*
Green Cliff Brake	*Pellaea viridis*
Blackberry	*Rubus fruticosus*
Fireweed	*Senecio madagascariensis*
Wild Tobacco	*Solanum mauritianum*
Purpletop	*Verbena bonariensis*

REgister of Herbicide records

Date	Operator	Herbicide	Method	Neat	Volume	Start_time	End_time	Time_closest	Notes	Speed(km/h)	Direction
22/12/2025	Tim	Glyphosate 360g/L	15L knapsack sprayer	200	10	8:30:00	14:30:00	10:00:00		20.4	SSW
5/11/2025	Pat	Glyphosate 360g/L	15L knapsack sprayer	0.1	5	7:30:00	9:30:00	8:00:00		20.4	WNW
15/10/2025	Pat	Glyphosate 360g/L	15L knapsack sprayer	200	10	7:30:00	9:00:00	8:00:00		9.3	NNW
25/09/2025	Pat	Glyphosate 360g/L	15L knapsack sprayer	400	20	7:30:00	12:30:00	8:00:00	Sprayed exotic grasses at front gate, mound of NVC and WFR Visual buffer	14.8	N
14/07/2025	Josh	Glyphosate 360g/L	15L knapsack sprayer	220	11	7:30:00	13:00:00	10:00:00	5 litres targeting couch in the NVC translocation... mixed up too much and so sprayed out the rest on lantana on the edge of lot 2	3.7	WNW
22/01/2026	Pat	Glyphosate 360g/L	15L knapsack sprayer	200	10	7:30:00	12:30:00	8:00:00		7.4	SW

DISTRIBUTION OF HOURS ACROSS MANAGEMENT ZONES

Zone	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Admin, Reporting, CCC meeting	14	0.5	2	5.5	3	1	1	1	1	2	3.5	3	**37.5**
ONR – Embankment at Front Gate	0	0	3	0	0	0	0	0	0	0	0	0	**3**
ONR – Lot 1 & 2	35.5	8	0	40.5	37.5	12	0	17	0	0	14.5	22.5	**187.5**
ONR – Lot 196	0	0	0	6	7.5	1.5	2	0	0	6	0	0	**23**
ONR – NVC	8	12	13	0	2.5	2.5	5	0	11	0	0	0	**54**
ONR - HRBOA	0	4.5	0	7.5	0	0	10	0	4.5	12	0	0	**38.5**
TOTAL	**57.5**	**25**	**18**	**59.5**	**50.5**	**17**	**18**	**18**	**16.5**	**20**	**18**	**25.5**	**343.5**

Appendix H - Annual Biodiversity & Rehabilitation Management Report

ANNUAL BIODIVERSITY & REHABILITATION MANAGEMENT REPORT Old Northern Road 2026

Prepared for Dixon Sand Pty Ltd

September 2026 V.1

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Annual Biodiversity

&

Rehabilitation Management

Report

Old Northern Road

2026

Dixon Sand Pty Ltd

This assessment has been prepared by

Melissa Mass

23rd September 2026 V.1

Date

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Abbreviations

Abbreviation	Description
BC Act	*Biodiversity Conservation Act 2016*
EEC	Endangered Ecological Community
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
HRBOA	Haerses Road Biodiversity Offset Area
HTW	High Threat Weed
KPI	Key Performance Indicators
KTP	Key Threatening Process
LEP	Local Environmental Plan
Mod 4	Modification 4
Mod 5	Modification 5
NSW OEH	New South Wales Office of Environment and Heritage
NVC	Native Vegetation Corridor
ONR	Old Northern Road
PCT	Plant Community Type
SEPP	State Environmental Planning Policy
THSC	The Hills Shire Council
VIS	Vegetation Information System
WoNS	Weed of National Significance

1 INTRODUCTION

This report presents the findings of the annual monitoring of the biodiversity value and rehabilitation effort within the Dixon Sand operation at Old Northern Road Maroota and the biodiversity value of the offset vegetation at Haerses Road Maroota.

1.1 BACKGROUND

Dixon Sand Pty Ltd operates a sand extraction and processing operation across 58.4 hectares on Lot 29 DP752025, Lot 196 DP752025, Lot 1 DP547255 and Lot 2 DP547255 Old Northern Road Maroota. The quarry operates in compliance to Development Consent 250-09-01 issued by the Land and Environment Court in 2004.

Several modifications have been made to the Development Consent, the most recent being described as Modification 5. A previous modification, known as Mod 4, involved the clearing of native vegetation for continued sand extraction resulting in consent conditions requiring the management of biodiversity values and impacts. Thus, a Biodiversity Offset Strategy for the Old Northern Road quarry site was established which includes a Native Vegetation Corridor (NVC) and the Haerses Road Biodiversity Offset Area (HRBOA).

1.2 OBJECTIVES

The objectives of this Annual Biodiversity and Rehabilitation Management Report are to describe the current condition of the NVC and the HRBOA and to advise Dixon Sand on the appropriate management measures required to be implemented in order to meet the expectations of the Old Northern Road Quarry Biodiversity and Rehabilitation Management Plan (2018) prepared by Umwelt (Australia) Pty Ltd.

This report will:

- identify native flora and fauna species, populations and ecological communities known to or likely to occur within the NVC and HRBOA;
- describe the native vegetation and habitats within the NVC and HRBOA;
- describe the current condition of the threatened flora and its habitat found outside of the NVC at Old Northern Road;
- discuss the ongoing monitoring of threatened flora and fauna previously recorded at both ONR and HRBOA;
- determine the legislative and conservation significance of species, populations and ecological communities known or likely to occur within the NVC and HRBOA with reference to the Commonwealth *EPBC Act 1999* and the *NSW BC Act 2016*;
- recommend appropriate biodiversity and environmental management measures that should be implemented to reach criteria for monitoring success set by the Old Northern Road Quarry Biodiversity and Rehabilitation Management Plan (2018);
- provide an independent monitoring report for inclusion as part of the external reporting for the quarry Annual Review.

2 METHODOLOGY

2.1 SITE HISTORY

2.1.1 Old Northern Road Native Vegetation Corridor

The NVC on the Old Northern Road quarry site is 6.83 hectares, approximately 100m wide and 650m in length in an east-west direction. Approximately half the area of the NVC has been, or is currently, disturbed for sand and sandstone extraction and areas dedicated as silt ponds. Approximately 0.8 hectares is currently under active rehabilitation as will be discussed further in this report. A further area of 1 hectare is currently being prepared for rehabilitation which is expected to commence in the next reporting period.

The remaining vegetation within the NVC is disturbed and modified. Livestock grazing, timber removal and fruit orchards in the immediate and adjacent lands have contributed to the ongoing disturbance over many years within this area. As a result, exotic weed species had become prolific and at times dominated the landscape. Committed long term weed management has decreased the weed burden significantly. Farm dams had been dug which once provided irrigation to the fruit orchards and watered livestock. They now provide a water source for native and exotic species which occur in the immediate area.

Unsealed tracks are found throughout the NVC, and the 200m buffer to the Maroota Primary School, which currently provide easy access for vehicles or pedestrians.

2.1.2 Haerses Road Biodiversity Offset Area

The HRBOA is relatively undisturbed native vegetation which covers an area of 8.7 hectares. Four vegetation communities have been identified within the offset which includes habitat for threatened species known to occur in the area. Old vehicle tracks occur within the site although over time, with very little use, the tracks are now suitable for pedestrian access only.

2.1.3 Threatened flora habitat

An area to the west of the Old Northern Road NVC contains threatened flora habitat which has previously been identified and monitored. This area has had very little disturbance due to its location and unsuitability for grazing, farming or logging. A haul road had previously been constructed adjacent to the site however this road is no longer in use and most likely had very minimal impact upon the threatened flora habitat.

2.2 FIELD SURVEY

Botanical surveys of the study area were conducted over several days spread throughout July and August 2026. Fixed quadrat locations from previous annual surveys were revisited for annual flora comparison. Quadrat locations in the HRBOA were each marked with a permanent steel post and a yellow cap in the centre location along the western edge of the quadrat. The Old Northern Road NVC quadrats were marked with flagging tape given that some vegetation within the NVC is still subject to disturbance by sand extraction. The flagging tape has long expired with key identifying landscape features being used to represent the location of the survey quadrat.

Each quadrat was 20m x 50m which included a subplot of 20m x 20m and five smaller nested plots of 1m x 1m, in line with the NSW Biodiversity Assessment Method flora survey assessment. A random

meander was conducted through most other areas of native vegetation within the study area, to search for threatened flora species, and to record information on habitat condition.

All flora species recorded are listed in Appendix A, B and C of this report.

Vegetation communities were identified and described with reference to the vegetation maps developed by THSC, the State Vegetation Type Map viewed on the SEED Portal, the NSW Vegetation Information System (VIS), The Eastern NSW PCT Classification, the descriptions in Tozer et al (2010), and with reference to vegetation descriptions included by the Scientific Committee final determinations to list threatened communities under the *BC Act 2016 and* the *EPBC Act 1999.*

An assessment of fauna habitat was conducted within each survey quadrat to identify suitability for potential threatened fauna species known to occur in the local area.

The habitat assessment included the suitability of landscape features, hollow-bearing trees, stags, fallen timber and logs, rocky outcrops and boulders, flowering Eucalypts, specific feed trees for Glossy Black Cockatoo's, Swift Parrot, Koalas, Grey-headed Flying Fox, site connectivity, vegetation structure and vegetation types.

Searches were also undertaken for indirect evidence of native fauna, including scratches, scats, nests, hollows in use, camps, roosts, den sites etc. Opportunistic sightings of all fauna species were recorded throughout the survey period and throughout the year when the Author attended the site for monthly environmental monitoring.

The following fauna survey methods were performed to target threatened species known to occur or likely to occur in the local area:

- General search with direct observation of any fauna species present within the study area, including diurnal call identifications;
- Early morning dedicated bird surveys;
- Unbaited motion detection infra-red digital camera left within the NVC and HRBOA for a total of 30 survey nights at each location;
- Anabat recording was not undertaken this reporting period.

A list of fauna species recorded across all sites is provided in appendix D and E.

Within each 50m x 20m quadrat the following information was recorded:

- centre of western edge GPS location
- aspect and slope of midline
- photograph of midline from western centre edge
- IBRA region
- vegetation class
- Plant Community Type (PCT)
- stem class including recruitment
- standing hollow count
- overall length of logs

The quadrats 20m x 20m recorded:

- every flora species identified
- abundance of each species recorded
- count of stratum richness
- percentage of High Threat Weed (HTW) cover

From within the five 1m x 1m plots the following information was recorded:

- litter cover
- native overstorey foliage cover
- native midstorey foliage cover
- native groundcover foliage cover
- cryptogam cover
- rock cover
- bare ground

Results collected from the 1m x 1m plots at each site is displayed as an average.

2.3 CRITERIA TO MONITOR SUCCESS OF REHABILITATION

The Key Performance Indicators (KPI) to measure success of the biodiversity and rehabilitation effort of the Old Northern Road NVC and the vegetation management within the HRBOA have been outlined by Umwelt (Australia) Pty Ltd 2018. The following tables depict the performance and completion criteria for both locations.

Table 1. Performance and completion criteria for Old Northern Road NVC (taken from Umwelt Pty Ltd 2018)

Rehabilitation Performance and Completion Criteria	
Native Vegetation	Revegetation areas contain flora species assemblages characteristic of the desired native vegetation communities
	Second generation tree seedlings are present or likely to be, based on monitoring in comparable older rehabilitation sites (i.e. evidence of fruiting of native species observed)
	More than 75 percent of trees are healthy and growing as indicated by long term monitoring
	More than 50 percent of translocated or propagated threatened flora species survive as indicated by long term monitoring
Weeds and Pests	There is no significant weed infestation such that weeds do not comprise a significant proportion of species in any stratum
	Regular inspections indicate a decline in weed diversity, density and abundance and a decline in signs of feral animal activity
	There is no significant weed infestation such that weeds do not comprise a significant proportion of species in any stratum
	There is no evidence of significant damage resulting from feral animal activity

Table 2. Performance and measurable indicators for HRBOA (taken from Cumberland Ecology 2016)

Performance and measurable indicators	
Native Vegetation	Maintenance of current level of native species diversity and abundance
	Maintenance of current level of canopy regeneration
	Measurable increase in habitat features
	Measurable decrease in impacts from feral fauna activity

Weeds	Measurable decline in weed density and distribution
	Measurable decline in weed diversity
	Limited recruitment of new weed species
Feral Animals	Observable reduction in decline of native fauna populations due to either predation by feral species, habitat degradation caused by feral fauna or competition with feral fauna
	Limited recruitment of new feral species
General	Measurable increase in the condition of vegetation
	Observable reduction in signs of erosion (if any)
	Evidence of restrictions to site access
	Observable decrease in bushfire risk

Furthermore, threatened flora species KPI for the translocated individuals and the flora species in-situ are to maintain or increase resident species population from the baseline levels which will be determined from this report.

Threatened fauna species previously identified at the Old Northern Road site and HRBOA are to be maintained or increase in population size based on a presence or absence survey each year following the baseline information within the Biodiversity Rehabilitation Management Plan (Umwelt Pty Ltd 2018).

2.4 SURVEY LIMITATIONS

The flora survey was conducted within a short timeframe during winter. Therefore some plant species may not have been identified due to the survey being performed when not in flower, or when dormant. It is noted that some flora species are seasonal and may not have been visible at the time of the surveys.

The survey limitations have been addressed through:

- consideration of flora and fauna species known to occur in the locality (including number of records from Bionet);
- consideration of habitat suitability present within the study areas and connectivity to other areas of habitat in the local landscape;
- consideration of current weather conditions;
- a conservative approach in assuming the presence of a species that could potentially be present in the study areas.

Where the study area contains potential habitat for threatened fauna species known to occur in the locality, and where survey areas support a likelihood of occurrence, it has been assumed on a conservative approach that such species may occur in the study area.

3 RESULTS

Results from the field surveys conducted over July and August 2026 have been separated into four distinct areas to enable quantification of condition for each specific location and its monitoring objectives.

3.1 OLD NORTHERN ROAD

The Old Northern Road NVC is currently in the mid stage of its rehabilitation strategy. Rehabilitation has begun within Lot 29 while extraction continues in Lot 1 and 2. Collection of propagation material from threatened flora species, *Melaleuca deanei* and *Darwinia fascicularis subsp oligantha*, has taken place with enough successful clone individuals been successfully raised to meet the approved quota. The *M. deanei* individuals were required to be established and actively growing in the ground before the removal of the parent plant could be undertaken. This was achieved in May 2022 with a total of 52 cloned *M. deanei* successfully transplanted into the rehabilitation area showing signs of active growth. An attempt to translocate the parent plant into the active rehabilitation area was undertaken in June 2022.

Dedicated rehabilitation of native vegetation on Lot 29 begun in late 2017. An area of approximately 0.8 hectares was selected and prepared for three rehabilitation methods to use as a comparison for future reference. The larger area (approximately 0.4 hectares) has been planted out using local provenance stock and plants derived from material collected from threatened species onsite. In total 47 species have been planted within the rehabilitation area, including two threatened species. Habitat structures such as rock, logs and plant debris was placed around the rehabilitation site to provide habitat for small birds and reptiles.

Two adjacent areas, of approximately similar sizes, have undergone rehabilitation in conjunction with the planted rehabilitation. The area to the immediate south of the planted rehabilitation has undergone translocation of plant material, including root balls of several species together. This is a particularly successful conservation tool when used for threatened species which have little chance of survival in their current location. This approach has been used here to relocate *Darwinia fascicularis subsp*. *oligantha* along with flora species found within immediate and close proximity of each cluster of the threatened plants. Habitat features such as rocks, logs and plant debris have also been placed around the site to provide habitat for small birds, reptiles and to create microhabitats for dependant flora species.

The far western area of the NVC rehabilitation area has been spread with soil containing native seed bank and supplementary planting of threatened flora species. Habitat features have also been provided in this location.

Monitoring of vegetation condition has begun in other areas of the NVC, including areas which will be subjected to disturbance from sand extraction. The information gained from the pre-disturbance monitoring will provide Dixon Sand with quantitative data which can be used to rehabilitate the NVC back to, or close to, its pre-disturbance state.

Other areas of vegetation monitoring outside of the established rehabilitation corridor has also taken place to determine the effects of the sand extraction project on retained vegetation.

3.1.1 Rehabilitation area – Planted

The planted rehabilitation area is approximately 0.4 hectares in size and has been planted with 47 native species including 2 species listed on the *BC Act 2016* as being species of significance, *Melaleuca deanei* (vulnerable) and *Darwinia fascicularis subsp. Oligantha* (endangered population). In addition to the revegetation planting several species have emerged from seed bank storage from the sub-soil which was spread over the rehabilitation site before planting commenced or from seed migration into the site from wind, birds, ants or mammal carriers. In total 70 native species which were not recorded as planted within the rehabilitation site were identified during the 2026 survey period including the vulnerable species *Tetratheca glandulosa*. This is an increase in native species since last year most of which the recorded increases are forbs and grasses. The return to average climatic conditions has likely resulted in the short lived and moisture dependant small forbs and ferns being out competed by hardier shrubs and grasses. In some cases the species which were not recorded during the 2026 survey period may have been outside of their active growing and flowering season and therefore difficult to identify. There was one weed species identified within the planted revegetation area in very low density, Whiskey Grass *Andropogon virginicus*.

There were 14 live specimens of *Melaleuca deanei,* 6 live specimens of *Darwinia fascicularis subsp. Oligantha* and 7 live specimens of *Tetratheca glandulosa* located within the planted rehabilitation area. The previously identified threatened species which had self-germinated in 2020, *Acacia bynoeana* and *Pimelea curviflora var. curviflora,* could not be located during the 2026 flora survey. This could suggest the species responded to the abundance of moisture present over the 2020-2022 period and was short lived, or it may have been preyed upon by herbivores which are present within the rehabilitation area.

The overall condition of the planted rehabilitation area is very good. The canopy trees have reached reproductive maturity with flowering buds present during the July and August survey period. Species diversity appears to have reached its peak with slight increase in forbs, ferns and grasses noted. Native mammal species which have been recorded this year as being present including macropods, bandicoots and possums. Bird diversity appears to have remained the same as the previous year with 10 species recorded again in 2026 within the rehabilitation site during vegetation surveys.



Image 1. View of planted rehabilitation area from the east looking west

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Image 2. *Melaleuca deanei* planted in 2017 within the planted rehabilitation area 2026



Image 3. *Darwinia fascicularis subsp. Oligantha* planted in 2017 within the planted rehabilitation area 2026



Image 4. *Tetratheca glandulosa* within the planted rehabilitation area 2026

3.1.2 Rehabilitation area – Translocated

The translocated rehabilitation area was not subjected to a flora survey, as per the vegetation survey site locations suggested in the Biodiversity Rehabilitation Management Plan 2018. However, a random meander through the area recording flora species was undertaken. Species identified and recorded can be found in Appendix B. Photo monitoring should, over time, be sufficient to determine the rehabilitation success of this area.

Overall coverage of vegetation from the translocation and continued recruitment from seed bank storage appears to be ample. Translocated *Darwinia fascicularis subsp. Oligantha* is numerous, particularly on the western side of the site, although some losses are evident where shading from nearby trees and shrubs are impacting the habitat requirements for the species. All age classes were observed from small seedlings to adult shrubs of which some had flower at the time of the survey period.

A single *Tetratheca glandulosa* which was translocated in 2021 appears in a healthy state with flowers present during the August survey period.

Three *Melaleuca deanei* which were planted within this area in 2017 are still present and appear healthy. A further 32 *M. deanei* have been planted within this area during 2020-2022. Only 20 were able to be located due to plant guards being removed during the previous reporting period. Timber stakes have been installed adjacent to some of the plants which were located although many remain without any locating features making it extremely difficult to find individuals in the dense understorey. It is highly likely that all plants are still present as the 20 plants which were located all appeared to be doing well with most showing signs of active growth. These plants will continue to be closely monitored. The parent plant was translocated into this area following the quota of replacement plants being met. The plant was translocated using a loader with a large bucket picking up as much soil and root ball as possible. Unfortunately the main tap root was broken during this process and the plant material died back. The two *M. deanei* seedlings which emerged on the soil mound shortly after relocation were not present during the 2026 survey period suggesting they have perished or been predated upon by herbivores. It was hoped that seed bank stores may have been present within the translocated soil but unfortunately this does not appear to be the case, or the two seedlings that did emerge were the only viable seed which remained within the soil.

There is a scattered canopy within this area beginning to emerge, particularly in the western half of the site. Shrubs and ground cover plants are abundant throughout the area which have reached densities which make walking through the site difficult at times.



Image 5. Translocated *Tetratheca glandulosa* flowering within the translocation area 2026



Image 6. *Melaleuca deanei* planted in 2017 within the translocation area 2026



Image 7. *Darwinia fascicularis subsp. oligantha* within the translocation area 2026

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3.1.3 Rehabilitation area – Soil seed bank

The soil seed bank rehabilitation area was not subjected to a flora survey, as per the vegetation survey site locations suggested in the Biodiversity Rehabilitation Management Plan 2018. A random meander through the area recording flora species was undertaken and a count of living planted threatened species was recorded. Photo monitoring of the area will determine rehabilitation success.

Ample natural recruitment of native species has occurred across the site with the vegetation community appearing to have reached maturity. There was no evidence of new recruitment of *Darwinia fascicularis subsp. Oligantha* during this survey period which is likely to be due to the shade effect the surrounding vegetation is having on the immediate area where the species was recruiting in previous years. Several individuals remain although they are being crowded by neighbouring flora species. Canopy stratum has emerged with *Eucalyptus punctata, Eucalyptus pilularis* and *Corymbia gummifera* observed. *Banksia ericifolia* continues to dominate the shrub layer with *Grevillea buxifolia* and *Acacia suaveolens* remaining widespread. Ground cover species are present throughout although due to the density of the shrub layer the ground cover is sporadically distributed.

A single planted *Melaleuca deanei* was located during the survey period and was measured to stand approximately 2.2m tall. The density of the shrub regrowth is suspected of hampering the efforts to locate other individuals. All the surviving threatened species which were located as present appear to be healthy.

3.1.4 Front gate rehabilitation

The front gate rehabilitation was initially planted in 2017. The front gate rehabilitation area is thriving with many shrubs flowering well and new recruitments evident, although weed density has remained an ongoing priority. Recruitment from natural regeneration has occurred minimising the gaps between flora coverage with leaf litter increasing yearly which will provide improved soil biodiversity over time. Two *Melaleuca deanei* were planted in this area during 2023 however neither has survived due to lack of watering and the compacted ground.



Image 8. View of translocated rehabilitation area from the east looking west 2026

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Image 9. View of soil seed bank rehabilitation area from north looking south 2026

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Image 10. View of soil seed bank rehabilitation area from south looking north 2026



Image 11. Front gate rehabilitation area 2026

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3.1.5 Vegetation monitoring within NVC

The Biodiversity Rehabilitation Management Plan 2018 indicates that nine vegetation monitoring sites should be established across the Old Northern Road site. Five of these sites occur within the NVC including one site within the planted rehabilitation area discussed in 3.1.1 of this report.

From the remaining four sites only one could be safely accessed for monitoring as the other three monitoring sites are currently under sand and sandstone extraction operations.

The vegetation in the surveyed area is described in the Biodiversity Rehabilitation Management Plan 2018 as being *Eucalyptus punctata* woodland. The species recorded within the survey site came to the determination that the VIS classification for this PCT best fit is *1328 - Yellow Bloodwood - Narrow-leaved Apple heathy woodland on hinterland plateaux of the Central Coast, Sydney Basin Bioregion.* In 2023 the Eastern NSW PCT Classification was officially endorsed by the NSW State Government which oversaw the reclassification of all PCT's along the east coast. PCT1328 was split into several PCT's which had association with the species present. The most relevant and best suited PCT for the NVC survey plot is now considered PCT3622 – Sydney Hinterland Yellow Bloodwood Woodland. Information collected during the survey period has been summarised in Table 3 while a full list of flora recorded can be found in Appendix A.

The overall health of the vegetation and biodiversity within the remaining NVC is good. There has been historic disturbance in the area most likely from livestock grazing and timber removal. Recent average rainfall in the local area has assisted in the stabilization of vegetation from the previous drought and then wet conditions.

The remaining areas throughout the NVC continue to be impacted from the presence of *Lantana camara*. An effort to remove and control the species has been ongoing for several years however due to the distribution and density it will require further long term management to completely remove the species across the entire site. Locations where Lantana has been removed and controlled are recovering well with shrubs being planted during the reporting period to assist the native flora diversity. Ground cover grasses and forbs continue to develop in diversity and density forming a moderate ground cover.

Table 3. Survey summary from NVC survey site location ONR quadrat 2.

3622- Sydney Hinterland Yellow Bloodwood Woodland				
AGD Zone 56 Easting – 0313182 Northing – 06296257 Midline - 89°				
Vegetation Layer	**Height Range**	**Vegetation Layer**		
Trees	15 – 20m	*Corymbia gummifera, Eucalyptus punctata, Eucalyptus haemastoma, Angophora bakeri, Allocasuarina littoralis*		
Shrubs	0.5 – 2m	*Acacia linifolia, Grevillea buxifolia, Hakea sericea, Pimelea linifolia, Bossiaea obcordata, Platysace linearifolia*		
Groundcover	0.1 – 0.5m	*Pratia purpurascens, Lomandra longifolia, Entolasia stricta, Themeda australis,*		
Stem Class			**Hollows**	
Dbh	**Eucalyptus**	**Non-Eucalypt**	<20cm	>20cm
80cm+				
50-79cm	✓		1	2
30-49cm	✓		2	
20-29cm	✓			
10-19cm	✓			
5-9cm	✓	✓		
<5cm	✓	✓		
Composition & Structure		**Composition Count**	**Structure cover %**	
Trees		6	45	
Shrubs		25	40	
Grasses etc		9	40	
Forbs		7	5	
Ferns		1	3	
Other		3	3	
High Threat Weeds		0	0	
Ecosystem Functions				
Length of habitat logs	44 m			
Litter cover	55%			
Bare ground cover	0%			
Cryptogam cover	20%			
Rock cover	5%			
Overstorey foliage cover	40%			
Mid-storey foliage cover	40%			
Groundcover foliage cover	50%			



Image 12. Midline view of NVC survey quadrat 2 2026

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3.1.6 Vegetation monitoring outside NVC

There were four monitoring sites identified outside of the NVC which were proposed to be surveyed. Two of these locations were unable to be accessed due to sand extraction currently taking place. Another of the locations was not able to be accessed due to impenetrable thickets of *Lantana camara*. The remaining monitoring site and an additional monitoring site were selected for surveying to provide baseline data for ongoing assessment over the site.

The vegetation within Plot 1 was previously determined to be PCT *1181 – Smooth-barked Apple – Red Bloodwood – Sydney Peppermint heathy open forest on slopes of dry sandstone gullies of western and southern Sydney, Sydney Basin Bioregion*. The Eastern NSW PCT Classification has split this PCT into several PCT's with PCT *3617 – Sydney Hinterland Peppermint-Apple Forest* being the best fit for the vegetation located in Plot 1. This survey location is outside of the NVC although within the 250m buffer area to Maroota Public School in the southeast corner of the site. This area has had historic disturbance most likely from timber harvesting. An abundance of *Eucalyptus piperita* are regenerating within this quadrat at around the same age class which suggests at some stage the area was once cleared. Despite this, the diversity within the survey site is reasonable and the biodiversity values are moderate. The area where this quadrat is located will not be subjected to clearing so will therefore provide an opportunity for monitoring the effects of sand extraction in nearby retained vegetation.

The additional survey site, Plot 4, was undertaken within an area of vegetation determined to also be PCT *3617 – Sydney Hinterland Peppermint-Apple Forest*. This survey location is just within the 250m buffer to the Maroota Public School in the centre of the site and will not be subject to clearing for quarry activities. It is therefore likely to provide good baseline data for rehabilitation of the vegetation community for future reference. The vegetation within the survey plot appears to have very little disturbance and contains no exotic weed species.

The remaining vegetation within the 250m buffer area appeared to have some impacts from the spread and growth of Lantana camara therefore a third survey quadrat within the recommended survey area was not undertaken. Efforts have been made to reduce the impacts from the invasive species however the progress is slow and favourable weather conditions for growth have made control difficult. It is expected that as the Lantana thickets are removed or reduced in density a further survey plot will be added to the annual monitoring to ensure ample recovery of the area.

The vegetation within these two survey areas have seen an increase in shrub, forb and grass diversity over the reporting period. This is likely due to the stabilisation of competing species following the three good years of growing conditions from 2021-2023. The reporting period has experienced dry periods and wet periods which are likely to have contributed to the stabilisation of some species which are better suited to close to average climatic conditions. Overall, the vegetation within the quadrats remains stable with persisting species well established and increasing in density.

Table 4. Survey summary for area outside NVC Survey site location ONR quadrat 1

3617 – Sydney Hinterland Peppermint-Apple Forest				
AGD Zone 56 Easting – 0313250 Northing – 06296390 Midline - 230°				
Vegetation Layer	**Height Range**	**Vegetation Layer**		
Trees	20 – 30m	*Eucalyptus piperita, Eucalyptus punctata, Angophora costata, Allocasuarina littoralis, Ceratopetalum gummiferum*		
Shrubs	0.5 – 2m	*Leptospermum polygalifolium, Kunzea ambigua, Banksia spinulosa, Bossiaea obcordata, Epacris pulchella*		
Groundcover	0.1 – 0.5m	*Lomandra filiformis, Xanthosia pilosa, Lomandra longifolia, Themeda australis, Entolasia stricta, Microleana stipoides*		
Stem Class			**Hollows**	
Dbh	**Eucalyptus**	**Non-Eucalypt**	<20cm	>20cm
80cm+				
50-79cm				
30-49cm	✓		1	
20-29cm	✓			
10-19cm	✓			
5-9cm	✓	✓		
<5cm	✓	✓		
Composition & Structure		**Composition Count**	**Structure cover %**	
Trees		6	55	
Shrubs		14	35	
Grasses etc		10	25	
Forbs		7	1	
Ferns		2	2	
Other		4	2	
High Threat Weeds		0	0	
Ecosystem Functions				
Length of habitat logs	24m			
Litter cover	42%			
Bare ground cover	0%			
Cryptogam cover	30%			
Rock cover	5%			
Overstorey foliage cover	55%			
Mid-storey foliage cover	35%			
Groundcover foliage cover	30%			

Table 5. Survey summary for area outside NVC Survey site location ONR quadrat 4

3617 – Sydney Hinterland Peppermint-Apple Forest				
AGD Zone 56 Easting – 0313263 Northing – 06296592 Midline - 90°				
Vegetation Layer	**Height Range**	**Vegetation Layer**		
Trees	20 – 30m	*Eucalyptus piperita, Eucalyptus pilularis, Angophora costata, Allocasuarina littoralis, Ceratopetalum gummiferum, Corymbia gummifera*		
Shrubs	0.5 – 2m	*Banksia spinulosa, Persoonia linearis, Acacia ulicifolia, Bossieaea obcordata, Hakea sericea, Leucopogon parviflorus*		
Groundcover	0.1 – 0.5m	*Pteridium esculentum, Lomandra multiflora, Themeda australis, Entolasia stricta, Smilax glyciphylla*		
Stem Class			**Hollows**	
Dbh	**Eucalyptus**	**Non-Eucalypt**	<20cm	>20cm
80cm+				
50-79cm	✓		2	2
30-49cm	✓		3	
20-29cm	✓			
10-19cm	✓	✓		
5-9cm	✓	✓		
<5cm	✓	✓		
Composition & Structure		**Composition Count**	**Structure cover %**	
Trees		8	50	
Shrubs		28	42	
Grasses etc		9	15	
Forbs		8	4	
Ferns		2	5	
Other		4	2	
High Threat Weeds		0	0	
Ecosystem Functions				
Length of habitat logs	35m			
Litter cover	47%			
Bare ground cover	1%			
Cryptogam cover	20%			
Rock cover	20%			
Overstorey foliage cover	50%			
Mid-storey foliage cover	42%			
Groundcover foliage cover	21%			



Image 13. Midline view of ONR quadrat 1 2026

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Image 14. Midline view of ONR quadrat 4 2026

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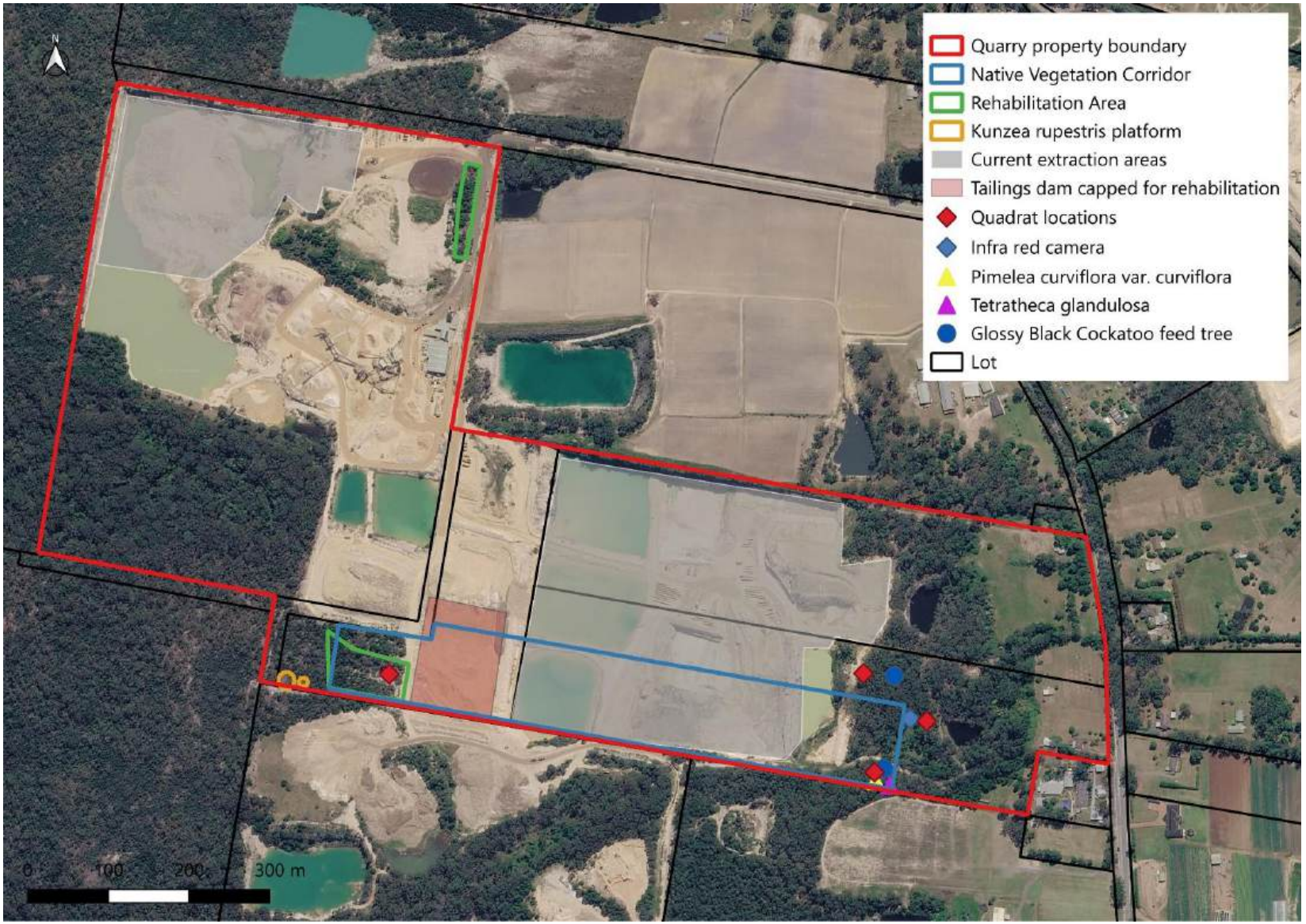


Image 15. ONR survey site locations 2026

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3.2 HAERSES ROAD BIODIVERSITY OFFSET AREA

The HRBOA has a total of five monitoring sites specifically to provide benchmark values for the vegetation communities found within the site. Baseline data collected and discussed within this report will enable a measurable value of success for management actions which may be implemented over the life of the offset.

It is expected over time there will be an increase in biodiversity, habitat features, ongoing evidence of natural recruitment and a decrease in exotic fauna and flora presence.

Each of the survey locations has been permanently marked with a steel post and yellow cap indicating the plot identification number.

Cumberland Ecology (2016) had previously identified four vegetation communities onsite as Sydney sandstone Ridgetop Woodland, Sydney Hinterland Transition Woodland, Sydney Sandstone Gully Forest and Sydney Sandstone Heath (Heath/Woodland Complex). Each survey location surveyed was given a best fit PCT based on the classification of the VIS which was determined by the native species most abundant throughout the quadrat. Reassigning PCT to the new Eastern NSW PCT Classification has resulted in the following PCT's being identified:

- Plot 1 – (*1181) 3617 – Sydney Hinterland Peppermint-Apple Forest*
- Plot 2 – (*1641) 3807 - Northern Sydney Heath-Mallee*
- Plot 3 – (*1181) 3617 – Sydney Hinterland Peppermint-Apple Forest*
- Plot 4 – (*1627) 3621 – Sydney Hinterland Turpentine-Apple Gully Forest*
- Plot 5 – (*1643) 3593 – Sydney Coastal Sandstone Bloodwood Shrub Forest*

These PCT's are in line with the broader definition given in the Cumberland Ecology Biodiversity Management Plan 2016.

Plot 2 has previously recorded an abundance of the threatened flora species *Darwinia biflora*. During this survey period it appeared to have less density within the 20 x 20m survey quadrat than it had in previous years. The species is still well represented throughout the entire area of the PCT 3807 however a notable reduction in density is a possible reflection of the need for periodic fire to maintain the heath community and ecological requirements for the Darwinia biflora in the long term.

Overall there was a continued stabilisation to foliage cover and structure cover across all stratums at all the survey sites. Grass and ground cover species have remained steady in density and diversity with only slight variations noted. Canopy and shrub cover remain stable. Extensive Long-nosed Bandicoot digs were again noted in an area close to Quadrat 1. Bird presence and density has remained consistent from last survey period.

The following tables (6 – 10) are a summary of the survey results at each of the plot locations across HRBOA.

Table 6. Survey summary for survey site location HRBOA quadrat 1

3617 – Sydney Hinterland Peppermint-Apple Forest				
AGD Zone 56 Easting – 0312740 Northing – 06293489 Midline - 130°				
Vegetation Layer	**Height Range**	**Vegetation Layer**		
Trees	20 – 30m	*Angophora costata, Corymbia gummifera, Allocasuarina littoralis, Ceratopetalum gummiferum, Banksia Serrata*		
Shrubs	0.5 – 2m	*Leptospermum trinervium, Persoonia pinifolia, Lambertia Formosa, Boronia floribunda, Grevillea speciosa, Acacia ulicifolia*		
Groundcover	0.1 – 0.5m	*Caustis flexosa, Cyathochaeta diandra, Pteridium esculentum, Entolasia stricta, Smilax glyciphylla, Xanthorrhoea media*		
Stem Class			**Hollows**	
Dbh	**Eucalyptus**	**Non-Eucalypt**	<20cm	>20cm
80cm+				
50-79cm	✓		1	1
30-49cm	✓		1	
20-29cm	✓	✓		
10-19cm	✓	✓		
5-9cm	✓	✓		
<5cm	✓	✓		
Composition & Structure		**Composition Count**	**Structure cover %**	
Trees		6	40	
Shrubs		20	40	
Grasses etc		9	40	
Forbs		7	2	
Ferns		2	2	
Other		3	2	
High Threat Weeds		0	0	
Ecosystem Functions				
Length of habitat logs	10.4m			
Litter cover	52%			
Bare ground cover	0%			
Cryptogam cover	2%			
Rock cover	30%			
Overstorey foliage cover	40%			
Mid-storey foliage cover	40%			
Groundcover foliage cover	46%			



Image 16. Midline view of HRBOA quadrat 1 2026

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Table 7. Survey summary for survey site location HRBOA quadrat 2

3807 - Northern Sydney Heath-Mallee				
AGD Zone 56 Easting – 0312750 Northing – 06293649 Midline - 100°				
Vegetation Layer	**Height Range**	**Vegetation Layer**		
Trees	2 – 10m	*Angophora hispida, Eucalyptus haemastoma, Banksia serrata*		
Shrubs	0.5 – 2m	*Banksia ericifolia, Hakea sericea, Leptospermum trinervium, Dillwynia floribunda, Lambertia Formosa, Calytrix tetragona, Grevillea speciosa, Boronia ledifolia, Persoonia pinifolia*		
Groundcover	0.1 – 0.5m	*Caustis pentandra, Actinotus minor, Austrostipa pubescens, Lepidosperma laterale, Cassytha glabella, Entolasia stricta, Schoenus melanostachys, Xanthosia tridentata.*		
Stem Class			**Hollows**	
Dbh	**Eucalyptus**	**Non-Eucalypt**	<20cm	>20cm
80cm+				
50-79cm	✓		1	
30-49cm		✓		
20-29cm	✓			
10-19cm	✓	✓		
5-9cm	✓	✓		
<5cm	✓	✓		
Composition & Structure		**Composition Count**	**Structure cover %**	
Trees		2	20	
Shrubs		36	90	
Grasses etc		11	25	
Forbs		6	6	
Ferns		2	2	
Other		2	2	
High Threat Weeds		0	0	
Ecosystem Functions				
Length of habitat logs	3.2m			
Litter cover	23%			
Bare ground cover	0%			
Cryptogam cover	10%			
Rock cover	5%			
Overstorey foliage cover	20%			
Mid-storey foliage cover	90%			
Groundcover foliage cover	35%			



Image 17. Midline view of HRBOA quadrat 2 2026

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Image 18. Flowering *Darwinia biflora* located within HRBOA quadrat 2 2026

Table 8. Survey Summary of survey location HRBOA quadrat 3

3617 – Sydney Hinterland Peppermint-Apple Forest				
AGD Zone 56 Easting – 0312877 Northing – 06293628 Midline - 110°				
Vegetation Layer	**Height Range**	**Vegetation Layer**		
Trees	20 – 30m	*Corymbia gummifera, Eucalyptus piperita, Eucalyptus punctata, Banksia serrata, Ceratopetalum gummiferum, Allocasuarina littoralis*		
Shrubs	0.5 – 2m	*Leptospermum trinervium, Persoonia levis, Persoonia pinifolia, Bossiaea obcordata, Epacris pulchella*		
Groundcover	0.1 – 0.5m	*Dianella prunina, Pteridium esculentum, Lindsaea microphylla, Lomandra filliformis, Entolasia stricta, Caustis flexosa*		
Stem Class			**Hollows**	
Dbh	**Eucalyptus**	**Non-Eucalypt**	<20cm	>20cm
80cm+				
50-79cm	✓		3	
30-49cm	✓		1	
20-29cm	✓			
10-19cm	✓			
5-9cm	✓	✓		
<5cm	✓	✓		
Composition & Structure		**Composition Count**	**Structure cover %**	
Trees		6	50	
Shrubs		23	35	
Grasses etc		10	30	
Forbs		6	2	
Ferns		3	5	
Other		4	2	
High Threat Weeds		0	0	
Ecosystem Functions				
Length of habitat logs	24.6m			
Litter cover	45%			
Bare ground cover	0%			
Cryptogam cover	15%			
Rock cover	20%			
Overstorey foliage cover	50%			
Mid-storey foliage cover	35%			
Groundcover foliage cover	39%			



Image 19. View of midline HRBOA quadrat 3 2026

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Table 9. Survey Summary of survey location HRBOA quadrat 4

3621 – Sydney Hinterland Turpentine-Apple Gully Forest				
AGD Zone 56 Easting – 0312847 Northing – 06293808 Midline - 100°				
Vegetation Layer	**Height Range**	**Vegetation Layer**		
Trees	20 – 30m	*Corymbia gummifera, Eucalyptus resinifera, Angophora costata, Callicoma serratifolia, Ceratopetalum gummiferum, Allocasuarina littoralis*		
Shrubs	0.5 – 2m	*Leptospermum trinervium, Telopea speciossima, Persoonia pinifolia, Bossiaea lenticularis, Lambertia formosa, Banksia spinulosa, Acacia suaveolens*		
Groundcover	0.1 – 0.5m	*Pteridium esculentum, Gahnia sieberiana, Lomandra multiflora, Dacophyllum secundum, Entolasia stricta, Caustis flexosa*		
Stem Class			**Hollows**	
Dbh	**Eucalyptus**	**Non-Eucalypt**	<20cm	>20cm
80cm+	2		2	1
50-79cm	✓		2	3
30-49cm	✓		2	
20-29cm	✓			
10-19cm	✓			
5-9cm	✓	✓		
<5cm	✓	✓		
Composition & Structure		**Composition Count**	**Structure cover %**	
Trees		4	50	
Shrubs		23	45	
Grasses etc		9	35	
Forbs		8	10	
Ferns		2	2	
Other		4	2	
High Threat Weeds		0	0	
Ecosystem Functions				
Length of habitat logs	32m			
Litter cover	58%			
Bare ground cover	10%			
Cryptogam cover	40%			
Rock cover	5%			
Overstorey foliage cover	50%			
Mid-storey foliage cover	45%			
Groundcover foliage cover	49%			



Image 20. View of midline HRBOA quadrat 4 2026

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Table 10. Survey Summary of survey location HRBOA quadrat 5

3593 – Sydney Coastal Sandstone Bloodwood Shrub Forest				
AGD Zone 56 Easting – 0312938 Northing – 06293983 Midline - 130°				
Vegetation Layer	**Height Range**	**Vegetation Layer**		
Trees	20 – 30m	*Eucalyptus punctata, Eucalyptus haemastoma, Angophora hispida, Banksia serrata, Allocasuarina littoralis*		
Shrubs	0.5 – 2m	*Lambertia formosa, Persoonia pinifolia, Bossiaea scolopendra, Woollsia pungens, Banksia ericifolia, Boronia floribunda, Epacris pulchella, Petrophile pulchella, Platysace linearifolia*		
Groundcover	0.1 – 0.5m	*Actinotus minor, Xanthosia pilosa, Lomandra multiflora, Austrostipa pubescens, Entolasia stricta, Xanthorrhoea resinosa*		
Stem Class			**Hollows**	
Dbh	**Eucalyptus**	**Non-Eucalypt**	<20cm	>20cm
80cm+				
50-79cm				
30-49cm	✓		3	
20-29cm	✓			
10-19cm	✓	✓		
5-9cm	✓	✓		
<5cm	✓	✓		
Composition & Structure		**Composition Count**	**Structure cover %**	
Trees		7	40	
Shrubs		25	70	
Grasses etc		9	40	
Forbs		7	2	
Ferns		2	2	
Other		3	3	
High Threat Weeds		0	0	
Ecosystem Functions				
Length of habitat logs	2m			
Litter cover	45%			
Bare ground cover	1%			
Cryptogam cover	20%			
Rock cover	30%			
Overstorey foliage cover	40%			
Mid-storey foliage cover	70%			
Groundcover foliage cover	47%			



Image 21. View of midline HRBOA quadrat 5 2026

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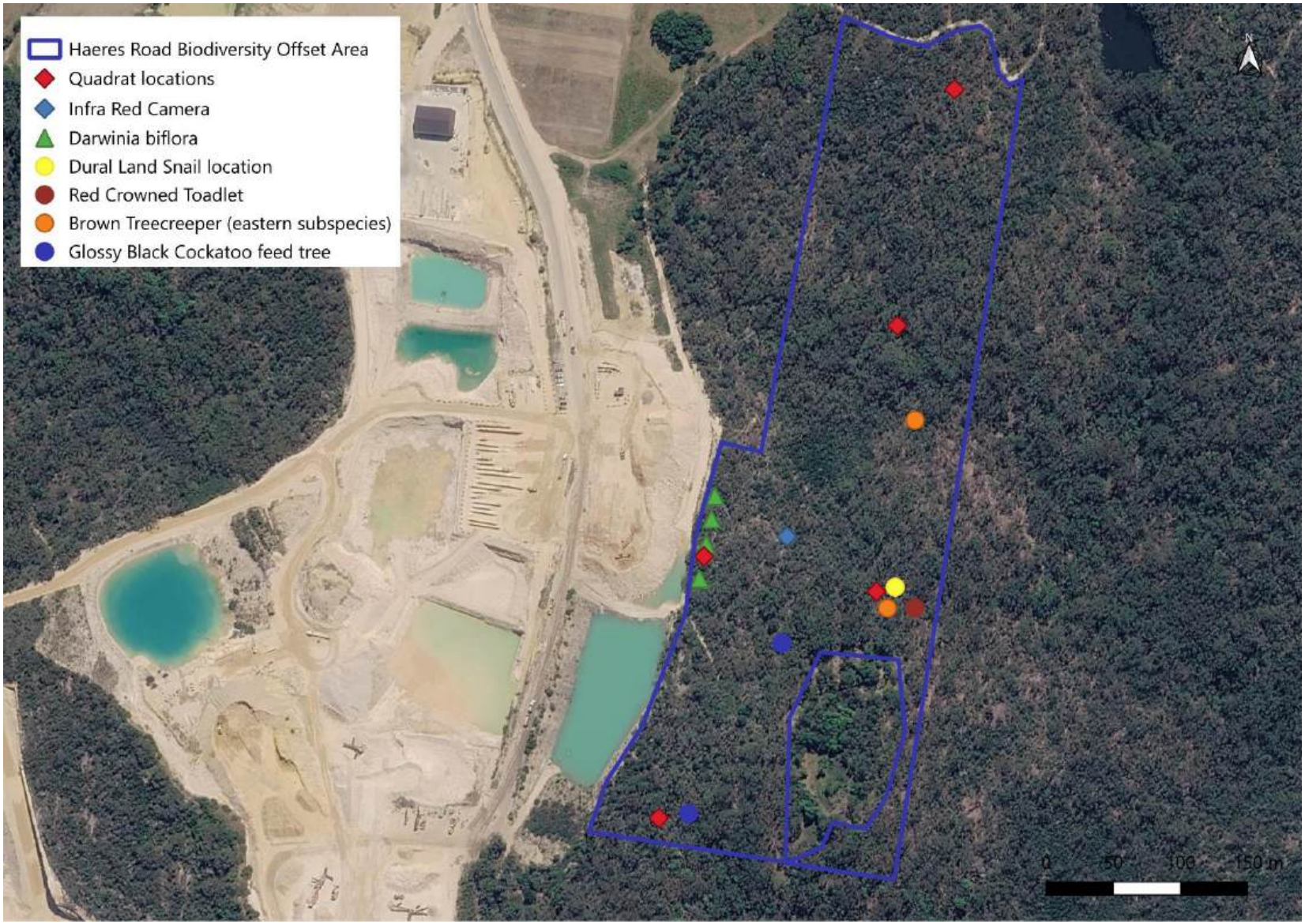


Image 22. HRBOA site location 2026

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3.3 Threatened Flora Monitoring

The threatened flora monitoring details the current condition of the four threatened flora species and their immediate habitat which has been previously recorded at the ONR site. The far western area of Lot 29 contains a significant rock platform which supports *Kunzea rupestris* and *Darwinia fascicularis subsp oligantha*. Lot 2 contains *Pimelea curviflora var curviflora* and *Tetratheca glandulosa*.

The overall health of the *Kunzea rupestris* population is good following the ideal climatic conditions in the local area over the past 12 months. New recruitment in available soil pockets is evident with new growth on most established plants again observed during the survey period, some with flower buds present. Mosses and lichens were present in each patch on both platforms.

The eastern rock platform has been divided into four individual patches. During the July 2026 survey period twenty four individuals were counted within patch one, a slight increase from last year due to new recruits being present. The entire patch is in relatively good health with flower buds and new growth buds present on mature growth. *Darwinia fascicularis subsp oligantha* is also present within patch one.

Patch two is much smaller with only three plants present, patch three has two persistent plants while in patch four there are five plants persistent. All these plants are healthy with new growth buds and some flower buds present at the time of survey.

The western rock platform has been divided into five individual patches which are much more widely distributed than the patches on the eastern rock platform. Within this section the *Kunzea rupestris* grows within a vegetation community with far more flora diversity than what is present on the eastern rock platform. Some of the shrubs are therefore much larger as soil depth and protection from external influences (such as wind and radiant heat) is more readily available.

Patch one has six plants present. *Calytrix tetragona* and *Darwinia fascicularis subsp oligantha* were also present within this patch. Patch two is a long patch which runs down the length of the rock platform. This patch is well established and grows with neighbouring species such as *Calytrix tetragona*, *Acacia hispidula*, *Grevillea buxifolia, Caustis flexuosa* and *Darwinia fascicularis subsp oligantha.* Juvenile plants are present on the edge of the soil profile. In total it is estimated there are forty six individual plants within this patch. All plants in this location are low growing and all appear in good health with the larger individuals having some flower bud and new growth bud present. Some outlying small patches have remained persistent since 2023 which are found in a very shallow soil profile. It is expected they may not survive should dry weather return before the soil profile has an opportunity to grow in depth from organic matter build up.

Patch three does not contain any *Kunzea rupestris* plants. The patch is considered for monitoring over time with the hope that new recruits will eventually appear. A single clump of *Aristida warburgii* is currently the only species within this patch.

Patch four currently has approximately twenty nine *Kunzea rupestris* plants with several of those being juvenile recruits. Mature plants have growth and flower buds present. Other flora species identified within the patch were *Calytrix tetragona*, *Grevillea buxifolia, Caustis flexuosa*, *Darwinia fascicularis subsp oligantha, Banksia ericifolia, Isopogon anethifolius, Bossiaea scolopendria* and *Petrophile pulchella.*

Patch five had approximately twenty six *Kunzea rupestris* growing within a diverse mix of shrub species. Several of the counted individuals appear to be new recruits close to the old haul track. Other

species within this patch include *Acacia ulicifolia, Corymbia eximia, Dianella revoluta, Grevillea buxifolia, Grevillea speciosa, Leucopogon parviflorus, Angophora hispidula, Caustis flexuosa*, *Persoonia levis*, *Isopogon anethifolius* and *Petrophile pulchella.*

Other threatened species located onsite were observed and inspected for current health and condition. As previously mentioned an attempt was made to translocate the original parent plant of the *Melaleuca deanei*. Prior to translocation the plant health was checked and it appeared to not have suffered any ill effects from previous multiple small branch removal during clone recruitment. No flowers were observed throughout the 2021-2022 period before translocation. In total there were 31 stems in 18 clumps covering an area of 25m². The highest peak of the shrub was approximately 2.5m tall. Once removed it appeared that the plant was one individual connected by a single root system, not multiple plants as once thought. New recruits had been observed growing from the translocated root stock however these recruits have since perished. The root ball will continue to be monitored over time for new recruits or growth which may occur from seed bank storage when climatic seasons are ideal.

Darwinia fascicularis subsp oligantha was observed as being plentiful in the location of the *Kunzea rupestris* population and surrounding area. Plants were flowering well and new recruits were evident throughout the area. They were also very well represented throughout the rehabilitation areas. There were several *Tetratheca glandulosa* plants identified within the NVC Quadrat 2 during the 2026 flora survey period. In addition to this several *Pimelea curviflora var curviflora* were also identified within the same quadrat site however this survey period they were not flowering The threatened species within this location will continue to be monitored each year they remain present onsite.



Image 23. *Kunzea rupestris* monitoring eastern rock platform photo location 1 2026

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Image 24. *Kunzea rupestris* monitoring eastern rock platform photo location 2 2026

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Image 25. 2026 eastern rock platform patch number 1-3, top 1 - bottom 3

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Image 26. *Kunzea rupestris* monitoring western rock platform photo location 1 2026

South East Environmental



Image 27. *Kunzea rupestris* monitoring western rock platform photo location 2 2026

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Image 28. *Kunzea rupestris* monitoring western rock platform photo location 3 2026

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Image 29. 2026 western rock platform patch number 1-5, top left 1 top right 2 middle left 3 middle right 4 bottom 5

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Image 30. *Kunzea ruprestis* new growth and flower bud forming on eastern rock platform August 2026



Image 31. *Dillwynia fasicularis subsp. oligantha* flowering on the *Kunzea ruprestis* rock platform



Image 32. *Tetratheca glandulosa* with flower buds within Quadrat 2 2026

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3.4 Threatened Fauna Monitoring

Threatened fauna previously located within the Old Northern Road site included four species of microchiropteran bat and a Glossy Black Cockatoo.

A search was undertaken for Glossy Black Cockatoo feed trees throughout the site. Feed tree location was confirmed within transect 2 of the NVC and within the 250m buffer from Maroota Public School in the same locations as previous years. It is common for this species to return to the same stand of feed trees repetitively. There were no birds observed feeding in trees within the 250m buffer from Maroota Public School during this reporting period however they have been noted flying overhead at various times throughout the year.

The Anabat Express sound recorder's were sent for servicing in spring and not returned before the window of bat survey season was finished as the company, Titley Scientific moved buildings and the equipment was temporarily lost. All efforts were made to recover the equipment over many months. A formal apology was issued by the company which extends to the Dixon Group for disrupting survey effort during the 2025/2026 bat survey window. Bat survey will resume in the 2026-2027 survey season.

An infra-red motion detection camera was installed during the summer and autumn months for 30 days and nights to monitor for ground dwelling fauna species and pest species movement such as foxes. The camera was successful in capturing images of the Swamp Wallaby.

Other fauna were observed within or immediately surrounding the Old Northern Road site during the survey period which included birds, reptiles, amphibians and mammals. The resident pair of Wedged-tailed Eagles were observed flying over the site several times throughout the year. A White Breasted Sea Eagle was also observed flying over the site during the reporting period. Diggings from Long-nosed Bandicoots were noted around the entire edge of the quarry operation this reporting period. A Red-bellied Black Snake and an Australian Water Dragon were frequently sighted around the bush line edge of the quarry tailings ponds. A Brush-tailed Wallaby was seen within the rehabilitation area and the NVC. Scats from the Common Brush-tailed Possum were found within the NVC and 250m Maroota School buffer quadrats.

The HRBOA previously had two threatened fauna species recorded on the property, although outside of the offset area. A historic Bionet record of a Koala and Glossy Black Cockatoo sighting to the north of the property towards Hitchcock Road was not investigated any further for the purpose of this report. Koala sightings in the area, particularly around Glenorie, have increased since the Wollemi/Yengo mega-bushfire over the spring/summer of 2019/2020. A search for Koala scat under *Eucalyptus punctata* within all survey quadrats at the HRBOA was undertaken. No Koala scats were found.

Glossy Black Cockatoo feed trees were observed within quadrat 1. Several Brown Treecreepers were observed foragingwithin the HRBOA again during the 2026 survey period at various locations indicating these are permanent residents within the site. An infra-red motion detection camera was installed within the HRBOA for 30 nights. The camera was successful in capturing images of the Swamp Wallaby.

The Dural Land Snail *Pommerhelix duralensis* was successfully located during the 2019 and 2024 flora survey period in the HRBOA. A search for the species under leaf litter, particularly around rocks and crevices, during the 2026 flora survey period was once again successful at locating shell casings belonging to the species. This is a good indication that the species is persistent within this location and a healthy population is likely to exist.

The fauna survey results can be seen in Appendix D and E.



Figure 33. Bandicoot digs in the rehabilitation area at ONR

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Image 34. Shell casings from the Dural Land Snail within the HRBOA during the 2026 survey period

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3.5 EXOTIC SPECIES

Exotic flora species were identified within the NVC and 250m buffer area at the Old Northern Road site. Six species considered as High Threat Weeds (HTW) under the *Biosecurity Act 2015* occur on the property, Crofton Weed *Ageratina adenophora*, Whiskey Grass *Andropogon virginicus,* Cobblers Pegs *Bidens pilosa,* Paspalum Grass *Paspalum dilatatum,* Fireweed *Senecio madagascariensis* and the most widespread on the property Lantana *Lantana camara.* Two of those weed species, Fireweed and Lantana, are also listed as Weeds of National Significance (WoNS) as determined by the Commonwealth Government. A weed management program is currently in place and will continue throughout the life of the rehabilitation plan. There was one HTW identified within the HRBOA, Whiskey Grass *Andropogon virginicus*, which occurs in the rehabilitation area located in the south east area of the site. It is likely seed has been spread to the walking trails of the site via the clothing and shoes of the bush regenerators undertaking weed management in the rehabilitation area. Annual sweeps of the property are recommended to ensure any outbreaks are managed and controlled before species become established.

A weed distribution map has been developed which will be updated yearly to allow for annual comparison. The weed management contractor should aim to reduce the size of these areas on an annual basis with the ultimate goal of eradication, particularly of WoNS and HTW. The weed distribution map has changed slightly from the previous reporting period with a committed effort to reduce the Whiskey Grass footprint within the targeted rehabilitation areas.

Exotic fauna species were identified within the NVC at the Old Northern Road site. Infra-red cameras were left in place for 30 survey nights although no images of pest fauna were recorded within the survey period this year. Fauna prints were recorded at several locations where sand and mud were present within the site. Foxes, dog, macropods and bandicoot were confidently recorded. Deer prints were located within the drainage line crossing close to quadrat 4 in the HRBOA. This is the first year deer prints have been recorded within the site.

European Rabbit scats were observed in several locations within the NVC and 250m buffer in low density. It could then be assumed that carnivore scats also observed onsite were most likely from the European Red Fox. As no Rabbits were observed feeding during the day, scats were not in high density and large warrens were not observed the population can be considered to be low and likely to be kept under control by biological means such as predation from foxes, dogs, cats and birds of prey such as the Wedge-tailed Eagle observed flying nearby. Should the number of rabbits become problematic then it may be necessary to engage in a control program to reduce or eliminate the population.

The Noisy Minor, *Manorina melanocephala*, was also observed within the NVC and 250m buffer area at the Old Northern Road Site in low numbers. Although this bird is a native species to eastern Australia it is worth mentioning here as the species is considered a pest in high density and a Key Threatening Process to many threatened species of small bird including the Brown Treecreeper, which was identified at HRBOA. The population of Noisy Minor appeared to be less than previous years which could be attributed to the ongoing management of Lanata in the area and the rehabilitation effort of understory diversity. The noisy Minor prefers to inhabit areas with an open understory or an understory of one dominant species which enables them to intimidate other bird species which may venture into their home range. The diversity of understory flora species encourages a broader range of bird species, thereby making the domineering patrols of the Noisy Minor less effective. A variety of small and mediums sized birds were observed within the NVC and 250m buffer during the survey period. The Noisy Minor population should be monitored over time to ensure the species does not become dominant and eliminate other bird species from the vegetation.



Figure 35. Deer print in the drainage line near quad 4 within the HRBOA

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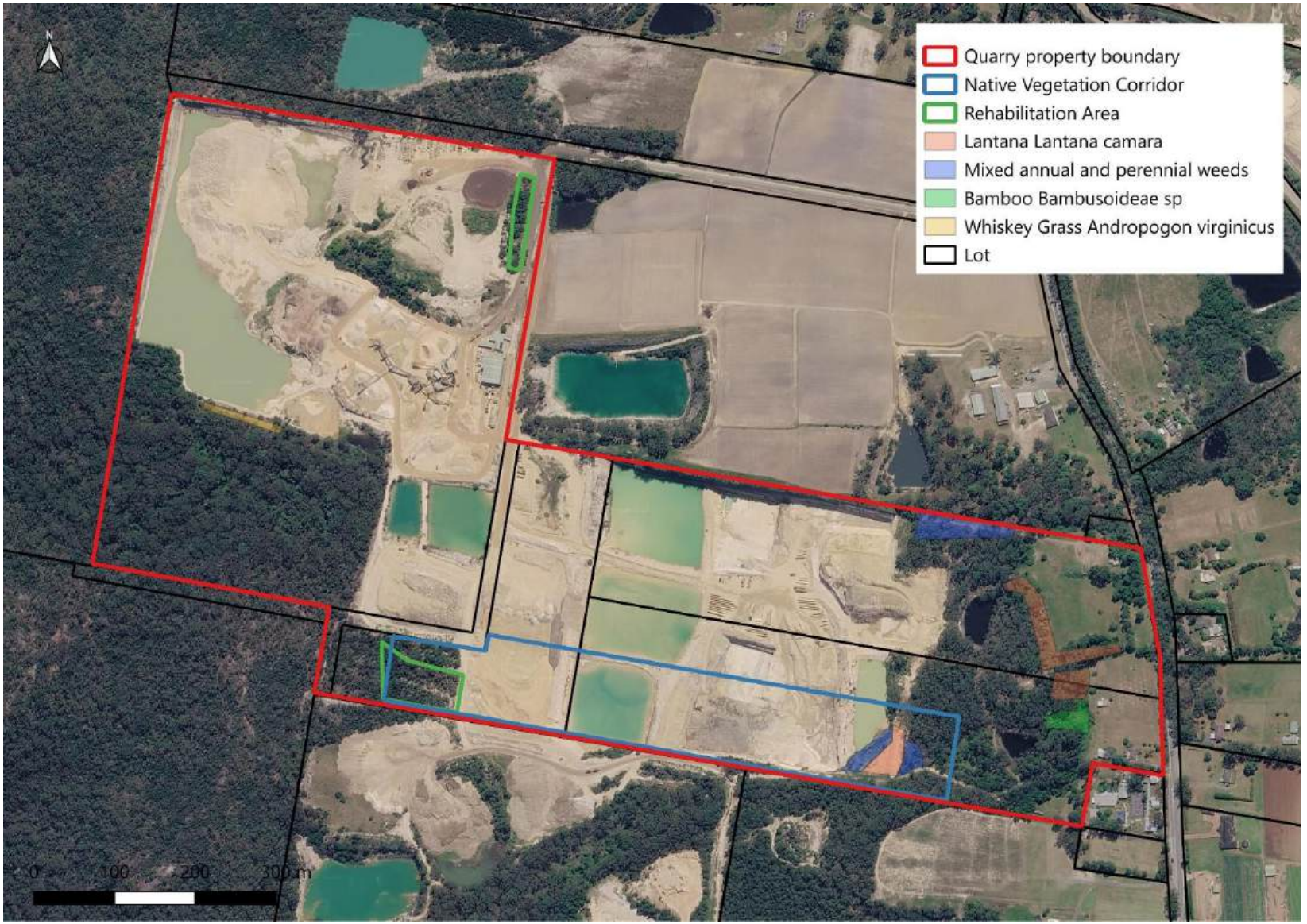


Figure 36. Annual weed distribution map ONR 2026

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3.6 Assessment Against Criteria

The results of the field survey were assessed against the criteria for successful rehabilitation (Table 11).

Table 11. Assessment against criteria to monitor success of rehabilitation

Category	Performance Criteria	Target Achieved	Comments
Native Vegetation	More than 75% of trees are healthy and growing as indicated by long term monitoring	YES	More than 75% of the native vegetation within the active rehabilitation area is healthy and is growing as expected for long term survival. All shrub and ground cover species have reached maturity with flowering and seed production observed. Some species have begun self-propagation within rehabilitation sites. Some of the older *Eucalyptus, Angophora* and *Corymbia* species have reached maturity and have been observed during flowering stages.
	More than 50% of translocated or propagated threatened flora species survive as indicated by long term monitoring	YES	More than 50% of translocated and planted propagated threatened flora species has survived despite the extreme weather conditions of the past reporting periods. To date at least 45 propagated *Darwinia fascicularis subsp. Oligantha* and 52 propagated *Melaleuca deanei* have survived transplanting in the rehabilitation area. A complete count of translocated *Darwinia fascicularis subsp. Oligantha* was not undertaken at the time of relocation however it appears that any losses that may have occurred were minimal and new recruits are evident throughout much of the rehabilitation area.
Vegetation Structure	Revegetation areas contain flora species assemblages characteristic of the desired native vegetation communities	N/A	At this stage it is too early in the rehabilitation process to determine if the desired vegetation community is being established. Species planted have been specifically chosen to recreate a Banksia Heath community. The community developing within the soil seed bank rehabilitation area is starting to demonstrate a characteristic vegetation assemblage of a Banksia Heath community.
Ecosystem Function	Second generation tree seedlings are present or likely to be, based on monitoring comparable older rehabilitation sides (evidence of fruiting of native species observed)	N/A	It is too early in the rehabilitation process for second generation tree seedlings. Fruiting of tree species is has only just commenced therefore this KPI is likely to be achieved within the next 1-2 years. The far south western edge of the translocated rehabilitation area

			does have some new recruit canopy species emerging from mature trees located adjacent to the site.
	Habitat values retained or beginning to develop and improve over time (leaf litter, fallen timber etc)	YES	Habitat values have been added to the rehabilitation site in the form of logs and vegetation debris. Leaf litter is continuing to develop and organic material is establishing well.
Weeds and Pests	Regular inspections indicate a decline weed diversity, density and abundance and a decline in signs of feral animal activity	YES	There were very few weed species identified within the rehabilitation area. There are no signs of feral animal activity.
	There is no significant weed infestation such that weeds do not comprise a significant proportion of the species in the stratum	YES	There is no significant weed infestation within the rehabilitation area. Significant weed infestations are located within the NVC outside of the rehabilitation area. These areas are being actively addressed by weed management contractors.
	There is no evidence of significant damage resulting from feral animal activity	YES	There is no evidence of significant damage caused from feral animal activity within the rehabilitation area. Native herbivores such as Wallabies and Possums are active within the rehabilitation area with some predation noted, however not so severe its considered problematic.

4 DISCUSSION AND RECOMMENDATIONS

This is the ninth Annual Biodiversity and Rehabilitation Management Report produced for Dixon Sand Modification 5. Rehabilitation work is in the mid to early stages and will increase with both intensity and measurable criteria in the years that follow.

This report provides information which will allow for measurable and quantifiable data to be compared over time as the rehabilitation and monitoring continues.

The rainfall over this reporting period was slightly lower than the average, the average being 1127.9mm, with the yearly total for the reporting period (July-June) being 809.4mm. This has provided fair continued growing conditions and allowed for a stabilisation in density and diversity for the rehabilitation areas of the NVC. All stratums of flora within the rehabilitation areas have increased or stabilised in size, maturity and density during the past twelve month period. New juvenile recruits are evident from shrub and ground cover species a slight increase in species diversity also recorded. Climatic conditions may have also influenced the slight increase in diversity recorded. Canopy species are growing well and are expected to show signs of new recruitment during the next reporting period.

The remaining vegetation areas within the ONR site have recovered well from the drought conditions of 2017-2019 and wet conditions of 2020-2022. The below average rainfall over the past 12 month period has provided suitable growing conditions. The native vegetation areas with no weedy growth have demonstrated their resilience with no new weed growth or establishment evident during the reporting period.

Vegetation within the HRBOA has had very little vegetation changes observed throughout the site demonstrating the hardiness of native vegetation stands with minimal historic disturbances. Shrub and ground cover species density and diversity continued to incur a slight decrease, likely due to the change in climatic conditions from above average rainfall to below average rainfall in the past 12 months. The slight decrease is expected to plateau as weather conditions return to average. The Darwinia biflora was noted to have decreased in density although is still very well represented within the heath community in which it occurs. This demonstrates the species requirement for fire to persist within its environment long term.

Threatened species located within the NVC have persisted despite the harsh drought conditions of 2017-2019 followed by the wet climate of 2020-2023. The *Kunzea rupestris* was adversely impacted by the drought, particularly from radiant heat reflection from the surrounding sandstone. Although the species is well suited to enduring dry seasons and limited water resources some losses did occur to individuals within the population. New juvenile recruitment is evident thanks to the continuation of regular rainfall. All other threatened species previously recorded onsite were located and appear healthy.

Weed species, particularly *Lantana camara*, within the NVC and 250m school buffer area of the Old Northern Road site should remain a priority management species for removal and control over the next twelve month period. Management of the species has commenced by the bush regeneration contractors however the climatic conditions has provided the species with ideal growing seasons making it difficult to control. Without management this species is likely to spread over a larger area, in turn supporting habitat for exotic fauna species such as the European Rabbit and the European Red Fox. Suitable techniques for removal have been provided in appendix F.

Rehabilitation efforts have continued in earnest with native plant relocation, propagation and planting taking place throughout the reporting period. Continued supplementary planting within the NVC and 250m school buffer where Lantana is removed will continue over the next reporting period.

A silt pond is currently being capped with suitable material for rehabilitation immediately to the east of the rehabilitation area within the NVC. It is expected rehabilitation of the NVC in the location of this silt pond will occur during the next twelve month period.

During the next twelve month period weed treatment and control will continue throughout the NVC, 250m buffer area and the HRBOA as a priority. Seed collection from within the NVC, 250m buffer and the rehabilitation areas will commence for rehabilitation planting in the location of the capped silt pond.

It is recommended that all *Melaleuca deanei* planted within the NVC be marked with a highly visible identification tag or posts for ease of location in a developing community which is emerging as a dense heath ecosystem. This will ensure all individual plants can be accurately monitored for growth and success over time.

5 LIMITATIONS AND ASSUMPTIONS

This study was limited by the timing and frequency of the survey. There may be flora and/or fauna species present at the site that were not recorded due to their seasonal, territorial or cryptic nature.

It can never be proven that threatened species have not, do not or will not use the site as habitat. The conclusions drawn in this report are a result of testing, observation and experience.

This report describes the habitat and vegetation of the site at the time of the field survey. Vegetation and habitat will change over time and therefore the findings of this report are only relevant for the current proposal and for the duration of the application.

6 QUALIFICATIONS AND EXPERIENCE OF THE AUTHOR AND FIELD ECOLOGIST

The Author and Field Ecologist, Melissa Mass, has formal qualifications including a Bachelor of Applied Science (B. App. Sc.), majoring in Ecology, and a Certificate 3 in Horticulture. Her current Scientific Licence number issued from the NSW OEH is SL101441 with expiry date 31st Oct 2026. Furthermore an Animal Research Authority issued by the NSW Animal Care and Ethics Committee is current to undertake general survey work in THSC local government area with expiry 23rd Mar 2027. Melissa is an accredited Biodiversity Assessor conforming to the requirements as imposed by OEH with Accreditation number being BAAS18053.

Melissa has been working as an Ecologist for 16 years. Her work has included targeted threatened species assessment and management, reviews of environmental factors, bush regeneration, environmental impact assessments, and environmental survey and monitoring.

Melissa has a strong focus on threatened species ecology and has actively contributed to the Long-nosed Potoroo National Recovery Plan.

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8 APPENDIX

APPENDIX A – FLORA SPECIES IDENTIFIED WITHIN THE ONR STUDY AREA

Status	Botanical Name	Common Name	Plot 1	Plot 4	Plot 2 - NVC
	Acacia linifolia	White Wattle		2	4a
	Acacia myrtifolia	Red-stemmed Wattle			
	Acacia parramattensis	Parramatta Wattle	1		3
	Acacia suaveolens	Sweet Wattle	1		1
	Acacia ulicifolia	Prickly Moses		1	1
	Actinotus minor	Lesser Flannel Flower	1	2	
	Allocasuarina littoralis	Black She-oak	4b	4a	4a
	Allocasuarina torulosa	Forest She-oak	1		
HTW	*Andropogon virginicus*	Whiskey Grass			
	Angophora bakeri	Narrow-leaved Apple		1	1
	Angophora costata	Smooth Barked Apple	1	1	
	Aristida stipitata	Three-awned Grass		2	
	Austrostipa pubescens	Spear Grass	2	2	2
	Banksia serrata	Old Man Banksia		1	
	Banksia spinulosa	Hairpin Banksia	1	2	1
	Billardiera scandens	Hairy Apple Berry	1	2	2
	Boronia ledifolia	Sydney Boronia		2	1
	Bossiaea heterophylla	Variable Bossiaea		2	
	Bossiaea obcordata	Spiny Bossiaea	4a	3	4a
	Bursaria spinosa	Sweet Bursaria			1
	Cassytha glabella	Slender Devils Twine	1		1
	Ceratopetalum gummiferum	NSW Christmas Bush	4b	4b	
	Cheilanthes sieberi	Mulga Fern			
	Corymbia eximia	Yellow Bloodwood		3	1
	Corymbia gummifera	Red Bloodwood		4b	4b
	Cyathochaeta diandra	Sheath Rush	3	2	
	Desmodium varians	Slender Tock-trefoil			
	Dianella caerulea	Blue Flax Lily	1	2	1
	Dianella prunina	Native Flax Lily		1	1
	Dichondra repens	Kidney Weed	1		
	Dillwynia retorta	Heathy Parrot Pea			
	Drosera peltata	Sundew		3	
	Entolasia marginata	Bordered Panic	4b		
	Entolasia stricta	Wiry Panic	4b	4b	4b
	Epacris pulchella	Wallum Heath	2		
	Eragrostis brownii	Brown's Lovegrass			2
	Eriostemon australasius	Pink Wax Flower			1
	Eucalyptus haemastoma	Scribbly Gum			
	Eucalyptus pilularis	Blackbutt		1	
	Eucalyptus piperita	Sydney Peppermint	4b	1	
	Eucalyptus punctata	Grey Gum	1	1	4b

	Exocarpos cupressiformis	Cherry Ballart		1	1
	Gompholobium grandiflorum	Large Wedge Pea	1	1	
	Gonocarpus teucrioides	Raspwort			2
	Goodenia bellidifolia	Daisy-leaved Goodenia			
	Grevillea buxifolia	Grey Spider Flower			2
	Hakea sericea	Needlebush	1	2	2
	Hardenbergia violacea	False Sarsaparilla		1	
	Hovea linearis	Common Hovea		2	1
	Imperata cylindrica	Blady Grass		1	
	Isopogon anemonifolius	Broad-leaved Drumsticks	1		1
	Jacksonia scoparia	Dogwood			1
	Kunzea ambigua	Tickbush	4b		
	Lambertia formosa	Mountain Devil		1	2
WoNS HTW	*Lantana camara*	Lantana			
	Leptospermum polygalifolium	Tantoon	1		
	Leucopogon parviflorus	Coastal Beard-heath		2	2
	Lindsaea microphylla	Lacy Wedge Fern	1	2	
	Lomandra brevis	Tufted Mat-rush	1	1	
	Lomandra filiformis	Wattle Mat-rush	1		
	Lomandra gracilis	Lomandra gracilis			
	Lomandra longifolia	Spiny-headed Mat-rush	3	1	2
	Lomandra multiflora	Many Flowered Mat-rush	2	2	1
	Lomandra obliqua	Fish Bones	2	2	3
	Lomatia silaifolia	Crinkle Bush		1	
	Microlaena stipoides	Weeping Grass		2	2
	Ozothamnus diosmifolius	Rice Flower	1	2	1
	Parsonsia straminea	Common Silkpod	1		
W	Paspalum	Paspalum			
	Persoonia levis	Broad Leaved Geebung		1	1
	Persoonia linearis	Narrow Leaved Geebung		1	
	Persoonia pinifolia	Pine-leaved Geebung		2	2
	Petrophile pulchella	Conesticks		1	1
	Phyllanthus hirtellus	Thyme Spurge	3	3	3
W	*Phytolacca octandra*	Inkweed			
V	*Pimelea curviflora var. Curviflora*	Pimelea curviflora var. curviflora			1
	Pimelea linifolia	Slender Rice Flower	1	1	1
W	*Plantago lanceolata*	Plantain			
	Platysace linearifolia	Carrot Tops	1	2	
	Pomax umbellata	Pomax		1	2
	Pratia purpurascens	Whiteroot	2	2	2
	Pteridium esculentum	Bracken Fern	2	2	1
	Rytidosperma racemosum	Wallaby Grass			1

	Scaevola ramosissima	Purple Fan-flower	1	2	1
	Senecio linearifolius	Fireweed Groundsel		1	
	Smilax glyciphylla	Sweet Sarsaparilla	1	1	
	Stylidum lineare	Slender Trigger Grass		1	1
V	*Tetratheca glandulosa*	Glandular Pink Bells			1
	Tetratheca thymifolia	Black-eyed Susan		1	
	Themeda australis	Kangaroo Grass	2	3	3
	Trema tomentosa var. aspera	Native Peach		1	
	Xanthorrhoea resinosa	Grass Tree		1	1
	Xanthosia pilosa	Woolly Xanthosia	2	2	
	Xanthosia tridentata	Rock Xanthosia	2		1
	Xylomelum pyriforme	Woody Pear		1	

V – Vulnerable Species , **W** – Weed , **WoNS** – Weed of National Significance , **HTW** – High Threat Weed

Key
Braun-Blanquet scale.
1 <5% cover & 3 or less individuals
2 <5% cover & more than 3 individuals sparsely scattered
3 <5% cover common and consistent
4a <5% cover & very abundant many individuals
4b 5 – 25% cover
5 25 – 50% cover
6 50 – 75% cover
7 75% - 100% cover

APPENDIX B – FLORA SPECIES IDENTIFIED WITHIN ONR REHABILITATION AREA

Status	Botanical Name	Common Name	Rehab 1	Translocate	Soil seedbank
	Acacia linifolia	White Wattle	Seed bank	*	*
	Acacia myrtifolia	Red-stemmed Wattle	Seed bank	*	
	Acacia parramattensis	Parramatta Wattle	Seed bank	*	*
	Acacia suaveolens	Sweet Wattle	Planted	*	*
	Acacia ulicifolia	Prickly Moses	Planted	*	*
	Actinotus minor	Lesser Flannel Flower	Seed bank	*	*
	Allocasuarina littoralis	Black She-oak	Planted	*	*
HTW	*Andropogon virginicus*	Whiskey Grass	Seed bank	*	*
	Angophora bakeri	Narrow-leaf Apple	Seed bank	*	
	Angophora costata	Smooth Barked Apple	Planted		
	Angophora hispida	Dwarf Apple	Planted	*	*
	Anisopogon avenaceus	Oat Spear Grass	Seed bank	*	*
	Aristida vagans	Threeawn Speargrass	Planted	*	*
	Aristida warburgii	Fine-leafed Wire Grass	Seed bank	*	*
	Asplenium trichomanes	Common Spleenwort	Seed bank	*	*
	Austrostipa pubescens	Spear Grass	Seed bank	*	*
	Banksia ericifolia	Heath-leaved Banksia	Planted	*	*
	Banksia serrata	Old Man Banksia	Planted	*	*
	Banksia spinulosa	Hairpin Banksia	Planted	*	
	Billardiera scandens	Hairy Apple Berry	Seed bank	*	*
	Boronia floribunda	Pale Pink Boronia	Seed bank	*	*
	Boronia ledifolia	Sydney Boronia	Seed bank	*	*
	Bossiaea heterophylla	Variable Bossiaea	Seed bank	*	*
	Bossiaea lenticularis	Bossiaea	Seed bank	*	
	Bossiaea obcordata	Spiny Bossiaea	Planted	*	
	Calytrix tetragona	Common Fringe Myrtle	Planted	*	*
	Cassytha glabella	Slender Devils Twine	Seed bank	*	*
	Caustis pentandra	Curly Wig	Seed bank	*	
	Cheilanthes seiberi	Mulga Fern	Seed bank	*	
	Corymbia eximia	Yellow Bloodwood	Planted		
	Corymbia gummifera	Red Bloodwood		*	
	Cyanthochaeta diandra	Sheath Rush	Seed bank	*	*
	Damperia stricta	Blue Damperia	Seed bank	*	
EnP	*Darwinia fascicularis subsp. oligantha*		Planted	Planted	Planted
	Desmodium varians	Slender Tock-trefoil	Seed bank	*	
	Dianella caerulea	Blue-flax Lily	Seed bank	*	
	Dianella prunina	Native Flax Lily	Planted	*	
	Dichelachne inaequiglumis	Short-hair Plume Grass		*	
	Dillwynia floribunda	Showy Parrot Pea	Seed bank	*	
	Dillwynia retorta	Parrot Pea	Seed bank	*	
	Drosera pelata	Sundew	Seed bank	*	
	Echinopogon caespitosus	Bushy Hedgehog Grass	Planted	*	
	Entolasia marginata	Bordered Panic	Planted		
	Entolasia stricta	Wiry Panic	Seed bank	*	*
	Epacris microphylla	Coral Heath		*	*

	Epacris pulchella	Wallum Heath	Seed bank	*	*
	Eragrostis brownii	Brown's Lovegrass	Seed bank	*	*
	Eucalyptus haemastoma	Scribbly Gum	Planted	*	*
	Eucalyptus punctata	Grey Gum	Seed bank		
	Eucalyptus tereticornis	Forest Redgum	Planted		
	Exocarpos cupressiformis	Cherry Ballart		*	
	Gahnia sieberiana	Red-fruit Saw-sedge	Seed bank	*	*
	Gompholobium grandiflorum	Large Wedge Pea	Seed bank	*	*
	Gonocarpus teucrioides	Raspwort	Planted	*	*
	Goodenia bellidifolia	Daisy-leaved Goodenia		*	
	Goodenia hederacea	Forest Goodenia	Planted	*	
	Goodenia rotundifolia	Star Goodenia	Seed bank		
	Grevillea buxifolia	Grey Spider Flower	Planted	*	*
	Grevillea mucronulata	Green Spider Flower	Planted		*
	Grevillea sericea	Pink Spider Flower	Planted		
	Grevillea speciosa	Red Spider Flower	Planted	*	*
	Hakea dactyloides	Broad-leaved Hakea	Seed bank	*	
	Hakea sericea	Needlebush	Planted	*	*
	Hardenbergia violacea	False Sarsparilla	Seed bank	*	
	Hibbertia aspera	Rough Guinea Flower	Planted	*	
	Hibbertia diffusa	Wedge Guinea Flower	Planted	*	*
	Hovea linearis	Common Hovea	Seed bank	*	
	Imperata cylindrica	Blady Grass	Seed bank	*	*
	Isopogon anemonifolius	Broad-leaved Drumsticks	Planted	*	*
	Jacksonia scoparia	Dogwood		*	
	Juncus usitatus	Common Rush	Seed bank	*	
	Kunzea ambigua	Tick Bush	Seed bank	*	*
	Kunzea capitata	Pink Kunzea	Planted		
	Lambertia Formosa	Mountain Devil		*	*
	Laxmannia gracilis	Slender Wire Lily	Seed bank	*	*
	Lepidosperma neesii	Stiff Rapier-sedge	Seed bank	*	
	Leptospermum polygalifolium	Tantoon	Seed bank	*	*
	Leptospermum trinervium	Flaky-barked Tea-tree	Planted	*	*
	Leucopogon juniperinus	Prickly-beard Heath	Planted	*	
	Leucopogon microphyllus	Small-leaved White Beard	Seed bank	*	*
	Lindsaea microphylla	Lacy Wedge Fern	Seed bank	*	
	Lomandra brevis	Tufted Mat-rush	Seed bank		
	Lomandra glauca	Pale Mat-rush	Seed bank	*	*
	Lomandra longifolia	Spiny-headed Mat-rush	Planted	*	*
	Lomandra multiflora	Many Flowered Mat-rush	Seed bank	*	*
	Lomandra obliqua	Fishbones	Seed bank	*	*
	Lomatia silaifolia	Crinkle Bush	Seed bank	*	*
V	*Melaleuca deanei*	Deane's Paperbark	Planted	Planted	Planted
	Microlaena stipoides	Weeping Grass	Seed bank	*	*
	Micromyrtus ciliata	Fringed Heath Myrtle		*	*
	Mirbelia rubiifolia	Heath Mirbelia	Seed bank	*	*

	Mirbelia speciosa	Mirbelia	Seed bank	*	
	Ozothamenus diosmidfolius	Rice Flower	Seed bank	*	*
	Patersonia sericea	Purple Flag Flower	Seed bank		
	Persoonia lancelota	Lance-leaved Geebung	Seed bank	*	*
	Persoonia levis	Broad-leaved Geebung	Seed bank	*	
	Persoonia pinifolia	Pine-leaved Geebung	Seed bank	*	*
	Petrophile pulchella	Conesticks	Seed bank	*	*
	Petrophile sessilis	Prickly Conesticks	Planted		
	Phyllanthus hirtellus	Thyme Spurge	Planted	*	*
	Phyllota phylicoides	Heath Phyllota		*	*
V	*Pimelea curviflora var. curviflora*				
	Pimelea linifolia	Slender Rice Flower	Seed bank	*	
	Platysace linearifolia	Carrot Tops	Seed bank	*	*
	Pomax umbellate	Pomax	Seed bank	*	
	Poranthera microphylla	Small Poranthera	Seed bank	*	
	Pratia purpurascens	White Root	Seed bank	*	*
	Pteridium esculentum	Bracken Fern		*	
	Pultenaea flexilis	Graceful Bush Pea		*	
	Rytidosperma racemosum	Wallaby Grass	Seed bank	*	
	Scaevola ramosissima	Purple Fan Flower	Seed bank	*	
	Schoenus ericetorum	Heath Bog Rush	Seed bank	*	*
	Stylidium graminifolium	Grass Trigger Plant	Seed bank	*	
V	*Tetratheca glandulosa*	Glandular Pink Bells	Seedbank	Translocated	
	Themeda australis	Kangaroo Grass	Seedbank	*	*
	Trema tomentose	Native Peach	Seed bank	*	*
	Veronica plebeia	Creeping Speedwell		*	
	Xanthosia Pilosa	Woolly Xanthosia	Seed bank	*	
	Xanthosia tridentata	Rock Xanthosia	Seed bank	*	

EnP – Endangered Population
V – Vulnerable species
HTW – High Threat Weed

APPENDIX C – FLORA SPECIES IDENTIFIED AT HRBOA

Status	Botanical Name	Common Name	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5
	Acacia hispidula	Little Harsh Acacia	1		1		
	Acacia linearifolia	Narrow-leaved Wattle					
	Acacia linifolia	White Wattle			1		
	Acacia suaveolens	Sweet Wattle		1		1	1
	Acacia ulicifolia	Prickly Moses	1	1			1
	Acianthus sinclairii	Pixie Cap Orchid					
	Actinotus helianthi	Flannel Flower					
	Actinotus minor	Lesser Flannel Flower	1	3		1	2
	Allocasuarina distyla	Scrub She-oak		4b			1
	Allocasuarina littoralis	Black She-oak	2			1	4b
	Angophora costata	Smooth Barked Apple	4b			1	
	Angophora hispida	Dwarf Apple	1	4b			4b
	Aristida vagans	Threeawn Speargrass		1		3	
	Aristida warburgii	Fine-leafed Wire Grass	3	3	3		2
	Asplenium trichomanes	Common Spleenwort		3		1	2
	Austrostipa pubescens	Spear Grass	1	3	4b		3
	Banksia ericifolia	Heath-leaved Banksia	1	4b	1		4b
	Banksia oblongifolia	Fern-leaved Banksia		4b			
	Banksia serrata	Old Man Banksia	4b	1	4b	1	2
	Banksia spinulosa	Hairpin Banksia	1			2	
	Billardiera scandens	Hairy Apple Berry			1		1
	Boronia floribunda	Pale Pink Boronia	3	2	1		4b
	Boronia ledifolia	Sydney Boronia		2	1	1	3
	Bossiaea hetrophylla	Variable Bossiaea			1		
	Bossiaea lenticularis	Bossiaea				2	
	Bossiaea obcordata	Spiny Bossiaea	2		2	4b	
	Bossiaea scolopendra	Sword Bossiaea	1	2			1
	Callicoma serratifolia	Black Wattle			1	4b	
	Calochlaena dubia	Soft Braken Fern			3		
	Calytrix tetragona	Common Fringe Myrtle		4b			
	Cassytha glabella	Slender Devils Twine	1	2	1	1	1
	Caustis flexuosa	Curly Wig	4b	3	2	3	2
	Caustis pentandra	Thick Twist Rush		2			
	Ceratopetalum gummiferum	NSW Christmas Bush	2		3	3	
	Cheilanthes seiberi	Mulga Fern		2			2
	Corymbia eximia	Yellow Bloodwood			1		1
	Corymbia gummifera	Red Bloodwood	1		4b	2	1
	Cyathochaeta diandra	Sheath Rush	4b	4b	4b		4b
	Cymbidium sp	Orchid				1	
V	*Darwinia biflora*			1			
	Dianella caerulea var. producta	Blue Flax Lily	1			1	1
	Dianella prunina	Native Flax Lily		1	1		
	Dillwynia floribunda	Showy Parrot Pea		2			
	Dillwynia retorta	Parrot Pea		1			1
	Dodonaea viscosa	Sticky Hop Bush			2		

	Dracophyllum secundum	Dracophyllum	1		1	3	
	Drosera auriculata	Sundew		2		2	1
	Elaeocarpus reticulatus	Blueberry Ash			1	2	
	Entolasia stricta	Wiry Panic	3	4b	4b	4b	4b
	Epacris pulchella	Wallum Heath		3	2	1	2
	Eragrostis brownii	Brown's Lovegrass					
	Eucalyptus haemastoma	Scribbly Gum		2			1
	Eucalyptus pilularis	Blackbutt	1		1		1
	Eucalyptus piperita	Sydney Peppermint	1		4b		
	Eucalyptus punctata	Grey Gum			4b		1
	Eucalyptus resinifera	Red Mahogony				4b	
	Gahnia sieberiana	Red-fruit Saw-sedge				2	
	Glochidion ferdinandi	Cheese Tree				1	
	Glycine clandestina	Twining Glycine				1	
	Gompholobium glabratum	Dainty Wedge Pea		1			1
	Gonocarpus teucrioides	Raspwort			1		
	Grevillea buxifolia	Grey Spider Flower		3			1
	Grevillea mucronulata	Green Spider Flower		2			1
	Grevillea speciosa	Red Spider-flower	2	3			
	Hakea dactyloides	Broad-leaved Hakea	1	2			1
	Hakea propinqua	Large Fruit Hakea		1			
	Hakea sericea	Needlebush		2	1	1	
	Hibbertia aspera	Rough Guinea Flower		1	1		
	Hibbertia diffusa	Wedge Guinea Flower					1
	Hovea linearis	Common Hovea			1		1
	Imperata cylindrica	Blady Grass					
	Isopogon anemonifolius	Broad-leaved Drumsticks	1	2			2
	Lambertia formosa	Mountain Devil	2	2	2	2	2
	Lepidosperma laterale	Variable Swordsedge	2	1		2	2
	Leptospermum polygalifolium	Tantoon		1			
	Leptospermum trinervium	Flaky-barked Tea-tree	4b	4b	2	2	4b
	Leucopogon juniperinus	Prickly-beard Heath	2		1	1	
	Leucopogon microphyllus	Small Leaved White Beard		2			
	Leucopogon parviflorus	Coastal Beard-heath		1			
	Lindsaea microphylla	Lacy Wedge Fern	1		2		
	Lomandra brevis	Tufted Mat-rush	1				1
	Lomandra filiformis	Wattle Mat-rush			1		
	Lomandra glauca	Pale Mat-rush	1	1			
	Lomandra longifolia	Spiny-headed Mat-rush				1	
	Lomandra multiflora	Many Flowered Mat-rush			2	2	
	Lomandra obliqua	Fish Bones	2	2	1	2	1
	Lomatia silaifolia	Crinkle Bush	1		1		
	Micrantheum ericoides			2			
	Micromyrtus ciliata	Fringed Heath-myrtle		2			1

	Mirbelia rubiifolia	Heath Mirbelia		2			
	Patersonia sericea	Purple Flag Flower					
	Persoonia lanceolate	Lance Leaf Geebung		1			1
	Persoonia levis	Broad Leaved Geebung			2	1	
	Persoonia pinifolia	Pine-leaved Geebung	2	2	3	2	2
	Petrophile pulchella	Conesticks	1	2			2
	Phyllanthus hirtellus	Thyme Spurge	1	1	1	1	1
	Phyllota phylicoides	Heath Phyllota					
	Pimelea linifolia	Slender Rice Flower				2	
	Platysace linearifolia	Carrot Tops	4b	3	2	2	2
	Pomax umbellata	Pomax					
	Pratia purpurascens	Whiteroot					1
	Pteridium esculentum	Bracken Fern	2		2	2	
	Pterostylis nutans	Nodding Greenhood	1				
	Rytidosperma racemosum	Wallaby Grass					
	Scaevola ramosissima	Purple Fan-flower	1	1	1		
	Schizaea bifida	Forked Comb Fern					2
	Schoenus melanostachys	Black Bog Rush		4b	1		1
	Smilax glyciphylla	Sweet Sarsaparilla	1		1	1	
	Stylidium graminifolium	Grass Trigger Plant					
	Telopea speciosissima	NSW Waratah				2	
	Tetratheca thymifolia	Black Eyed Susan				2	
	Themeda australis	Kangaroo Grass			1		1
	Woollsia pungens	Snow Heath					4b
	Xanthorrhoea resinosa	Grass Tree	1	1	1	1	1
	Xanthosia pilosa	Woolly Xanthosia	1		1	1	1
	Xanthosia tridentata	Rock Xanthosia		2	1	1	
	Xylomelum pyriforme	Woody Pear				1	

V – Vulnerable species

Key
Braun-Blanquet scale.

1	<5% cover & 3 or less individuals
2	<5% cover & more than 3 individuals sparsely scattered
3	<5% cover common and consistent
4a	<5% cover & very abundant many individuals
4b	5 – 25% cover
5	25 – 50% cover
6	50 – 75% cover
7	75% - 100% cover

APPENDIX D – FAUNA SPECIES IDENTIFIED WITHIN ONR SURVEY AREA

	Scientific Name	Common name	Method of observation
BIRDS			
	Acanthorhynchus tenuirostis	Eastern Spinebill	On site observation
	Anthochaera chrysoptera	Little Wattlebird	On site observation
	Aquila audax	Wedge-tailed Eagle	Flying above
V	*Calyptorhynchus lathami*	Glossy Black Cockatoo	Chewed cones
	Chenonetta jubata	Australian Wood Duck	On site observation
	Colluricincla harmonica	Grey Shrike-thrush	On site observation
	Cracticus tibicen	Australian Magpie	On site observation
	Cracticus torquatus	Grey Butcherbird	On site observation
	Dacelo novaeguineae	Laughing Kookaburra	On site observation
	Eopsaltria australis	Eastern Yellow Robin	On site observation
	Falco cenchroides	Nankeen Kestrel	Flying above
	Haliaeetus leucogaster	White-breasted Sea Eagle	Flying above
	Hirundo neoxena	Welcome Swallow	On site observation
	Lichenostomus leucotis	White-eared Honeyeater	On site observation
	Malurus cyaneus	Superb Fairy Wren	On site observation
	Manorina melanocephala	Noisy Minor	On site observation
	Meliphaga lewinii	Lewin's Honeyeater	On site observation
	Neochmia temporalis	Red-browed Finch	On site observation
	Ocyphaps lophotes	Crested Pigeon	On site observation
	Phylidonyris novaehollandiae	New Holland Honeyeater	On Site observation
	Platycerus elegans	Crimson Rosella	On site observation
	Rhipidura albiscapa	Grey Fantail	On site observation
	Rhipidura leucophrys	Willie Wagtail	On site observation
	Sericornis frontalis	White-browed Scrubwren	On site observation
	Strepera graculina	Pied Currawong	On site observation
	Trichoglossus moluccanus	Rainbow Lorikeet	On site observation
MAMMALS			
P	*Canis lupus familiaris*	Dog	Scat and prints
	Perameles nasuta	Long-nosed Bandicoot	Digs
P	*Oryctolagus cuniculus*	European Rabbit	Scat/digs
	Trichosurus vulpecula	Brush-tailed Possum	Scat
P	*Vulpes vulpes*	European Red Fox	Scat and prints
	Wallabia bicolor	Swamp Wallaby	On site observation/scat/ Sand pad/IRC
AMPHIBIANS			
	Crinia signifera	Common Eastern Froglet	Heard at farm dam
	Limnodynastes peronii	Striped Marsh Frog	Heard at farm dam
	Litoria peronei	Peron's Tree Frog	Heard in distance
REPTILES			

South East Environmental

	Amphibolurus muricatus	Jacky Lizard	On site observation
	Intellagama lesueurii	Australian Water Dragon	On site observation
	Lampropholis guichenoti	Common Garden Skink	On site observation
	Pseudechis porphyriacus	Red-bellied Black Snake	On site observation
INVERTEBRATES			
	Unknown various flying nocturnal insects	Moths/Beetles	IRC

V – Vulnerable species
P – Pest species

APPENDIX E – FAUNA SPECIES IDENTIFIED WITHIN HRBOA SURVEY AREA

	Scientific Name	Common name	Method of observation
BIRDS			
	Acanthorhynchus tenuirostris	Eastern Spinebill	On site observation
	Alisterus scapularis	King Parrot	On site observation
	Anas superciliosa	Pacific Black Duck	On site observation
	Anthochaera chrysoptera	Little Wattlebird	On site observation
V	*Calyptorhynchus lathami*	Glossy Black Cockatoo	Chewed cones
	Chenonetta jubata	Australian Wood Duck	On site observation
V	*Climacteris picumnus*	Brown Treecreeper	On site observation
	Colluricincla harmonica	Grey Shrike-thrush	On site observation
	Cracticus tibicen	Australian Magpie	On site observation
	Cracticus torquatus	Grey Butcherbird	On site observation
	Dacelo novaeguineae	Laughing Kookaburra	On site observation
	Eopsaltria australis	Eastern Yellow Robin	On site observation
	Falco cenchroides	Nankeen Kestrel	On site observation
	Hirundo neoxena	Welcome Swallow	On site observation
	Lichenostomus chrysops	Yellow-faced Honeyeater	On site observation
	Lichenostomus leucotis	White-eared Honeyeater	On site observation
	Leucosarcia melanoleuca	Wonga Pigeon	On site observation
	Malurus cyaneus	Superb Fairy Wren	On site observation
	Meliphaga lewinii	Lewin's Honeyeater	On site observation
	Neochmia temporalis	Red-browed Finch	On site observation
	Phylidonyris novaehollandiae	New Holland Honeyeater	On site observation
	Platycercus elegans	Crimson Rosella	On site observation
	Platycercus eximius	Eastern Rosella	On site observation
	Ptilonorhynchus violaceus	Satin Bowerbird	On site observation
	Rhipidura albiscapa	Grey Fantail	On site observation
	Rhipidura leucophrys	Willie Wagtail	On site observation
	Rhipidura rufifrons	Rufus Fantail	On site observation
	Sericornis frontalis	White-browed Scrubwren	On site observation
	Strepera graculina	Pied Currawong	On site observation
MAMMALS			
P	*Canis lupus familiaris*	Dog	Print
	Perameles nasuta	Long-nosed Bandicoot	Digs/scats
	Trichosurus vulpecula	Brush-tailed Possum	Scat
P	*Vulpes vulpes*	European Red Fox	Scat/prints
	Wallabia bicolor	Swamp Wallaby	Scat/prints/IRC
AMPHIBIANS			
	Crinia signifera	Common Eastern Froglet	Heard in distance
	Litoria peronei	Peron's Tree Frog	Heard in distance
REPTILES			
	Eulamprus quoyii	Eastern Water Skink	On site observation
	Intellagama lesueurii lesueurii	Eastern Water Dragon	On site observation
	Lampropholis guichenoti	Common Garden Skink	On site observation

	Pseudechis porphyriacus	Red-bellied Black Snake	On site observation
	Pseudonaja textilis	Eastern Brown Snake	On site observation
INVERTEBRATES			
En	*Pommerhelix duralensis*	Dural Land Snail	On site observation

V – Vulnerable species
P – Pest species
En – Endangered species

APPENDIX F – MELALUECA DEANEI IN REHABILITATION AREA

ID number	Easting	Northing	Condition	Height	Width
Planted Rehabilitation					
1	312588	6296396	Healthy	1.3m	0.8m
2	312592	6296403	Healthy	1.3m	0.7m
3	312589	6296408	Healthy	0.85m	0.3m
4	312580	6296412	Healthy	1.1m	0.4m
5	312563	6296403	Healthy	1.05m	0.4m
6	312560	6296413	Healthy	1.2m	0.5m
7	312556	6296404	Healthy	0.95m	0.3m
8	312584	6296410	Healthy	1.05m	0.5m
9	312558	6296418	Healthy	1.55m	0.7m
10	312502	6296414	Healthy	1m	0.4m
11	312556	6296422	Healthy	1.25m	0.5m
12	312567	6296416	Healthy	1.35m	0.4m
13	312574	6296396	Healthy	1.45m	0.5m
14	312221	6296241	Healthy	1.15m	0.3m
Translocated Rehabilitation					
1b	312539	6296391	Planted 2017 Healthy	2m	0.4m
2b	312587	6296378	Planted May 2021	50cm	20cm
3b	312582	6296376	Planted May 2021	40cm	20cm
4b	312581	6296382	Planted May 2021	40cm	20cm
5b	312576	6296379	Planted May 2021	35cm	20cm
6b	312575	6296376	Planted May 2021	40cm	20cm
7b	312573	6296377	Planted May 2021		
8b	312571	6296385	Planted May 2021		
9b	312564	6296387	Planted May 2021		
10b	312564	6296385	Planted 2017 Healthy	1.4m	0.5m
11b	312562	6296380	Planted May 2021	50cm	20cm
12b	312565	6296378	Planted May 2021	40cm	20cm
13b	312561	6296383	Planted May 2021	40cm	20cm
14b	312549	6296390	Planted May 2021	40cm	20cm
15b	312555	6296381	Planted May 2021		
16b	312549	6296385	Planted May 2021	450cm	20cm

17b	312545	6296379	Planted May 2021		
18b	312535	6296387	Planted May 2021	35cm	20cm
19b	312541	6296392	Planted May 2021	40cm	20cm
20b	312547	6296393	Planted May 2021	45cm	20cm
21b	312525	6296400	Planted May 2021		
22b	312531	6296408	Planted May 2021		
23b	312537	6296405	Planted May 2021	40cm	20cm
24b	312540	6296406	Planted May 2021		
25b	312543	6296406	Planted May 2021	40cm	20cm
26b	312586	6296367	Planted Oct 2021		
27b	312580	6296386	Planted Oct 2021		
28b	312527	6296405	Planted Oct 2021	50cm	20cm
29b	312529	6296414	Planted Oct 2021		
30b	312536	6296422	Planted Oct 2021		
31b	312553	6296421	Planted Oct 2021		
32b	312562	6296418	Planted Oct 2021		
33b	312574	6296415	Planted Oct 2021		
34b	312574	6296438	Planted Oct 2021	45cm	20cm
35b	312567	6296406	Planted Oct 2021	40cm	20cm
Seedbank Rehabilitation					
17	312510	6296389	Healthy	2.2m	0.9m

South East Environmental

APPENDIX G – LANTANA CAMARA MANAGEMENT GUIDE



How to control lantana

Quick reference guide

Lantana – Lantana camara

Minimise spread and future impacts

Although lantana is widespread on the east coast of Australia, it is still absent from parts of its potential range. These areas should be protected by:

- preventing the importation of further varieties and species of lantana
- stopping more planting of lantana in gardens
- strategically controlling infestations which threaten uninfested areas.

A control program for dense infestations in pastures

The Queensland Department of Natural Resources and Mines has produced a pest series fact sheet on lantana (PP#34). They advise that herbicides are too expensive to treat large lantana infestations.

A combination of fire and mechanical control makes spot treatment of small patches with herbicides more cost-effective. The following suggested control program for dense infestations in pastures is based on the fact sheet:

1. Exclude stock to allow a fuel load to build up.
2. Bulldoze, stickrake or plough the infestation to add to the fuel load.
3. Burn the infestation after obtaining a permit. Summer burns are more effective than winter burns.
4. Sow an improved pasture. Seek advice of local council or state/territory government agencies for selection of non-weedy pasture species.
5. Continue stock exclusion until pasture has established and set seed.
6. Burn the infestation again after obtaining a permit.
7. Spot spray or grub out any regrowth or seedlings. Spraying is most effective between summer and autumn.
8. Follow-up burning, spraying and/or grubbing will be required for several years.

Lantana can escape from garden plantings into surrounding bushland.
Photo: Tim Schultz

Control options

Type of infestation	Physical	Mechanical	Chemical	Fire	Biological
Small (few plants, small area)	Hand grubbing only suitable for seedlings. Wear gloves for protection from thorns.	Not suitable.	Spot spray plants less than 2 m in height between summer and autumn with a registered herbicide.	Not suitable.	There are four useful biological control agents. They are already distributed throughout their potential range.
Medium (medium density, medium total area)		Bulldoze, plough, stick-rake or slash infestations. Soil disturbance will lead to mass seed germination, so follow up with further controls. Do not use mechanical control in areas susceptible to erosion. A permit may be required.	Spraying is uneconomical for medium or large infestations. Helicopter spraying is used when there is no access for mechanical control, eg very steep slopes.	Under permit, burn in summer with good fuel load of grass and/or mechanically cleared lantana. Also use as follow-up. Do not burn in rainforests.	
Large (many plants, many ha)					

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CRC Weed management

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South East Environmental

End

Of

Report

South East Environmental

Appendix I – S94 Contribution

Old Northern Road Quarry
Section 94 Contribution - Summary

Month	Tonnage	S94 Paid
Jul-25	17,280.97	$ 19,354.69
Aug-25	15,070.46	$ 17,029.62
Sep-25	21,634.05	$ 24,446.48
Oct-25	27,351.15	$ 30,906.80
Nov-25	26,521.61	$ 29,969.42
Dec-25	18,528.84	$ 20,937.59
Jan-26	16,872.76	$ 19,066.22
Feb-26	21,079.36	$ 23,819.68
Mar-26	21,082.93	$ 23,823.71
Apr-26	16,046.26	$ 18,132.27
May-26	14,020.49	$ 15,843.15
Jun-26	16,735.16	$ 18,910.73
TOTAL	**232,224.04**	**$ 262,240.36**

Appendix J – CCC Meeting Minutes

MINUTES OF THE BI-ANNUAL COMMUNITY CONSULTATIVE COMMITTEE WEDNESDAY 5 NOVEMBER 2025 HAERSES ROAD QUARRY, ADMINISTRATION BUILDING

	NAME	ORGANISATION
PRESENT	Lisa Andrews (LA)	Independent Chairperson
	Hunny Churcher (HC)	Environmental Officer, Dixon Quarry Group
	Jamie Baker (JB)	Dixon Quarry Group – Business Development Manager
	Melissa Mass (MM)	Dixon Quarry Group - Ecologist
	Farley Roberts (FR)	Community Representative
	Lisa Aylward (LAy)	Maroota Public School Representative
	Kristine McKenzie (KM)	The Hills Shire Council Representative
	Pat Schwartz (PS)	Community Representative
	Pat Walsh (PW)	Bush-It representative
APOLOGIES	Timothy Baker (TB)	Bush Regeneration Contractor (Bush-It)
	Jemma Roberts (JR)	Community Representative (alternate)
	David Dixon (DD)	Dixon Quarry Group – Managing Director

WELCOME & INTRODUCTION	LA opened the meeting at 1.09pm following a light luncheon. All members were welcomed.	
APOLOGIES	As listed above.	
DECLARATIONS OF INTEREST	LA declared that she is approved by the Department of Planning to chair the meeting and engaged by Dixon Quarry Group. LA advised that PW had completed the necessary governance forms.	
BUSINESS ARISING FROM PREVIOUS MEETING (6/11/24)	**NO.** / **ITEM** / **RESPONSIBILITY** 1 – Bring Dural Land Snail sample to next CCC. – MM 2 – Confirm site inspection requirements. – LA **No other business arising.**	**1 – Complete** **2 – Complete**
CORRESPONDENCE (as emailed with Meeting Notice on 7/10/25 with 1 additional item)	▪ 14/5/25 - Email to members with draft minutes for review. ▪ 26/5/25 – Email to members with the finalised minutes. ▪ 2/10/25 – Email from HC advising of Old Northern Road and Haerses Road Quarries: 2024-2025 Annual Reviews being submitted to DPHI on 30/9/25 and providing link. ▪ 7/10/25 – Email to members with meeting notice & agenda for 5/11/25.	

<table>
<tr><td></td><td>

20/10/25 – Email to members advising of IEA & requesting any feedback for inclusion by 27/10/25.
29/10/25 – Email to IEA with response.
29/10/25 – Email from IEA confirming receipt of Hills Council response.
5/11/25 - Email to members with the reminder for this meeting.

</td><td></td></tr>
<tr><td>Operation/Progress</td><td>Site operations and current project progress was presented by JB and HC, including an extraction overview.</td><td>Slides 6-8</td></tr>
<tr><td>ONR – Proposed DA Mod 6 - Extraction within existing cells to maximise resource</td><td>

Increase the depth of extraction within Lot 196 DP752025 to within 2m of the highest recorded regional wet weather groundwater level;
Import up to 250,000 tonnes per annum of virgin excavated natural material (VENM) and excavated natural material (ENM) within existing incoming trucks; and
Extend the quarry life for 30 years from the date of Mod 6 being approved.

Timeline
<table>
<tr><th>Date</th><th>Milestone</th></tr>
<tr><td>January 2023</td><td>Scoping Letter lodged with DPHI</td></tr>
<tr><td>March 2023</td><td>DPHI confirmed pathway and requests additional traffic assessment and rehabilitation and final landform assessment to be updated</td></tr>
<tr><td>September 2023</td><td>Consultation with Agencies</td></tr>
<tr><td>November 2023</td><td>Modification Report submitted to DPHI</td></tr>
<tr><td>November 2023 – April 2024</td><td>Public Exhibition, received submissions from the community and agencies, submissions report submitted to DPHI</td></tr>
<tr><td>May 2024</td><td>Received further comments from DCCEEW-Water. Submission report being prepared.</td></tr>
<tr><td>July 2024</td><td>DPHI issued an RFI</td></tr>
<tr><td>October 2025</td><td>Response to RFI submitted to DPHI</td></tr>
</table>
Additional ground water data has been provided to DPHI.

PS enquired on the type of resource to be extracted. JB responded sandstone & sand.

PS suggested that photographs be taken to document the geology of the site, ie showing layers to record the different strata as extraction occurs. JB confirmed that photos and drone footage are taken for Dixon’s records.
</td><td>Sides: 9 & 10</td></tr>
</table>

<table>
<tr><td>ENVIRONMENTAL MONITORING RESULTS</td><td>HC commenced the environmental monitoring results, by showing the locations of monitoring devices and explaining/quantifying the outcomes. Data explained.</td><td>Slides: 12 to 16</td></tr>
<tr><td>TEOM DATA</td><td>HC explained the TEOM data and measurement criteria. Commenting on the major dust storm that had occurred, causing a spike. Site operations were modified during this event in accordance with the EPA EPL requirement</td><td>Slide: 17</td></tr>
<tr><td>DEPOSITIONAL DUST DATA</td><td>Dust data for this monitoring period: May 2025 – October 2025:
<table>
<tr><th>Date</th><th>Milestone</th></tr>
<tr><td rowspan="5">Old Northern Road</td><td>D1A Access road</td></tr>
<tr><td>D4 Rehab area</td></tr>
<tr><td>D5 Bundwall</td></tr>
<tr><td>D6 School</td></tr>
<tr><td>D7 Mullock Heap</td></tr>
<tr><td rowspan="4">Haerses Road</td><td>D8 Olive Grove</td></tr>
<tr><td>D10 Haerses Road (EPL Point 3)</td></tr>
<tr><td>D11 Receiver R6</td></tr>
<tr><td>D12 Receiver R8</td></tr>
</table>
Bush fire mitigation works were undertaken by the Department of Education’s contractor, causing elevated results.

Whilst there were some higher readings, the site was still compliant.</td><td>See graphs for results. Slides: 18 - 23</td></tr>
<tr><td>NOISE MONITORING</td><td>ONR & Haerses Rd:

Tables of noise monitoring locations indicating: Receivers, property addresses, descriptions and extrapolated monitoring results.
No noise complaints have been received for quite some time.</td><td>See Slides 24-34 For location of monitoring sites and summary of data.</td></tr>
<tr><td>GROUND WATER MONITORING</td><td>GW Monitoring wells
• ONR 11 x BH
• HR 16 x BH
GW levels:
• Monthly + continuous data loggers
GW quality sampling & lab analysis:
• 6 monthly sampling and testing.</td><td>Graphs explained - See Slides 35-43 (maps)</td></tr>
<tr><td>COMPLAINT 23/10/25</td><td>The EPA received a complaint from the public regarding significant levels of dust and sand tracked from local quarries onto ONR and WFR in Maroota. Specifically, the length of ONR between the intersection of WFR and Old Telegraph Road.

HC advised that this was investigated and was not specific to Dixon Quarry, however, quarries aren’t the only</td><td></td></tr>
</table>

	contributors, given the rural area and inadequate drainage of road shoulders and gutter. LAy advised that she had emailed Transport for NSW (TfNSW), who advised that they will be cleaning road shoulders and drains on ONR. LA commented that the local quarries pay S94 contributions towards the upkeep and maintenance of local roads including Wisemans Ferry Rd and Old Northern Rd. KM advised that these roads were the responsibility of TfNSW. Discussions regarding payments made to Council and the distribution of funds from S94 plan. Link: Development Contributions | The Hills Shire Council KM explained there is a 5 year works program between Council and TfNSW for certain works to be undertaken. These works are decided by the Traffic Team. KM advised that she would take question on notice to confirm where the funds go, whether given to TfNSW or Council retain to undertaken works. **Action.** FR stated that some roads would be the responsibility of Hornsby Shire Council. KM explained the boundary – see link: https://www.thehills.nsw.gov.au/Council/Mayor-Councillors-Elections/Ward-Boundary-Maps	
BIODIVERSITY SITE – HAERSES ROAD (Passive Management)	BCT have offered fixed price credit purchase for Dixon Quarry Group in order to satisfy 80% of the Total Fund Deposit and to commence Active Management of the biobank site. Accordingly, weed management and other management actions can commence. The site is managed in accordance with the Biobanking agreement and management plans which span over a 20 year period.	**Slide 45**
BIOBANK SITE – PORTERS ROAD (Active Management)	Local Land Services have been consulted regarding the best practice for feral species control program, including signing up to the Cattai deer control program, fox baiting and ground shooting (instead of baiting). Discussion with RFS to carry out an ecological burn in the near future. PS asked where information is available on bio bank sites. HC advised that the information is on the website, under Legal. Link: Legal | Dixon Quarry Group	**Slide 46**
	MM commenced the presentation by advising that the site rehabilitation is progressing well and they are getting on top of weed management. Monitoring of fauna & flora on the site continues.	**See Slides 47 – 63 including photographs**

	Biodiversity and Rehabilitation Annual Report 2025 (AR) • The Biodiversity and Rehabilitation Annual Report identifies native flora and fauna within the Native Vegetation Corridor and the Haerses Road Biodiversity Offset Area, it monitors the success of the rehabilitation area within the NVC and describes the current condition of threatened flora and fauna and their habitats within the Old Northern Road site and the HRBOA. • The 2025 Biodiversity and Rehabilitation Annual Report was completed in August 2025 and submitted with the Annual Review on the 30th of September 2025. The data for the 2026 Biodiversity and Rehabilitation Annual Report is currently being collected. • The results of the 2025 report found the rehabilitation areas are stabilizing following the past 4 years of ideal growing conditions. Vegetation diversity and density have likely peaked and is now settling into average climatic conditions. **Native Vegetation Corridor – Old Northern Road** explained. **Biodiversity Offset Area – Haerses Road** explained. **Monitoring Fauna** Fauna monitoring is undertaken in the summer months when activity is at the highest and more likely to be observed. Fauna monitoring includes: ○ Recording bat calls via an Anabat sound recorder; ○ The use of unbaited infra-red motion detection cameras on animal trails; ○ Looking for scats, prints and other signs such as diggings, scratches, feed scars; ○ Aural survey for birds; and ○ Visual observation. Long-nosed Bandicoot Perameles nasuta tracks and digs HR. Observations at ONR: ○ Swamp Wallaby *Wallabia bicolor* ○ Laughing Kookaburra *Dacelo novaeguineae* **Monitoring flora** • Flora monitoring is undertaken in the winter months as many of the threatened species are flowering or budding up preparing for early spring flowering	

	• Vegetation quadrats are repeated annually in monitoring locations. Quadrats are 20m x 50m, 20m x 20m and 1m x 1m which record the following information: o Species present and percentage of cover; o Stem class including recruitments present or absent; o Number of hollow bearing trees; o Total length of coarse woody debris; o Litter cover, rock surface area, bare ground. **BCT Reporting** o Annual Passive Management Report for Haerses Road site for year 6 was completed in March 2025 o Active Management at Porters Road has commenced with the first annual report completed and submitted in September 2025.	
BUSH REGENERATION WORKS	Summary of Assisted Bush Regeneration Work for the period June 2025 to October 2025- presented by PW. **Rehabilitation of Lot 196** ➢ Continued suppression of Whisky Grass *(Andropogon virginicus)* from spreading seed. Achieved through slashing and hand weeding around native groundcover before the species flowered. ➢ Supplementary planting undertaken in May 2025 when conditions were favourable. 210 fast growing shrub species were planted among original plantings with guards preventing herbivore activity. ➢ Owing to the harsh conditions towards the end to spring, the plantings have received additional watering Assisted Regeneration - Native Vegetation Corridor (NVC) ➢ Competing shrubs and vines were thinned out around threatened species *Melaleuca deaneii*. ➢ Continued maintenance of Whisky grass in and around translocation area achieved through periodic sweeps through the area. ➢ Maintenance of stock pile mounds in preparation for new NVC area. This included general sweeps targeting exotic grasses and a follow-up spot-spray of common couch using Glyphosate 360. **Rehabilitation of Lot 2** ➢ Continued maintenance of exotic perennial grasses African Lovegrass and Paspalum. Methods included brush-cutting to prevent seeding and spot-spraying.	**See photographs in Slides: 64 - - 84**

	➢ Continued primary and maintenance works on Lantana. We have largely eradicated Lantana from the western portion of Lot 2. We have observed small birds such as the White-browed Scrubwren and Red-browed Finch frequent the area following the removal of Bell Minor habitat. ➢ Pellaea Fern is largely eradicated from the area following the new incursion of the species in April 2025. The area is continually monitored. ▪ ➢ Plantings undertaken in 2024 are continued to be maintained. They have received supplementary watering this month owing to the harsh conditions **Rehabilitation of Haerses Rd – Old Dam Area** ➢ Undertaking secondary and maintenance works of area following primary Lantana works from last year. ➢ Whisky grass along access road near the old dam is largely under control and will be continued to be monitored to ensure it does not proliferate **Assisted Regeneration - Haerses Road Biodiversity Offset** ➢ Is in good condition. ➢ Focus on monitoring edges for highly mobile weed species. Slashing of Whisky Grass in addition to occasional scans through edge was undertaken. ➢ Managing Pellaea fern and Crofton weed along edges and drainage line. **Haerses Rd - Translocation** ➢ Continued management of exotic perennial grasses Whisky grass and African Lovegrass. We are observing a reduction in exotic grass cover, especially on the north and west sides where native grass cover is outcompeting the exotic grasses. This has been achieved through brush-cutting, spot-spraying and manual removal. ➢ Continued selectively culled *Kunzea ambigua* specimens that were growing above high-value Proteaceae species, such as *Banksia serrata, Lambertia formosa or Persoonia linearis.* **Haerses Rd – Visual buffer along Wisemans Ferry Rd** ➢ Maintenance of Fleabane and perennial grasses was the focus during the summer months, undertaking slashing periodically. ➢ Maintenance of common couch continued, spot spray of the incursion was undertaken in September 2025 using Glyphosate 360.	

	➢ A further 70 tube stock of *Syncarpia glomulifera and Banksia ericifolia* were planted in May 2025 among the plantings from last year in the uncapped area. ➢ Supplementary watering of the plantings was undertaken this month to aid with the dry conditions. **Haerses Rd – Marks Dam** ➢ 36 native shrub and canopy species were planted into the cleared area of Mark's Dam, guard installation and watering of tube stock followed the plantings. ➢ Supplementary watering was undertaken this month. **Porters Road Biobank Site** Undertook primary works of Lantana in specific areas identified as high value.	
GENERAL BUSINESS	LAy thanked Dixon Quarry for the donation to the school. PS advised that monitoring has shown koalas are in the area. One was seen crossing the road at the South Maroota Hall. Have picked up scats from a disease free female. Information is being provided to the Queensland University of Technology. PS provided information on the Hills-Hornsby Rural Koala Project, which has a Facebook page – Link: (5) Facebook, as well as Flora & Fauna of the Hills/Hornsby/Hawksbury, Link: (5) Flora and fauna of Hills/Hornsby/Hawkesbury | Facebook. Links JB advised that the Christmas tree is up and donations of presents are being received. They will deliver to the Salvation Army on 5/12/25. Parents will be able to pick presents for their children.	
MEETING SCHEDULE FOR 2026	It was agreed that the meeting schedule for 2026 will be the same as previous years. Two meetings a year - in May & November. Accordingly, Wednesday 6th May 2026 and Wednesday 4th November 2026. Commencing at 12.30pm with lunch prior to the 1pm start.	**Agreed.**

The meeting was closed at 2:49pm with the chair thanking all members for their attendance and contribution throughout 2026. Wishing all a merry Christmas.

ACTION ITEMS

ITEM	ISSUE	RESPONSIBILITY
1	Confirm how S94 contributions for road maintenance are managed.	KM

MINUTES OF THE BI-ANNUAL COMMUNITY CONSULTATIVE COMMITTEE WEDNESDAY 6 MAY 2026 HAERSES ROAD QUARRY, ADMINISTRATION BUILDING

	NAME	ORGANISATION
PRESENT	Lisa Andrews (LA)	Independent Chairperson
	Hunny Churcher (HC)	Environmental Officer, Dixon Quarry Group
	Jamie Baker (JB)	Dixon Quarry Group – Business Development Manager
	Melissa Mass (MM)	Dixon Quarry Group - Ecologist
	Farley Roberts (FR)	Community Representative
	Lisa Aylward (LAy)	Maroota Public School Representative
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	Pat Schwartz (PS)	Community Representative
	Timothy Baker (TB)	Bush-It representative
APOLOGIES	David Dixon (DD)	Dixon Quarry Group – Managing Director
	Jemma Roberts (JR)	Community Representative (alternate)

<table>
<tr><td>WELCOME & INTRODUCTION</td><td>LA opened the meeting at 1.02pm following a light luncheon. All members were welcomed.</td><td></td></tr>
<tr><td>APOLOGIES</td><td>As listed above.</td><td></td></tr>
<tr><td>DECLARATIONS OF INTEREST</td><td>LA declared that she is approved by the Department of Planning to chair the meeting and engaged by Dixon Quarry Group.</td><td></td></tr>
<tr><td>BUSINESS ARISING FROM PREVIOUS MEETING (5/11/25)</td><td>
<table>
<tr><th>NO.</th><th>ITEM</th><th>RESPONSIBILITY</th></tr>
<tr><td>1</td><td>Confirm how S94 contributions for road maintenance are managed.</td><td>KM</td></tr>
</table>
No other business arising.
</td><td>1 – KM confirmed that TfNSW undertake works & funds are paid to them by Council.</td></tr>
<tr><td>CORRESPONDENCE (as emailed with Meeting Notice on 1/5/26)</td><td>• 20/11/25 - Email to members with draft minutes for review.
• 28/11/25 – Email to members with the finalised minutes.
• 24/3/26 - Email members with a “Save the Date” for 6/5/26.
• 1/5/26 – Email to members with meeting notice & agenda for this meeting.</td><td></td></tr>
<tr><td>Operation/ Progress</td><td>Site operations and current project progress were presented by JB and HC, including an extraction overview.
At ONR, JB advised that construction has occurred on the 250m school buffer bund wall during school holidays. Old Silt ponds are being consolidated in preparation for rehabilitation and new silt ponds will be established further to the east.</td><td>Slides 6 & 7</td></tr>
</table>

<table>
<tr><td></td><td>At HR, construction of the Wash Plant is still progressing, however is on hold at the moment. A new fire hydrant is to be put at the driveway to get the Occupation Certificate for Sandstone Cutting Shed.

KM asked where washing was currently being undertaken with JB responding via the Mobile Plant.</td><td></td></tr>
<tr><td>Old Northern Road (ONR) – Proposed Dam Mod 6 -</td><td>• Increase the depth of extraction within Lot 196 DP752025 to within 2m of the highest recorded regional wet weather groundwater level;
• Import up to 250,000 tonnes per annum of virgin excavated natural material (VENM) and excavated natural material (ENM) within existing incoming trucks; and
• Extend the quarry life for 30 years from the date of Mod 6 being approved.
Timeline
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<tr><td>July 2024</td><td>DPHI issued an RFI</td></tr>
<tr><td>October 2025</td><td>Response to RFI submitted to DPHI</td></tr>
<tr><td>December 2025 to May 2026</td><td>Liaised with DPHI and DCCEEW regarding the methodology to address RFI
Installed 2 additional Monitoring Bores BH11 and BH12, Collect Groundwater data
Revise Groundwater Impact Assessment as requested by DPHI and DCCEEW.</td></tr>
</table>
PS sought an explanation of the VENM & ENM definitions, which was provided by HC. JB explained the certification process that tests and identifies the type of materials, which are all undertaken under the EPA's waste classification guidelines.</td><td>Sides: 8 & 9</td></tr>
<tr><td>ENVIRONMENTAL MONITORING RESULTS</td><td>HC commenced the environmental monitoring results, by showing the locations of monitoring devices and explaining/quantifying the outcomes. Data explained.</td><td>Slides: 11 to 14</td></tr>
</table>

<table>
<tr><td>TEOM DATA</td><td>HC explained that the EPA has recently issued an EPL variation for both quarries with new conditions requiring installation of PM2.5 monitor at the current TEOM location and relocation of dust deposition gauges.
HC presented the TEOM data and measurement criteria, providing further information on the relevant graph & spikes.
A slide showing the difference between PM_{10} & $PM_{2.5}$ was shown & explained.</td><td>Slide: 15 & 16</td></tr>
<tr><td>DEPOSITIONAL DUST DATA</td><td>Dust data for this monitoring period: April 2025 – April 2026:
<table><tr><th>Date</th><th>Milestone</th></tr><tr><td rowspan="5">Old Northern Road</td><td>D1A Access road*</td></tr><tr><td>D4 Rehab area</td></tr><tr><td>D5 Bundwall*</td></tr><tr><td>D6 School</td></tr><tr><td>D7 Mullock Heap</td></tr><tr><td rowspan="4">Haerses Road</td><td>D8 Olive Grove</td></tr><tr><td>D10 Haerses Road (EPL Point 3)*</td></tr><tr><td>D11 Receiver R6</td></tr><tr><td>D12 Receiver R8</td></tr></table>
*Proposed new locations for repositioning of monitors was shown. For D1A, D5 and D10.

Whilst there were some higher readings, the site was still compliant.</td><td>See graphs for results.
Slides: 17 - 24</td></tr>
<tr><td>NOISE MONITORING</td><td>ONR & Haerses Rd:
Monitoring for December 2025

Tables of noise monitoring locations indicating:
Receivers, property addresses, descriptions and extrapolated monitoring results.
No noise complaints have been received for quite some time.</td><td>See Slides 25-34
For location of monitoring sites and summary of data.</td></tr>
<tr><td>GROUND WATER MONITORING</td><td>GW Monitoring wells
• ONR 13 x BH
• HR 16 x BH
GW levels:
• Monthly + continuous data loggers
GW quality sampling & lab analysis:
• 6 monthly sampling and testing.</td><td>Graphs explained - See Slides 35-42 (maps)</td></tr>
<tr><td>COMPLAINTS</td><td>November 2025 – April 2026:
No complaints received</td><td>Slide 43</td></tr>
<tr><td>BIODIVERSITY SITE – HAERSES ROAD (Active Management)</td><td>Map shown of area with explanation of legend (colours).</td><td>Slide 44</td></tr>
<tr><td>BIOBANK SITE – PORTERS ROAD (Active Management)</td><td>Map shown of area with explanation of legend (colours).
Fox Management Program using trapping and ground shooting method currently being undertaken, instead of using 1080 baits. This is due to the number of people that walk in the area with their dogs.
Deer management is continuing. HC explained the location of other</td><td>Slide 45</td></tr>
</table>

	areas, including the Pistol Club, Fire Trails, Crown Land and private land parallel to O'Haras Creek. Ongoing balance on how to manage vandalism in the area with recent damage to entry gates and locks. HC advised that the RFS are conducting ecological burns in the area, on top of its existing hazard reduction burns. The tracks will need to be widened and remediated so that machinery can access the area.	
Biodiversity and Rehabilitation Threatened species update	MM commenced the presentation, advising: **Biodiversity and Rehabilitation Annual Report 2025 (AR)** - The Biodiversity and Rehabilitation Annual Report identifies native flora and fauna within the Native Vegetation Corridor and the Haerses Road Biodiversity Offset Area, it monitors the success of the rehabilitation area within the NVC and describes the current condition of threatened flora and fauna and their habitats within the Old Northern Road site and the HRBOA. - The 2025 Biodiversity and Rehabilitation Annual Report was completed in August 2025 and submitted with the Annual Review on the 30th of September 2025. The data for the 2026 Biodiversity and Rehabilitation Annual Report is currently being collected. - The results of the 2025 report found the rehabilitation areas are stabilizing following the past 4 years of ideal growing conditions. Vegetation diversity and density have likely peaked and is now settling into average climatic conditions. **Native Vegetation Corridor – Old Northern Road** explained. **Biodiversity Offset Area – Haerses Road** explained. **Haerses Rd Biobank Site** – explained. **Porters Rd Biobank Site** – explained. KM enquired – with Porters Rd site, are there threatened species in this location. MM responded that both sites have identified threatened species, which both biobank sites are now in active management. Additional survey works will be undertaken to monitor biodiversity and lantana will be mitigated. PS asked if there were any Grey Gums. MM advised that there are some, as well as Bloodwoods. PS advised that there have been reports of koalas along O'Haras Creek. **Monitoring Fauna** Fauna monitoring is undertaken in the summer months when activity is at the highest and more likely to be observed. Fauna monitoring includes: o Recording bat calls via an Anabat sound recorder; o The use of unbaited infra-red motion detection cameras on animal trails; o Looking for scats, prints and other signs such as diggings, scratches, feed scars;	**See Slides 47 – 60**

	○ Aural survey for birds; and ○ Visual observation. **Fauna observations:** Photographs shown: ○ Dog, Fox, Wallaby & Bandicoot paw prints shown in the same area of sand. **Monitoring flora** • Flora monitoring is undertaken in the winter months as many of the threatened species are flowering or budding up preparing for early spring flowering • Vegetation quadrats are repeated annually in monitoring locations. Quadrats are 20m x 50m, 20m x 20m and 1m x 1m which record the following information: ○ Species present and percentage of cover; ○ Stem class including recruitments present or absent; ○ Number of hollow bearing trees; ○ Total length of coarse woody debris; ○ Litter cover, rock surface area, and bare ground. **Vegetation Monitoring Plots** Photographs shown of: ○ ONR Annual Monitoring quadrant within the 200m buffer to Maroota Public School. ○ HR annual monitoring quadrat within the HRBOA **Threatened Fauna Monitoring ONR** Photographs shown of: ○ *Melaleuca deanei* – Deane's paperbark. ○ *Kunzea rupestris* - Rocky Kunzea **Threatened Flora Monitoring ONR** Photographs shown of: ○ *Pimelea curviflora var. curviflora* ○ *Darwinia fascicularis subsp. Oligantha* ○ *Tetratheca glandulosa* **Threatened Flora Species at Haerses Rd** Photographs shown of: ○ *Darwinia biflora* ○ *Grevillea Parviflora subsp supplicans* ○ *Acacia bynoeana* ○ *Tetratheca glandulosa* **BCT Reporting** ○ Biobank Management is now into its 7th year ○ Active Management at Porters Road has commenced with the first annual report completed ○ Active Management at Haerses Road has commenced	**Slide 61**

BUSH REGENERATION WORKS	Summary of Assisted Bush Regeneration Work for the period November 2025 to May 2026- presented by TB. **Rehabilitation of Lot 196** ➢ Continued suppression of Whisky Grass *(Andropogon virginicus)* from spreading seed. Achieved through slashing and hand weeding around native groundcover before the species flowered. ➢ Supplementary planting undertaken in May 2025 of 210 fast growing shrub species has been pretty successful, considering past failures. ➢ One more round of planting is scheduled for May-July this year. **Assisted Regeneration - Native Vegetation Corridor (NVC)** ➢ Competing shrubs and vines were thinned out around threatened species *Melaleuca deaneii*. ➢ Continued maintenance of Whisky grass in and around translocation area. ➢ Maintenance of stock pile mounds in preparation for new NVC area. This included general sweeps targeting exotic grasses and a follow-up spot-spray of common couch using Glyphosate 360. **Rehabilitation of Lot 2** ➢ Continued maintenance of exotic perennial grasses African Lovegrass and Paspalum. Also targeted *Pellaea Vridis*, which is mostly eradicated from this area. ➢ Continued primary and maintenance works on Lantana. We have largely eradicated Lantana around the dam. Bell Minors mostly no longer inhabit the areas where lantana has been effectively cleared. ➢ Plantings are doing relatively well albeit heavily grazed at the top of the guards. Perhaps some more pioneer Acacia species would do well here. **Rehabilitation of Haerses Rd – Old Dam Area** ➢ Undertaking maintenance work mostly just patches of Crofton weed remain. Dense cover of native ferns. ➢ New area towards the cutting sheds to be worked in the coming months targeting lantana. ➢ Whiskey grass along access road near old dam is largely under control. We swept through just before it seeded and removed all immature seed. **Assisted Regeneration - Haerses Road Biodiversity Offset** ➢ Is in relatively good condition with occasional weeds present across the top edge.	**See photographs in Slides: 64 - - 76**

	➢ Hasn't been worked a great deal in this area in the last 6 months. ➢ Managing *Pellaea* fern and Crofton weed along edges and drainage line. **Haerses Rd - Translocation** ➢ Continued management of exotic perennial grasses mostly Whisky grass which is almost absent now and African Lovegrass. Removed Bridal Creeper, which is a concern and will be monitored on an ongoing basis. ➢ Continued selectively culled *Kunzea ambigua* specimens that were growing above high-value Proteaceae species, such as *Banksia serrata, Lambertia formosa or Persoonia linearis.* **Haerses Rd – Visual buffer along Wisemans Ferry Rd** ➢ Maintenance of common couch contained in better areas. ➢ Supplementary planting undertaken in bare patch, where survival has been poor. ➢ Targeted priority species including blackberry and Moth Vine. ➢ We are planning to target Green Cestrum *Pellaea vrirdis* on the back edge. **Haerses Rd – Marks Dam** ➢ Most of the plantings have survived. We do very little here apart from target high priority weeds. ➢ **Porters Road Offset Site** ➢ Undertook site inspection in April and treated exotic grasses on the loop track. ➢ Lantana has grown back rapidly in the lower part of the site and will be treated next financial year. ➢ Exotic grasses also increasing along track from Pistol Club to O'Haras Creek. TB advised that it is looking like an El Nino period is coming so need to make sure that planting is done at the right time of the year for the tough conditions. FR advised that there are high levels of bell minors and lantana on Hitchock Road.	
GENERAL BUSINESS	LAy thanked Dixon Quarry for the Carols donation to the school and for helping with the tree clean up. HC commented on the road maintenance work on ONR near the school. LAy said will lodge a complaint with TfNSW about the unsatisfactory road shoulder works. HC commented that Dixon Quarry may also lodge a complaint. LA – as first meeting of 2026, time to review the Terms of Reference for this CCC to confirm they are fit for purpose. These will be sent with the minutes, for review. Requesting feedback	

	from members. An agenda item will be placed on the next meeting for discussion/ratification. - LA advised that DPHI sent an email and correspondence to all Independent Chairs in February 2026, following representations to the Secretary from some members of some CCC's. As a result, DPHI has reminded Chairs to ensure CCCs are run in accordance with the Department's Guidelines, Terms of Reference, and adherence of the Code of Conduct and update any Pecuniary Interest Declarations. - JB/HC showed members a video showing the machinery cutting the sandstone blocks: Link: https://www.instagram.com/p/DXEF7TtTkuC/	
NEXT MEETING	- Wednesday 4th November 2026. Commencing at 12.30pm with lunch prior to the 1pm start.	**Agreed.**

The meeting was closed at 3:09pm with the chair thanking all members for their attendance.

ACTION ITEMS

ITEM	ISSUE	RESPONSIBILITY
1	Send current version of Terms of Reference to CCC members for their review.	LA

Appendix K – Complaints Register

Dixon Sand Pty Ltd

Old Northern Road Quarry

Complaints Register - Summary

Period	Number of Complaints received	Complaint Register / Summary Published on Website
July 2025	0	25 August 2025
August 2025	0	10 September 2025
September 2025	1	13 October 2025
October 2025	1	12 November 2025
November 2025	0	10 December 2025
December 2025	0	5 January 2026
January 2026	0	5 February 2026
February 2026	0	3 March 2026
March 2026	0	20 April 2026
April 2026	0	5 May 2026
May 2026	0	3 June 2026
June 2026	0	16 July 2026
Total No. of Complaints	**2**	

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