LITHIUM DEVELOPMENTS (GRANTS NT)

Waste Discharge Licence 253: Monitoring Report 2025

April 2025

Project Details

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Executive Summary

Lithium Developments (Grants NT) Pty Ltd (LDGNT) is constructing an underground lithium mine at the BP33 deposit within mineral leases ML32074 and ML32346.

LDGNT was granted Waste Discharge Licence (WDL253) on 9 February 2024, pursuant to Section 74 of the *Water Act 1992*. WDL253 authorises the controlled discharge of treated, mine-influenced water from the Finniss Lithium Project BP33 Underground Mine and Mine Water Dam (MWD) Cell 1 into Drainage Line BP1 that feeds into the Charlotte River and then into Bynoe Harbour, via the authorised discharge point (DP1).

The purpose of this WDL Monitoring Report is to fulfil the reporting requirements of WDL253 Condition 45, which stipulates that LDGNT must provide a Monitoring Report within 10 business days of the anniversary date of the licence (i.e. within 10 business days of 9 February 2025). The reporting period runs from 9 February 2024 to 9 February 2025.

WDL253 specifies monitoring requirements and provides assessment criteria for the licence compliance point (GDS SW6). For the 9 February 2023 to 9 February 2024 reporting period however, no mine affected wastewater was either encountered or discharged. Correspondingly, the scope of this monitoring report reasonably departs from the reporting requirements specified in Condition 46. For example, no calculation of monthly and annual contaminant loads nor assessment of environmental impact from the Licenced Action was undertaken.

Notwithstanding the above, this report summarises project status and activities relevant to the reporting period including water management activities. Monitoring undertaken during the reporting period included water monitoring of the box cut, surface water monitoring of upstream, operational and downstream sites including macroinvertebrate and sediment monitoring.

Surface water monitoring identified the consistent presence of elevated turbidity in the Sediment Basin's 1 and 2 despite the basins having a High Efficiency Sediment (HES) Basin design and automated flocculant dosing stations. To mitigate elevated turbidity, practice has been to undertake additional flocculation of the sediment basins via drone to minimise turbidity.

Monthly surface water monitoring and sampling was not achieved or not consistently at sites SW3, SW6, SW7 and SW8 and represent non-conformances against specified monitoring requirements under Appendix 5 of WDL253. Wet season access issues to SW6 have been resolved via the utilisation of an ATV and additionally track improvement works are planned in the 2025 dry season to further improve access. Issues relating to the sampling of surface water monitoring sites SW3, SW7 and SW8 have been reviewed, and improvements have either been adopted and/or proposed.

Monitoring of both macroinvertebrates and sediments was undertaken in May 2024 in accordance with the requirements of WDL253 and this survey represents the third round of baseline sampling at BP33.

Macroinvertebrate monitoring found an increase in abundance of macroinvertebrates collected in 2024 but also found a decrease in ecosystem health at site BPUS SW1, likely due to sedimentation at the site from sediment basin discharge. While the impact is spatially limited, actions that may be taken to mitigate sedimentation include maintenance and desilting of site erosion control structures and sediment basins and regular flocculation treatment of sediment basins. Accordingly, in October 2024, prior to the oncoming 204/2025 wet season, maintenance of sediment and erosion control structures, including desilting of the forebays of Sediment Basins 1 and 2, as well as desilting the site drainage network and minor erosion repairs, were undertaken.

Actions have been proposed to improve the WDL253 Monitoring Program and to improve and maintain water management and sampling in accordance with conditions of WDL253. These actions include but are not limited to ongoing application of alum flocculant of sediment basins via drone and maintenance of sediment and erosion control structures including desilting of the sediment basin forebays and improvement to sample site access.

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List of Abbreviations

Abbreviation	Full Description
ACT	Australian Capital Territory
ARMCANZ	Agriculture and Resource Management Council or Australia and New Zealand
ANZECC	Australian New Zealand Conservation Council
ANZG	Australian and New Zealand Guidelines for Fresh and Marine Water Quality
ATV	All-Terrain Vehicle
BC	Box Cut
DGVs	Default Guideline Values (for sediment quality assessment)
DLPE	Department of Lands, Planning and Environment
DP1	Discharge Point 1 (the authorised Discharge Point under WDL253)
EC	Electrical Conductivity
ESCP	Erosion Sediment Control Plan
HES	High Efficiency Sediment
HDPE	High Density Polyethylene
LDGNT	Lithium Developments (Grants NT) Pty Ltd
MWD	Mine Water Dam
NT	Northern Territory
NTU	Nephelometric Turbidity Unit
QA/QC	Quality Assurance / Quality Control
SB	Sediment Basin
SSTV	Site Specific Threshold Values
TN	Turkey's Nest
TV	Trigger Values
WDL	Waste Discharge License

1 Introduction

1.1 Background

Lithium Developments (Grants NT) Pty Ltd (LDGNT) is constructing an underground lithium mine at the BP33 deposit within mineral leases ML32074 and ML32346.

The approved Mining Management Plan, and supporting BP33 Underground Mine Water Management Plan, document the mining activities as well as the water and wastewater management strategies to be implemented and maintained.

LDGNT was granted Waste Discharge Licence (WDL253) on 9 February 2024, pursuant to Section 74 of the *Water Act 1992*. WDL253 authorises the controlled discharge of treated, mine-influenced water from the Finniss Lithium Project BP33 Underground Mine, from Mine Water Dam 1, via authorised discharge point (DP1), into Drainage Line BP1 that feeds into the Charlotte River and then into Bynoe Harbour. A copy of WDL253 is presented in Attachment A.

1.2 Scope and Purpose

The purpose of this WDL Monitoring Report is to fulfil the reporting requirements of WDL253 Condition 45, which stipulates that LDGNT must provide a Monitoring Report within 10 business days of each Anniversary Date of the licence (i.e. within 10 business days of 9 February). Condition 46 states:

The licensee must ensure that each Monitoring Report:

> "(46.1) is prepared in accordance with the requirements of the Administering Agency 'Guideline for Reporting on Environmental Monitoring' (or any other guideline as adopted by the Administering Agency from time to time);
>
> (46.2) includes a tabulation of all monitoring data required as a condition of this licence (data must be provided electronically in Microsoft Excel format);
>
> (46.3) includes a tabulation of monthly and annual contaminant loads discharged from the authorised discharge point listed at Item 5. Contaminant loads must be calculated for total metals, total metalloids, total nutrients and other parameters (excluding field parameters) listed in Appendix 3 (of WDL253). The calculations must be based on the daily discharge volume and the concentration of contaminant present in the discharge on that day. On the days when a sample was not taken then the concentration of the contaminant must be estimate using Linear Interpolation methodology.
>
> (46.4) includes long term trend analysis of monitoring data to demonstrate any environmental impact associated with the Licenced Action over a minimum period of three years (where the data is available); and
>
> (46.5) Includes long term trend analysis of monitoring data to demonstrate any environmental Impact associated with the Licensed Action over a minimum period of three years (where the data Is available)
>
> (46.6 includes an assessment of environmental impact from the Licenced Action."

Notwithstanding the above, as per Section 3.1 of this report, Box Cut water dewatered to Mine Water Dam 1 has been classed as Sediment Water and subsequently transferred to Sediment Basin 2 for passive discharge to

drainage line BP1. Hence, no mine affected wastewater was discharged under WDL253 during the reporting period and hence the scope and purpose of this Monitoring Report will reasonably depart of the requirements of WDL253 Condition 6. For example, no calculation of monthly and annual contaminant loads discharged from the authorised discharge point will be undertaken and correspondingly nor can an assessment of environmental impact from the Licenced Action be undertaken. Also, this report covers the first reporting period and hence insufficient monitoring data available to enable long-term trend analysis.

Monitoring undertaken during the reporting period is presented in Section 3 of this report.

1.3 Reporting Period

The monitoring reporting period runs from 9 February 2024 to 9 February 2025.

1.4 Certification

I Paul McHugh, Site Manager, have reviewed this report and I confirm that to the best of my knowledge and ability all the information provided in the report is true and accurate.

2 Activities Within Reporting Period

2.1 Project Activities and Status

LDGNT commenced early works, comprising Box Cut development, improved access and associated surface works for water management for the BP33 underground mine in early August 2023. However, consequent to market conditions, LDGNT suspended early works in late December 2024. As at late December 2024, Stage 1 of the Box Cut, including commencing installation of the tunnel arch footings, had progressed substantially, although it had not been completed. Improved access and associated surface works for water management including development of the site drainage network, sediment basins and mine water dams had also been undertaken or progressed.

The BP33 project was placed in Care and Maintenance on the 31 May 2024 in accordance with the BP33 Care and Maintenance Management Plan. Key works undertaken at BP33 under the Care and Maintenance Plan include maintenance of sediment and erosion control structures, including desilting of the forebays of Sediment Basins 1 and 2, as well as desilting the site drainage network and minor erosion repairs. These sediment and erosion maintenance works were undertaken in October 2024.

2.2 Water Management Activities

Stormwater runoff from disturbed areas of the BP33 project site, other than the Box Cut, reported to Sediment Basins 1 and 2 in accordance with the certified Erosion and Sediment Control Plan (ESCP) for the BP33 project. The ESCP embraces elements of best practice erosion and sediment control including High-Efficiency Sediment (HES) Basins which have been constructed, operated and maintained at BP33. The HES basin designs include an automated flocculant doser, which are activated by rainfall or stream flow, and a forebay with a level spreader or uniform spillway reporting to the main cell sediment of the basin. The design facilitates mixing and flocculation of sediment before discharge through the spillway. Additionally, alum dosing via drone to minimise turbidity has also been undertaken.

Groundwater recharge into the Box Cut excavation was first encountered in late September 2023. For the period 25 September to 31 December 2023, water in the Box Cut comprising groundwater recharge and/or incident rainfall, was initially dewatered into the Turkey's Nest – a temporary HDPE-lined dam located adjacent to the Box Cut and featuring a pump and standpipe enabling all water transferred from the Box Cut to be utilised for dust suppression and in soil conditioning as part of civil construction works.

Commencing on 31 December 2023, following the suspension of the early works, the Box Cut ceased being dewatered into the Turkey's Nest (with exception to one instance on the 9 January 2024 when box water was briefly directed to the Turkey's Nest to facilitate sampling of box cut water) and was then dewatered into Mine Water Dam 1 (East). Monitoring and assessment of water from the Box Cut demonstrated classification as

Sediment Water type under the BP33 Underground Mine Water Management Plan (refer Section 3.3.1 of this report). On this basis, for the period 31 December 2023 to mid-March 2024, water accumulated in the MWD1 was dosed with flocculant, allowed holding time to settle and was subsequently pumped to Sediment Basin 2 as Sediment Water for passive discharge to Drainage Line BP1.

The Box Cut continued to be dewatered into MWD1 from mid-March 2024 to 23 April 2024, when the dewatering pumps servicing the Box Cut were removed. During this time, no further transfers from MWD1 to Sediment Basin 2 were undertaken and the water has been retained in MWD1.

Since the 23 April 2024, the Box Cut has been allowed to accumulate groundwater recharge and incident rainfall, and as of 29 January 2025, the elevation of water in the Box Cut was 7.26mRL with a volume of 90.5ML.

2.3 Wastewater discharges

For the reporting period 9 February 2024 to 9 February 2025 and referring to Section 2.2 above, Box Cut water was classed as Sediment Water under the BP33 Underground Mine Water Management Plan and hence no discharges of mine-affected wastewater under WDL253 were undertaken during the reporting period.

3 Monitoring

3.1 Monitoring Program

The Monitoring Program under WDL253 includes Surface Water Monitoring in accordance with Appendix 5 WDL253 and Macroinvertebrate and Sediment Monitoring Program in accordance with Appendix 6 of WDL253. Appendix 5 and Appendix 6 are reproduced below.

Surface Water Monitoring Program (reproduced from Appendix 5 of WDL253)

Parameter/Site			Operational			Upstream			Downstream				
			MWD Discharge [1]	SB1	SB2	BPUS SW4	BPUS SW5	BPUS SW7	BPUS SW1	BPDS SW2	BPDS SW3	BPDS SW6 Compliance	BPDS SW8
GPS Coordinates (latitude and longitude)			130.7912214 -12.7128115	130.7920958 -12.71146623	130.7914748 -12.71558608	130.7936642 -12.70776534	130.796696 -12.71102426	130.7902228 -12.72547491	130.7925837 -12.71243714	130.791 -12.7212	130.780576 -12.716872	130.7860708 -12.72537727	130.7865124 -12.72054092
Parameter	**Abbrev**	**Unit**	**Frequency**										
Field													
Flow	-	kL/day	C*	N/A	N/A	W	W	W	W	W	W	C	W
Water level	-	M	P, D	N/A	N/A	W	W	W	W	W	W	C	W
pH	-	Unit	P, D	WD	WD	W	W	W	W	W	W	D	W
Electrical Conductivity	EC	µS/cm	P, D	WD	WD	W	W	W	W	W	W	D	W
Turbidity	-	NTU	P, D	D	D	W	W	W	W	W	W	D	W
Temperature	-	C	P, D	WD	WD	W	W	W	W	W	W	D	W
Oxidation Reduction Potential	ORP	mV	P, D	WD	WD	W	W	W	W	W	W	D	W
Dissolved Oxygen	DO	% sat	P, D	WD	WD	W	W	W	W	W	W	D	W
Nutrients (unfiltered excluding FRP) and chlorophyll-a													
Ammonia	NH_4^+	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Oxides of Nitrogen	NOx	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Nitrate	NO_3	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Total Nitrogen	TN	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W

Parameter/Site			Operational			Upstream			Downstream				
			MWD Discharge [1]	SB1	SB2	BPUS SW4	BPUS SW5	BPUS SW7	BPUS SW1	BPDS SW2	BPDS SW3	BPDS SW6 Compliance	BPDS SW8
Total Phosphorus	TP	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Filterable Reactive Phosphate	FRP	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Chlorophyll-a	Chl-a	µg/L	-	N/A	N/A	W	W	W	W	W	W	W	W
Metals and Metalloids – total and filtered (0.45 µm)													
Aluminium	Al	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Arsenic	As	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Cobalt	Co	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Copper	Cu	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Iron	Fe	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Lead	Pb	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Lithium	Li	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Nickel	Ni	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Zinc	Zn	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Full elemental scan		µg/L	A	A	A	A	A	A	A	A	A	A	A
Other – filtered (0.45 µm) excluding TSS													
Sulphate	SO_4	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Chloride	Cl	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Calcium	Ca	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Magnesium	Mg	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Potassium	K	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Sodium	Na	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Carbonate	CO_3^{2-}	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Bicarbonate	HCO_3	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W

Parameter/Site			Operational			Upstream			Downstream				
			MWD Discharge [1]	SB1	SB2	BPUS SW4	BPUS SW5	BPUS SW7	BPUS SW1	BPDS SW2	BPDS SW3	BPDS SW6 Compliance	BPDS SW8
Total Dissolved Solids	TDS	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Total Suspended Solids	TSS	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W

P = prior to discharge.

C = continuous

D = within 24 hours of commencement of discharge and daily during discharge. Weekly when no discharge is occurring.

WD = weekly during discharge (from sediment basins or MWD respectively)

W = within 24 h of discharge from MWD and weekly during discharge and for 2 weeks post discharge. Otherwise monthly when water is present, regardless of flow.

A = annually, at end of wet season on recessional flows.

[1] The sampling point in the MWD will be located close to BP DP1 to ensure it is representative of discharge water quality.

* Continuous flow monitoring must be representative of discharge flows at BP DP1

Surface Water Monitoring Program (reproduced from Appendix 6 of WDL253)

Site			BP4	BPUS SW1	BPDS SW2	BP3	GDS SW5	UC1	UC2
GPS Coordinates (latitude and longitude)			-12.7255462 130.8216379	-12.71243714 130.7925837	-12.7212 130.791	-12.7253908 130.7847151	-12.6518245 130.7804192	-12.6495807 130.7820973	-12.6567103 130.7783543
Macroinvertebrate Sampling			A	A	A	A	A	A	A
Sediments									
Metals and metalloids - <63 µm sediment fraction analysed									
Aluminium	Al	mg/kg	A	A	A	A	A	A	A
Arsenic	As	mg/kg	A	A	A	A	A	A	A
Cadmium	Cd	mg/kg	A	A	A	A	A	A	A
Chromium	Cr	mg/kg	A	A	A	A	A	A	A
Cobalt	Co	mg/kg	A	A	A	A	A	A	A
Copper	Cu	mg/kg	A	A	A	A	A	A	A
Iron	Fe	mg/kg	A	A	A	A	A	A	A
Lead	Pb	mg/kg	A	A	A	A	A	A	A
Lithium	Li	mg/kg	A	A	A	A	A	A	A
Mercury	Hg	mg/kg	A	A	A	A	A	A	A
Nickel	Ni	mg/kg	A	A	A	A	A	A	A
Zinc	Zn	mg/kg	A	A	A	A	A	A	A
Nutrients									
Total Nitrogen	TN	µg/L	A	A	A	A	A	A	A
Total Phosphorus	TP	µg/L	A	A	A	A	A	A	A
Other									
Particle Size Distribution			A	A	A	A	A	A	A
Total Organic Carbon	Mg/L		A	A	A	A	A	A	A
Moisture Content	%		A	A	A	A	A	A	A

A = annually, at end of wet season on recessional flows. Sediment and biological sampling to be undertaken concurrently.

Because Box Cut water was classed as Sediment Water under the BP33 Underground Mine Water Management Plan, and no mine affected water discharges occurred, monitoring undertaken during the reporting period relevant to WDL253 included:

- Box Cut monitoring.
- Surface Water Monitoring of upstream, operational and downstream (including the compliance site).
- Macroinvertebrate and Sediment Monitoring.

No mine-affected wastewater was discharged during the reporting period and hence no Mine Wastewater Discharge monitoring could be undertaken.

3.2 Monitoring Methodology

Monitoring methods for surface water, macroinvertebrate and sediment monitoring during the reporting period are described below.

3.2.1 Surface Water Monitoring Methods

The surface water monitoring program involves the regular monitoring of internal water infrastructure such as the box cut, turkey's nest, mine water dams and sediment basins as well surface water sites upstream and downstream of the discharge point as per the requirements of Appendix 5 of WDL253. The authorised discharge point under WDL253 is DP1 and the compliance point is GDS SW6. The locations of surface water monitoring sites, sampled in accordance with WDL253 are shown in Attachment B.

All surface water sampling undertaken is in accordance with relevant standards and guidelines including:

- Australian/New Zealand Standard on Water Quality Sampling - Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples (AS/NZS 5667.1:1998/2016), Standards Australia, New South Wales.
- Australian Standard on Water Quality Sampling - Part 6: Guidance on sampling of rivers and streams (AS/NZS 5667.6:1998), Standards Australia, New South Wales.
- Australian/New Zealand Standard on Water Quality Sampling - Part 9: Sampling Guidance on sampling from marine waters (AS/NZS 5667.9:1998/2016), Standards Australia, New South Wales.
- ANZG 2018. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia.
- EcOz Standard Operating Procedure Surface Water Sampling - update July 2020.

Freshwater sites were accessed via four-wheel drive or on foot, and samples collected from the side of the watercourse. Watercourses were only sampled when flowing.

Field parameters were measured in-situ using calibrated field equipment. Laboratory samples were collected in laboratory supplied, suitably treated containers, and stored chilled (in esky with ice bricks or portable fridge) until the samples can be dispatched to the laboratory. All samples were submitted to a NATA accredited laboratory, with Chain of Custody forms provided to allow for the tracking of samples.

All sampling equipment was maintained and cleaned between sample sites to avoid cross contamination.

The names of all monitoring locations have been abbreviated for the purpose of preparing this report. For example, GDS SW1 is referred to as SW1. This has been done to avoid confusing between sites. For all parameter values less than the laboratory limit of detection (LOR), half of the LOR was used for statistical analysis.

3.2.2 Macroinvertebrate Monitoring

The macroinvertebrate study design includes monitoring upstream reference, upstream and downstream sampling sites. Macroinvertebrate and sediment sampling sites are shown in Attachments C.

Sampling was consistent with the protocols outlined in the Darwin-Daly AUSRIVAS sampling manual (Lamche, 2007). Surface water and sediment samples were collected concurrently to facilitate the interpretation of data. Sediment samples were bank sieved to 2 mm and analysed for total metal and metalloid concentrations. Metal and metalloids (total and filtered), major ions and alkalinity, and nutrient concentrations were determined in water.

The univariate macroinvertebrate indices assessed as part of this study included:

- Relative abundance
- Taxa richness (family)
- PET richness,
- SIGNAL-2 and
- Community composition.

A more detailed description of the macroinvertebrate monitoring methodology is documented in the BP33 Biological and Sediment Monitoring Report presented in Attachment F.

Surface water and sediment samples were collected concurrently to facilitate the interpretation of data. Sediment monitoring methodology is discussed in section 3.2.3 Sediment Monitoring below.

3.2.3 Sediment Monitoring

Sediment samples are collected annually, during recessional flows (late wet season). Sediment sampling methods utilised at each site were in accordance with those outlined in Simpson and Batley (2016) and involved:

• The collection of a composite sample of sediment grabs from random areas of the substrate and sieved to 2mm
• Placing sediments into a laboratory-supplied container, labelled with site and sample details

• Keeping samples in chilled eskies for onward delivery to a NATA accredited laboratory for testing.

Sediment samples were tested for total and acid-extractible metals (aluminium, arsenic, cadmium, chromium, copper, iron, lead, lithium, mercury, nickel and zinc) as well as particle size distribution, total organic carbon and moisture content.

A more detailed description of the sediment monitoring methodology is documented in the BP33 Biological and Sediment Monitoring Report presented in Attachment F.

3.3 Results and Discussion

3.3.1 Box Cut

The monitoring of the Box Cut water quality includes daily field parameters pH, turbidity and EC as well as sampling and laboratory analysis.

As per discussion in Section 2.2 above, for the 31 December 2023 to 23 April 2024 period the Box Cut was dewatered to MWD1 (with exception to one instance on the 9 January 2024 when Box Cut water was briefly directed to the Turkey's Nest to facilitate sampling of Box Cut water). For the 23 April 2024 to the 9 February 2025 period no dewatering of the Box Cut was undertaken, and the Box Cut was allowed to fill with groundwater recharge and incident rainfall.

Box Cut field parameter monitoring results for the period 31 December 2023 to 17 March 2024 are presented in Table 1 in Attachment D. A review of field parameters indicates that the pH ranged from 4.2 to 8.4 with a median of 6.9, turbidity from 11.9 to 2933NTU with a medium of 1005NTU, and EC from 3.4 to 121.1µS/cm with a medium of 25 µS/cm. A few pH readings below pH 6 were recorded and the cause relates to water treatment via alum flocculant which can lower pH. Such decreases in pH are short-lived and readily recovered without pH treatment. Notably, while the water inputs to the Box Cut include shallow aquifer groundwater recharge and incident rainfall, the EC range is indicative of significant rainfall input and minimal groundwater input for the monitoring period. For comparison, shallow groundwater aquifer monitoring to date found that EC ranges from a minimum of 20.6µS/cm to a maximum of 112.1µS/cm with a median of 64.8µS/cm. The surface water threshold valve (TV) for EC is 250µS/cm. Elevations in turbidity are commonly observed and turbidity, including treatment, is discussed further below.

Laboratory results from monitoring the Box Cut for the period 13 December 2023 to 9 October 2024 are presented in Table 2 in Attachment D. The laboratory monitoring results include four samples representative of Box Cut water chemistry, with one taken from the box cut on the 13 December 2023 (during active civil works), one taken from the Turkey's Nest on 9 January 2024, one taken from MWD1 on 15 January 2024 and one taken directly from the Box Cut on 9 October 2024. It noted that suspension of all early works at the BP33 project included the cessation of geotechnical monitoring of box cut wall stability and consequently removal of this essential risk management control has precluded personnel access to the box cut for water sampling. Box cut laboratory monitoring results substantially complied with the WDL253 Trigger Values (TV), which exception to the following:

- One sample recorded Total Phosphorus of 0.25 mg/L which exceeded the corresponding TV of 0.02mg/L. This sample (13 December 2023) is known to have been taken during active excavation of the box cut and at a time of very high turbidity and/or suspended sediment. The very high presence of suspended solids content is considered to have contributed to this elevated Total Phosphorus result.

- One sample recorded Total Phosphorus of 0.57mg/L and Total Nitrogen of 0.6mg/L which exceeded the corresponding TVs of 0.02mg/L and 0.3mg/L respectively. This sample (15 January 2024) also recorded very high turbidity (2050NTU) and the high suspended solids content is considered to have contributed to these elevated results.
- One sample recorded pH 7.19 which exceed the relevant TV of pH 5.4–6.7.
- Two samples recorded turbidity of 41.5NTU (9 January 2024) and 2050NTU (15 January 2024) which exceeded the relevant TV of 14NTU.

In consideration of field monitoring and laboratory analysis results, Box Cut water quality consistently demonstrated substantial rainfall input, minimal groundwater input and substantial conformance with surface water trigger values. On this basis box cut water consistently demonstrated characterisation as Sediment Water under the BP33 Underground Mine Water Management Plan. Early characterisation of water type from the box cut relied on review of both field monitoring and laboratory analysis results for classification. However, for the February to March 2024 period, a field EC reading of less than 20µS/cm was regarded as a strong indicator of Sediment water type and hence used as a conservative field rapid assessment method. Notwithstanding this, this method is not intended to replace more robust assessment against threshold values to determine water type as per the BP33 Underground Mine Water Management Plan.

For clarification, in section 3.3 Water Types of the BP33 Underground Mine Water Management Plan, Sediment water includes "Water dewatered from the box cut during Stage 1 where water chemistry indicates minimal groundwater input and meets surface water trigger values. '

Further, section 3.4.3 Sediment Water also notes: "Should backfilling of the box cut extend into the 2023 / 2024 wet season, additional excess water from direct rainfall may require management. Excess water from direct rainfall would be dewatered into SB2 or MWD depending on the chemistry of water within the box cut:

- Where routine sampling of the box cut sump (BCS) water does not indicate a groundwater signature and surface water trigger values, water can be classed as sediment water and managed through site sediment basins to reduce sediment loads before entering the environment.
- Where water in the BCS indicates the presence of groundwater or water will not meet surface water trigger values, water would be classes as mine affected and be directed to the MWD.".

Also relevant, Section 3.3 Water Types defines Mine affected water (or mine water) as:

- Water dewatered from the box cut during Stage 1 where chemistry suggests significant groundwater input and does not meet surface water trigger values
- Groundwater from underground operation dewatering activities during Stage 2 and Stage 3; and
- A mix of mine affected water and other water.".

As discussed above, field monitoring and laboratory results consistently recorded high turbidity of box cut water contained in MWD1. This correlates with field observations that found that discharge of box-cut water into MWD1 would readily result in the physical disturbance of sediments in MWD1, which is constructed from earthen material, causing elevated turbidity. To mitigate elevated turbidity, MWD1 was treated with alum via

drone to flocculate any suspended sediment particles. Then, following sufficient residence time for settling of the particles, MWD1 water was then pumped into Sediment Basin 2 for the eventual passive discharge off-site. As noted above, experience at Grants and BP33 sites has been that high turbidity and/or suspended sediment water is commonly associated with elevated Total Phosphorus and Total Nitrogen. Further, flocculation of such turbid water to facilitate settlement of suspended sediments has also known to be effective in reducing concentrations of Total Phosphorus and Total Nitrogen in the water.

3.4 Surface Water Monitoring

Surface water monitoring undertaken for 9 February 2024 to 9 February 2025 period is discussed below.

The names of all monitoring locations have been abbreviated for the purpose of preparing this report. For example, GDS SW1 is referred to as SW1.

3.4.1 SW6 (Compliance Site)

Field instrumentation was installed and commissioned on 25 March 2024 at compliance site SW6 to monitor continuous water level, pH, electrical conductivity and temperature. Further work, comprising a cross-sectional survey of the channel and velocimetry at SW6, is required to be undertaken to enable flow to be deduced from water levels. Further cross-sectional surveys of the channel and velocimetry at SW6 are planned for the 2025 dry season and 2025/2026 wet season respectively. Note once this work has been completed, flows can be deduced from water levels retrospectively, including for the 2023/2024 (where water level data is available) and the 2024/2025 wet season.

Continuous water level, pH, temperature, electrical conductivity for the period 24 March 2024 to 9 February 2025 are graphically presented in Attachment D. For this period, water levels ranged from 0.5m to 2.58m depth, pH ranged from 5.65 to 6.89, electrical conductivity ranged from to 9.8 to 66µS/cm and temperature ranged from 19 to 31°C.

While there were no discharges of mine affected wastewater, monthly sampling at SW6 was not undertaken due to wet boggy ground conditions that prohibited safe access. Access to SW6 is via a formed access track, however this was a new sampling site, and wet season access challenges that emerged were not anticipated. Access on foot is in the order of 2.4 km return and this method was not considered to be an appropriate safe method. In February 2025 an All-Terrain Vehicle (ATV) became available and was successfully used to gain access. Additionally, track improvement works to facilitate access during wet ground conditions are also currently being investigated for implementation in the 2025 dry season.

3.4.2 SB1 and SB2 (Operational Sites)

Sites SB1 and SB2 represent Sediment Basins 1 and 2 and are classed as operational monitoring sites under WDL253. Monitoring data for SB1 and SB2 are presented in Table 3 in Attachment E.

For the SB1 and SB2 field pH ranged from pH 6.2 to 8.2 with a mean of 7.3. Field electrical conductivity ranged from 3.5 to 57.6µS/cm with a mean of 28.2µS/cm. Notably, field turbidity in the sediment basins ranged from 17.2 to 4448.9 NTU with a median of 669.9 NTU, consistently exceeding the TV of 14NTU.

Available laboratory analysis results for SB1 and 2 include one sample for each basin in both February and March 2024. As per discussion above, all laboratory samples exhibited high turbidity greater than the TV of 14 NTU. The following exceedances were recorded for Sediment Basin 1 for the sample collected on the 13 February 2024 and the elevated results are thought to be related to the presence of high sediment suspended concentrations given the very high turbidity of 2,140NTU recorded on this date:

- Total Phosphorus of 0.77mg/L exceeding the TV of 0.02mg/L.
- Total Nitrogen of 1.4mg/L exceeding the TV of 0.3mg/L.
- Filtered Aluminium of 1.42mg/L exceeding the TV of 0.07 mg/L.
- Filtered Copper of 0.003 exceeding the TV of 0.0014 mg/L.
- Filtered Iron of 0.96 exceeding the TV if 0.38mg/L.
- Filtered Zinc of 0.015mg/L exceeding the TV of 0.015mg/L.

On the 13 February 2024, Sediment Basin 2 also recorded Total Phosphorus of 0.57mg/L exceeding the TV of 0.02mg/L.

For SB1 and SB2 samples collected on the 12 March 2024, no exceedances of TV's were recorded in either sediment basin except for turbidity, which has been discussed above.

Having regard to the elevated turbidity recorded in Sediment Basins 1 and 2, despite the HES Basin design, the practice of undertaking additional alum dosing via drone to minimise turbidity is to be continued to reduce turbidity. Other relevant actions including maintenance of erosion and sediment control structures including desilting of the Sediment Basin 1 and 2 forebays are discussed elsewhere in this report.

3.4.3 SW4, SW5 and SW7 (Upstream Sites)

Sites SW4, SW5 and SW7 are classed as upstream sites under WDL253. Monitoring data for SW4 and SW5 are presented in Table 3 in Attachment E.

LDGNT advises that there is currently no track or access to upstream monitoring site SW7. Access on foot is in the order of 2.8 km return and this method was not considered to be an appropriate safe method at the time and hence no monitoring was undertaken at this location during the reporting period. Field survey work in August 2024 during the mid dry season found that access to SW7 remained impossible due to wet, boggy ground conditions. Consequently, LDGNT proposes to discuss with DLPE the potential relocation of upstream monitoring site SW7 to facilitate all weather access for surface water monitoring.

For sites SW4 and SW5, pH ranged from 6.0 to 6.6 with a mean of 6.2. Electrical conductivity ranged from 15 to 28 µS/cm with a mean of 19.3µS/cm. Turbidity ranged from 5.9 to 10NTU with a mean of 6.2NTU. The following exceedances of the TV's were recorded at the upstream sites:

- Site 4:
    - Total Phosphorus of 0.06mg/L exceeding the TV of 0.02mg/L on the 30 January 2025.
    - Total Nitrogen of 0.4 and 0.6mg/L exceeding the TV of 0.3mg/L on the 24 January 2024 and 30 January 2025 respectively.
    - Filtered Iron of 0.69mg/L exceeding the TV of 0.38mg/L on the 30 January 2025.
- Site 5:
    - Total Phosphorus of 0.06mg/L exceeding the TV of 0.02mg/L on the 30 January 2025.

The above exceedances of the TV's are considered to exemplify the natural variation of some parameters in the local background environment.

3.4.4 SW1, SW2, SW3, SW6 and SW8 (Downstream Sites)

Sites SW1, SW2, SW3, SW6 and SW8 are classed as downstream sites under WDL253. SW6 is also the WDL253 Compliance site and is discussed in section 3.4.1 above. Monitoring data for SW1 and SW2 is presented in Table 3 Attachment E.

LDGNT advises that no field measurements or water samples were undertaken from downstream monitoring site SW8 during the reporting period and only one water sample was taken from downstream site SW3. Monitoring at these sites may not have been undertaken or not consistently taken because of the location of these sites far upstream in the catchment where flow or water is rarely present to enable sampling. However, field notes could not be located to verify this. To improve the sampling program improved field records including record verification and retention has been adopted. It is anticipated that records, detailing the presence or absence of water for sampling, may better inform the suitability of these sites and the potential need for re-location to sites that are more conducive to sampling.

For downstream sites SW1, SW2 and SW3, pH ranged from 6.0 to 6.3 with a mean of 6.2. Electrical conductivity ranged from 18 to 36 µS/cm with a mean of 26µS/cm. Turbidity ranged from 5.2 to 718NTU with a mean of 218NTU and hence exceeded the TV of 14NTU. The elevation in turbidity is attributed to passive discharge from Sediment Basins 1 and 2 and this including relevant corrective and maintenance actions are discussed in section 3.4.2 SB1 and SB2.

SW1, which is located a short distance downstream from the discharge of SB1, also recorded the below exceedances of the TV's, which may also be attributed to passive discharge from SB1:

- Total Phosphorus of 0.11mg/L exceeding the TV of 0.02mg/L on the 23 January 2024.
- Total Nitrogen of 0.5 and 0.4 mg/L exceeding the TV of 0.3mg/L on the 22 February and 30 January 2025 respectively.

It is noted that the design of the water management system under the approved BP33 Underground Mine Water Management Plan, ensures stormwater runoff from disturbed areas of the BP33 site report to Sediment Basins 1 and 2 for treatment and then discharge into the tributary known as drainage line BP1 located to the east of the

BP33 site. The approved mine-affected wastewater discharge point also reports to drainage line BP1. LDGNT considers that there is an opportunity to consider the relevance and suitability of sites SW3 and SW8 in a future review of WDL253 noting that:

- No stormwater runoff or mine-affected wastewater discharges from any of the disturbed areas of the BP33 project site report to the drainage lines on which SW3 and SW8 are located, so both SW3 and SW8 present limited value as downstream monitoring sites; and
- SW3 and SW8 are in the upper catchment of their respective drainage lines and seldom host flow or water to undertake sampling. For example, in January 2025, both SW3 and SW8 were dry and no field measurements or samples could be taken.

3.5 Macroinvertebrate and Sediment Monitoring

Sediment and biological sampling in 2024 were conducted at the same sites sampled in both 2022 and 2023, representing the third round of baseline monitoring for the project area. The sampling design for this monitoring program cannot strictly follow the before, after, control impact (BACI) design, due to the location of prior mining infrastructure at the headwaters of the catchment. Despite this, the study has utilised the most practical sampling locations and continued the process of baseline data collection.

Sediment results close to BP33 reflect the naturally mineralised area, with a number of metals being present at low levels, including elevated concentrations of arsenic at tributary sites SW1 and SW2. Arsenic is naturally present in the area and is present in background soils, surface and ground waters. Localised surface disturbance had occurred in 2023, and the high rainfall in the 2023-2024 wet season is likely to have resulted in mobilisation and deposition of sediment containing arsenic to the creek, through transport from sediment basins. There were no exceedances for any metal, including arsenic, against toxicant default guideline values (DGVs) for sediment quality (ANZECC & ARMCANZ 2000) in sediments in 2024, and so the elevated results are at this stage considered background prevailing conditions, and will be considered for historical context when mining activities begin at BP33. There was some sedimentation observed at SW1, which is located upstream of sediment basin discharge, which may indicate pluming and sedimentation just upstream of the discharge point. Consideration may be given to relocate the site further upstream to avoid this impact in the future, and results from this year at this site should be viewed with caution when used in a baseline context.

Although all sites saw a significant increase in abundance of macroinvertebrates collected in 2024, other metrics did not conform to the same trend. Primarily, there was a decrease in ecosystem health at site SW1. This is likely due to sedimentation at the site. The impact of sediment basin discharge is spatially limited, as the site downstream on the tributary (SW2) showed either improved or similarity in metrics to previous sampling. Differences in community composition between years are likely related to position in the catchment and habitat variation. As annual wet season rainfall variability is a known climate feature in the NT, the capture of data under different baseline conditions will be helpful for interpretation of results when mining operations commence.

Actions to be taken to mitigate erosion and sediment migration and hence reduce sedimentation at SW1 and SW2 include maintenance and desilting of site erosion control structures and sediment basins and regular flocculation treatment of sediment basins (refer Section 3.4.2 SB1 and SB2). These actions are also appropriate to mitigate against mobilisation of sediments that may naturally contain arsenic.

Macroinvertebrate sampling was completed in May 2024 during recessional flows, representing the third round of baseline sampling at BP33. Metrics shows all sites saw a significant increase in the abundance of macroinvertebrates collected in 2024. Taxa richness of samples collected in 2024 were similar to 2023, except SW2, which was more diverse than the other sites. However, other metrics did not conform to the same trend. Primarily, there was a decrease in ecosystem health at site SW1 – likely due to sedimentation at the site. The effects of discharge from a sediment basin is spatially limited, as the site downstream on the tributary (SW2) showed either improved or similarity in metrics to previous sampling. Differences in community composition between years are likely related to their position in the catchment and variations in habitat. As variability in the annual wet season rainfall is a known climate feature in the NT, the capture of data under different baseline conditions will be helpful in interpreting results when mining operations commence.”.

The actions identified above to mitigate erosion and sediment migration and hence reduce sedimentation at SW1 and SW2 are also appropriate for the retention of macroinvertebrate health.

The BP33 Biological and Sediment Monitoring Report is presented in Attachment F and shall be referred to for a more detailed description of the study methods, results and discussion.

3.6 Quality Assurance / Quality Control

3.6.1 Field QA/QC

Sampling was undertaken in accordance with the following QA/QC protocols:

- All site workers were made familiar with the sampling methodology.
- Field activities and sample collection were recorded in field notes including detailed and relevant descriptions such as date and time, sampling point ID, depth of sampling, equipment used for sampling, sample appearance (colour, odour, clarity, sheen, etc.) and *in situ* parameters.
- New sterile nitrile gloves were worn and changed at each sample location and between samples to avoid cross-contamination.
- Any equipment that came into contact with the sample (e.g. water quality meter, jugs, grab samplers) was cleaned before sampling, and thoroughly rinsed with Decon 90 and demineralised water between samples.
- Sample containers were clearly marked with unique identification details, sampling date, project name and number and analyses required.

- Samples were stored in appropriate jars, bottles or bags, within a chilled insulated container with ice bricks. Of note is that despite the samples being kept chilled until dispatched to the laboratory, it was not possible to maintain them at temperatures below 6°C as recommended by the laboratories. Achieving low temperatures when storing the samples collected was particularly challenging due to the commonly high ambient temperatures in the project area, as well as the limitations faced in maintaining low storage temperatures when transporting samples from the project area to Darwin. High temperatures in the samples can facilitate their degradation, and as such, reduce the accuracy of the results obtained. However, given that samples were submitted to the laboratory within their respective holding time, the effect of any potential degradation is not expected to have a large effect on the assessment of the results obtained.
- Chain of Custody (CoC) procedures were adhered to for all sample transfers. CoCs detailed all relevant contact details, sample numbers, sampling date and time, condition of sample, description of sample containers and sizes (including details of preservation), analyses required, detection or reporting limits and specific instructions, and were signed by each person transferring and accepting custody.

3.6.2 Comparability

Comparability is a term used to express the ability to fairly compare sample test results taken from the same site at different times. All field personnel assigned to undertaking the sampling for the project were briefed and made familiar with the sampling methodology so they would be aware of the procedures to be followed.

No deviations from the sampling procedures were observed during the fieldwork and therefore no bias in the data collection is expected.

3.6.3 Laboratory QA/QC

Samples were analysed using the techniques and methods outlined in each sampling plan.

An assessment of the quality of the laboratory data included a review of received laboratory reports and methods listed below.

- CoC form with laboratory signature and sample receipt notifications, date and time of receipt of samples and comment on the condition of samples, such as temperature, or damaged/missing/mislabelled samples
- Analytical methods and laboratory accreditation for methods used
- Laboratory LOR
- Holding and extraction times for each analysis and sample

- Method blanks
- Surrogate recoveries
- Matrix spikes recoveries
- Laboratory control samples
- Laboratory duplicates
- Parameter frequencies and summary of QA/QC outliers.

4 Contaminant Loads

No mine-affected wastewater was discharged under WDL253 during the reporting period and correspondingly no assessment of contaminant loads has been undertaken.

5 Long Term Trend Analysis

This report is the first WDL monitoring report for WDL253 and, in addition, as no mine-affected wastewater was discharged during the reporting period, no long-term trend analysis could be undertaken.

6 Impacts of Wastewater Discharge

No mine-affected wastewater was discharged under WDL253 during the reporting period and correspondingly no assessment of the effects of wastewater discharge has been undertaken.

7 Non-Conformances During the Reporting Period

Non-conformances against monthly surface water monitoring requirements under Appendix 5 of WDL253 and relate to monthly surface water monitoring not being achieved or consistently achieved at sites SW3, SW6, SW7 and SW8. Reasons for non-compliance and corrective actions are discussed in Section 3 of this report.

Having regard to the nature of the non-conformances, that is failure to carry out specified monthly surface water monitoring, and the absence of mine affected wastewater discharge, there is no risk of environmental harm consequent to the non-conformances.

8 Conclusion

While WDL253 authorises the controlled discharge of treated, mine affected wastewater from the BP33 site, no mine affected water was discharged during the 9 February 2024 to 9 February 2025 reporting period. Correspondingly, the scope of this monitoring report reasonably departed from the reporting requirements specified in Condition 6. For example, no calculation of monthly and annual contaminant loads nor assessment of environmental impact from the Licenced Action was undertaken.

Notwithstanding the above, this report summarises project status and activities relevant to the reporting period including water management activities. Monitoring undertaken during the reporting period included water

monitoring of the box cut, surface water monitoring of upstream, operational and downstream sites (including the compliance site) and macroinvertebrate and sediment monitoring.

Monitoring identified the consistent presence of elevated turbidity in the Sediment Basin's 1 and 2 despite the basins having a High Efficiency Sediment Basin design and auto floc dosing stations. To mitigate elevated turbidity, practice has been to undertake additional flocculation of the sediment basins via drone to minimise turbidity. This practice, along with ongoing maintenance of erosion and sediment control structures including sediment basins, is to be continued.

Monthly surface water monitoring and sampling was not achieved or consistently achieved at sites SW3, SW6, SW7 and SW8 and represent non-conformances against the monitoring requirements under Appendix 5 of WDL253. Wet season access issues to SW6 have been resolved via the utilisation of an ATV and further access improvements are planned for the 2025 dry season. Aspects relating to surface water monitoring sites SW3, SW7 and SW8 are discussed in the proposed improvements below.

Monitoring of both macroinvertebrates and sediment was undertaken in May 2024 in accordance with the requirements of WDL253 and represents the third round of baseline sampling at BP33. Notably, macroinvertebrate and sediment monitoring found a decrease in ecosystem health at SW1 likely due to sedimentation at the site due to passive discharge from nearby Sediment Basin 1. While the impact is spatially limited, the finding illustrates the importance of active sediment basin management including flocculation via drone and annual maintenance of erosion control structures.

In October 2024, prior to the oncoming 2024/2025 wet season, maintenance of sediment and erosion control structures, including desilting of the forebays of Sediment Basins 1 and 2, as well as desilting the site drainage network and minor erosion repairs, were undertaken.

The following actions are proposed to improve the WDL253 Monitoring Program:

- Track improvement works to facilitate all weather access to SW6 are being investigated for implementation in the 2025 dry season.
- Review, in consultation with the DLPE, the:
    - Potential relocation of upstream site SW1 further upstream above the discharge points for the sediment basins.
    - Potential relocation of upstream monitoring site SW7 to facilitate all weather access for surface water monitoring.
- Undertake cross sectional survey of the channel at SW6 and velocimetry to enable flow to be deduced from water levels. Note once this work has been completed, flows can be deduced from water levels retrospectively.

The following actions are proposed to improve and maintain water management in accordance with conditions of WDL253:

- Clean out of sediment control infrastructure as required, including sediment basin forebays, to ensure ongoing effectiveness.
- Continue to dose the sediment basins with alum delivered by drone to assist with settlement of suspended sediment.

9 References

ANZG (2018). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra, ACT, Australia, https://www.waterquality.gov.au/anz-guidelines.

ANZG (2021). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Protocols for biological assessment. Canberra ACT, Australia. Available at: www.waterquality.gov.au/anz-guidelines

Lamche, G. (2007). The Darwin-Daly Regional AUSRIVAS Models –Northern Territory: User Manual. Aquatic Health Unit–Department of Natural Resources, Environment and the Arts. Report 06/2007D.

ATTACHMENT A

Waste Discharge Licence 253

Northern Territory Government

WASTE DISCHARGE LICENCE

(Pursuant to section 74 of the *Water Act 1992)*

Licensee	Lithium Developments (Grants NT) Pty Ltd
Licence Number:	**WDL253**
Registered Business Address:	Level 9, 2 Mill Street Perth WA 6000
ACN:	622 047 232
ABN:	70 622 047 232
Commencement Date:	February 2024
Expiry Date:	February 2029
Licensed Action:	Controlled discharge of treated, mine-influenced water from the Finniss Lithium Project BP33 Underground Mine, Mine Water Dam (MWD) Cell 1 into Drainage Line BP1 that feeds into the Charlotte River and then into Bynoe Harbour, via the authorised discharge point (DP1) and subject to the conditions of this licence.
Premises	2873 Cox Peninsula Rd, Cox Peninsula Section 00001 Hundred of Parsons Mineral Licence ML32346 and MLN16 (Appendix 1)

Contents

INFORMATION ABOUT THIS LICENCE

This waste discharge licence is granted pursuant to section 74 of the *Water Act 1992* (NT) (Water Act), which empowers the Controller of Water Resources to, in accordance with the Water Act, grant a licence to a person to carry out an action that would otherwise be an offence against this Act.

Responsibilities of Licensee

- In addition to the conditions set out in this licence, general responsibilities of Licensees are set out in the *Waste Management and Pollution Control Act 1998* (NT) (WMPC Act), the Water Act and the Water Regulations 1992 (NT) (Water Regulations).
- It is an offence under the Water Act, if the holder of a waste discharge licence contravene or cause, suffer or permit a person to contravene a term or condition to which the waste discharge licence is subject (s 76 Water Act).
- Except as expressly provided for in this licence or applicable law, it is an offence under section 16 of the Water Act to wilfully cause or cause, directly or indirectly:
    - waste to come into contact with water; or
    - water to be polluted.

Duration of Licence

- This licence will remain in force until its Expiry Date, it is surrendered by the Licensee, or until it is suspended or revoked by the Controller of Water Resources.
- A Licensee may surrender its licence at any time (s 94 Water Act).
- If the licensee wishes to surrender its licence it should complete the notification form approved by the Controller of Water Resources and provide a copy of the completed form to the Administering Agency.
- The authority to allow waste to come into contact with water or water to be polluted ends once a licence is surrendered, and any such occurrence after a licence is surrendered is an offence pursuant to s 16 of the Water Act.

Amendment, Modification or Revocation of Licence

- As set out in section 93 of the Water Act, the Controller of Water Resources may, by notice served on the holder of the licence:
    - amend or modify the terms and conditions of a licence; or
    - where the Controller of Water Resources is satisfied that the holder of the licence has contravened or failed to comply with a term or condition of the licence or of any other licence previously held by the person for a similar purpose during the 12 months immediately preceding the grant of the first-mentioned licence, the Controller of Water Resources may:
        - revoke a licence; or
        - suspend a licence.

Transfer of Licence

- Where a waste discharge licence is granted to a person in relation to the person's use of land and, during the period of this licence, the person's interest in the land is transferred to another person, the waste discharge licence shall be deemed to have also been transferred to the other person (s 92 Water Act).

- The licensee must ensure the contact details recorded with the Administering Agency for the licence are correct at all times in accordance with condition. Accordingly, it is recommended the transferee complete the Controller of Water Resources approved notification of transfer of a waste discharge licence form.

Public Register

- A copy of this Licence will be placed on the Register in accordance with s 95 of the Water Act.

- A copy of plans for environmental management, reports, submissions or documents provided at Schedule 1 Item 13 will be placed on the Register.

- The Register is freely available from the Northern Territory Environment Protection Authority (NT EPA) website.

Water Quality Standards

- The Administrator may declare, by notice in the *Gazette*, a beneficial use, quality standard, criteria or objectives which apply in relation to any waste or class of waste, or water or class of water (s 73 Water Act).

- A water or waste beneficial use, quality standard, criteria or objectives declared under s 73 of the Act and in force is an Environment Protection Objective for the purposes of the WMPC Act (s 18 WMPC Act).

- An Environment Protection Objective is a statutory instrument to establish principles on which:

    - Environmental quality is to be maintained, enhanced, managed or protected;

    - Pollution, or environmental harm resulting from pollution, is to be assessed, prevented, reduced, controlled, rectified or cleaned up; or

    - Effective waste management is to be implemented or evaluated.

- Schedule 1 Item 1 specifies the beneficial use, quality standard, criteria or objective relevant to this licence at the date of issue.

Environmental Interests

- Environmentally sensitive or significant areas may be captured by and protected under the *Environment Protection Act 2019* (NT) and/or the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). As such, and to best protect and regulate our waterways, waste discharge licences must identify the sensitivity of the environment surrounding the location of the Licensed Action.

- Schedule 1 Item 2 specifies the sites of conservation significance (if any) relevant to this licence at the date of issue.

- Schedule 1 Item 3 specifies the Ramsar wetlands (if any) relevant to this licence at the date of issue.

Cultural Interests

- Under Commonwealth and Northern Territory laws it can be an offence to enter or remain on or damage a sacred site.
- Sites of Aboriginal significance including registered and recorded Aboriginal sacred sites may exist in the vicinity of the Licensed Action.
- It is the Licensee's responsibility to contact the Aboriginal Areas Protection Authority, appropriate land council or other governing body and ensure that any authority certificates required as a result of conducting the Licensed Action are obtained and complied with.
- Further specific advice on any cultural requirement or implication of the Licensed Action should be sought from the relevant land council and the Aboriginal Areas Protection Authority.

END NOTES

nil

SCHEDULE 1 - ITEMS

Item	Detail	
1. Beneficial uses (condition 20)	Declaration of Beneficial Uses Fog Bay Area (Gazette No. 9, 27/02/1998) – Aquatic Ecosystem Protection. Declaration of Beneficial Uses for the Daly Roper Beetaloo Water Control District (Gazette No. 25, 11/06/2019).	
2. Sites of conservation significance (condition 20)	Not Applicable.	
3. Ramsar wetlands (condition 20)	Not applicable.	
4. Licence Documents (condition 13)	(a) Water Management Plan; and (b) Water Balance Modelling Report.	
5. Authorised Discharge Point (condition 23)	Discharge Point 1 (**DP1**) from Mine Water Dam (MWD) Cell 1 as shown on the map at Appendix 2.	Latitude: **-12.7128115** Longitude: **130.7912214**
6. Source(s) of waste (condition 26)	Direct rainfall and mine-influenced water collected from Mineral Leases ML32346 and MLN16 that are captured and stored in Mine Water Dam (MWD) Cells 1 and 2. Water is discharged from MWD Cell 1 through DP1 and is released into Drainage Line BP1 (Appendix 3).	
7. Trigger values (condition 26)	The limits for parameters listed in Appendix 4.	
8. Compliance point (condition 26)	Downstream surface water sampling point **BPDS SW6** as shown on the map (Appendix 2).	Latitude: **-12.7253773** Longitude: **130.7860708**
9. Conditions on discharge (condition 26)	Any authorised discharge must: (a) Not include wastewater generated outside of ML32346 and MLN16; (b) Not include wastewater treated with polyacrylamide flocculants with more than 0.05% of the neuro-toxin acrylamide monomer; (c) Occur only when the stream gauge data at the Compliance Point BPDS SW6 shows there is a sufficient flow to achieve trigger values at the compliance point at Item 8; (d) Occur only when there is flow in Drainage Line BP1; and (e) In the event wastewater is treated, occur only when the treatment process has finished, including allowing sufficient residence time for settlement of flocculants and target contaminants.	
10. Monitoring program (condition 30)	The Monitoring Program includes: (a) Surface water monitoring in accordance with Appendix 5; and (b) Macroinvertebrate and Sediment Monitoring Program in accordance with Appendix 6.	
11. Critical contaminants	Aluminium (Al), Arsenic (As), Copper (Cu), Iron (Fe), Lithium (Li), Zinc (Zn), Total Phosphorus (TP), Total Nitrogen (TN), Nitrate (NO_3) and Ammonia (NH_3).	

Item	Detail
12. Notifiable incidents (conditions 41-43)	Notifiable incidents include: (a) An exceedance of three or more times a trigger value specified in Item 7 at the compliance point in Item 8; (b) For physical and chemical stressors (pH, EC, turbidity, DO), an exceedance (or measurement outside the range) of a trigger value specified in Item 7 at the compliance point in Item 8, on three consecutive sampling occasions; (c) For toxicants, two or more exceedances of a trigger value specified in Item 7, at the compliance point in Item 8, during one annual reporting period ; (d) A discharge at a point not specified in Item 5; (e) A discharge from a source not specified in Item 6; (f) A failure to comply with condition 29; or (g) A failure to comply with condition 38.
13. Documents placed on Register (condition 13)	The following documents will be placed on the Register: (c) The Licence Documents at Item 4. (d) The Monitoring Report provided in accordance with condition 45. (e) The Annual Return.
14. Compliance with trigger values (condition 26)	For the annual reporting period, the trigger values at Item 7 shall be regarded as being complied with if: (a) For metals, hydrocarbons and other toxicants, not more than one measurement or, if more than 20 samples are collected, 5% of measured values, exceed the trigger values specified in Item 7; (b) For nutrients and physico-chemical parameters (DO, pH, EC, turbidity,), the median value of measurements does not exceed, or is not outside the range of, the trigger values specified in Item 7; and (c) For any other indicators, not more than 20% of samples exceed, or are outside the range of, the trigger values specified in Item 7.
15. Special conditions (condition 43)	NA

LICENCE CONDITIONS

RULES FOR INTERPRETING THE CONDITIONS OF THIS LICENCE

1. Where there is a discrepancy between the conditions of this licence and any plan, standard, guideline or other document referred to in this licence, the conditions of this licence prevail to the extent of the inconsistency.
2. Any reference to any standard, guideline or code of practice (Australian or international) in this licence means the relevant parts of the current version of that standard, guideline or code of practice.
3. In this licence, unless the contrary intention appears, words that are defined in the Water Act are intended to have the meaning given to them in that Act.
4. In this licence, unless a contrary intention appears, terms are defined in the Definitions at the end of this licence.
5. In this licence a reference to an Item is a reference to an Item in Schedule 1.

GENERAL

6. The licensee must ensure the contact details recorded with the Administering Agency for this licence are correct at all times.
7. The licensee must at all times have a 24-hour emergency contact.
8. The licensee must notify the Administering Agency prior to making any operational change that will cause, or is likely to cause, an increase in the potential for environmental harm.
9. The licensee must display clear and legible signage, in English, in a prominent location at each public entrance to the premises of the Licensed Action that includes the following details:
    - 9.1. waste discharge licence number issued under the Water Act; and
    - 9.2. 24-hour emergency contact details.
10. The licensee must cause a hard copy of this licence to be available for inspection, at the premises of the Licenced Action, by any person on request.
11. Unless otherwise specified, within 10 business days of a request, the licensee must provide to the Administering Agency a copy of any document, monitoring data or other information in relation to the Licensed Action in electronic form by emailing environmentalregulation@nt.gov.au.
12. All notices, reports, documents or other correspondence required to be provided as a condition of this licence, unless otherwise specified as a condition of this licence, must be provided in electronic form by emailing environmentalregulation@nt.gov.au.
13. The licensee must maintain, implement and comply with the current version of the documents listed in Item 4.
14. Within 10 business days of any amendment being made to a document listed in in Item 4, the licensee must provide the amended document to the Administering Agency, along with:
    - 14.1. a tabulated summary of the amendment(s) with document references;
    - 14.2. reasons for the amendment(s); and
    - 14.3. an assessment of environmental risk associated with the amendment(s).
15. The Administering Agency may require the licensee to revise or amend and resubmit any document provided in accordance with this licence. Where the Administering Agency requires any document to be revised or amended, the licensee must submit it to the Administering Agency by the date specified by the Administering Agency.
16. The licensee must operate and maintain a community feedback telephone number enabling members of the public to contact, at any time, a person or voice mail system that can accept, on behalf of the licensee, enquiries or complaints about the Licensed Action, and to which the licensee must respond. The community feedback telephone number must be displayed:
    - 16.1. where the licensee has a website, in a prominent location on the licensee's website;

16.2. in the Stakeholder Engagement Plan; and

16.3. in other publicly available documents relating to the Licensed Action.

17. The licensee must maintain a register of complaints that records the details of each complaint received in relation to the Licensed Action and provide a copy to the Administering Agency on request. Details of the compliant must (as is reasonably practicable) include, the following information:

17.1. the person to whom the complaint was made;

17.2. the person responsible for managing the complaint;

17.3. the date and time the complaint was reported;

17.4. the date and time of the event(s) that led to the complaint;

17.5. the contact details of the complainant if known, or where no details are provided a note to that effect;

17.6. the nature of the complaint;

17.7. the nature of event(s) giving rise to the complaint;

17.8. prevailing weather conditions at the time (where relevant to the complaint);

17.9. the action taken in relation to the complaint, including any follow-up contact with the complainant; and

17.10. if no action was taken, why no action was taken.

MONITORING INFORMATION

18. If the licence expires or is otherwise surrendered, suspended or revoked and the licence contained a condition that the licensee provide a report, record or other information, including in accordance with a monitoring program pursuant to section 77 of the Water Act, the licensee must provide any report, record, information or data available to the licensee up to and including the date the licence expired or was surrendered, suspended or revoked.

OPERATIONAL

19. Without limiting the conditions of this licence, in conducting the Licensed Action, the licensee must do all things reasonable and practicable to:

19.1. prevent or minimise the likelihood of pollution occurring as a result of, or in connection with, the Licensed Action;

19.2. prevent or minimise the likelihood of environmental harm occurring as a result, or in connection with, the Licensed Action;

19.3. effectively respond to pollution and the risk of pollution occurring as a result of, or in connection with, the Licensed Action;

19.4. effectively respond to environmental harm and the risk of environmental harm occurring as a result of or in connection with the Licensed Action; and

19.5. apply the principles of ecologically sustainable development.

20. The licensee must, without limiting any other condition of this licence, in conducting the Licensed Action do all things reasonable and practicable to ensure the Licensed Action does not adversely affect any:

20.1. declared beneficial use, quality, standard or objectives declared under section 73 of the Water Act;

20.2. sites of conservation significance; or

20.3. designated Ramsar wetlands,

including, but not limited to, those listed at Items 1, 2 and 3.

21. The licensee must ensure any plant and equipment used by the licensee in conducting the Licensed Action:

    21.1. is reasonably fit for the purpose and use to which it is put;

    21.2. is maintained and operational; and

    21.3. is operated by a person trained to use the plant and equipment.

22. No change, replacement or alteration of plant and equipment is permitted if the change, replacement or alteration increases the risk of environmental harm for the Licensed Action, unless approved by the Administering Agency.

DISCHARGES

23. The Licensee must only discharge waste to water from the authorised discharge points specified in Item 5.

24. Where the Administering Agency directs the licensee to cease discharge from an authorised discharge point identified in Item 5, the licensee must immediately cease the discharge.

25. A direction to cease discharge may be verbal or written, but a verbal direction from the Administering Agency will be provided in writing within 48 hours of the verbal direction. A failure to provide a written direction does not affect the requirement to comply with a verbal direction.

26. The licensee must ensure that discharge from each authorised discharge point:

    26.1. consists only of waste from the source(s) as specified in Item 6;

    26.2. does not cause a non-compliance with the conditions specified at Item 14 at the compliance point at Item 8;

    26.3. meets the conditions at Item 9.

27. Following any exceedance of a trigger value limit specified in Item 7 at the compliance point specified in Item 8, the Licensee must:

    27.1. investigate the exceedance, including undertaking targeted monitoring, in addition to routine monitoring; and

    27.2. take corrective action to mitigate any environmental harm and ensure the exceedance does not reoccur; and

    27.3. make a record of:

        27.3.1. when the exceedance was detected and by whom;

        27.3.2. the date and time of the exceedance;

        27.3.3. the actual and potential causes and contributing factors to the exceedance;

        27.3.4. the risk of environmental harm arising from the exceedance;

        27.3.5. exceedances and details of the investigation and corrective action taken; and

        27.3.6. if no action was taken, why no action was taken.

28. The licensee must, for each authorised discharge point, install, operate and maintain a device to measure and record, for each discharge event:

    28.1. the time the discharge commenced and the duration of the discharge;

    28.2. the discharge rate of flow; and

    28.3. the discharge volume.

29. The licensee must ensure that the discharge from all discharge events at each authorised discharge point does not:

    29.1. contain any floating debris, oil, grease, petroleum hydrocarbon sheen, scum, litter or other objectionable matter;

29.2. cause or generate odours which would adversely affect the use and amenity of surrounding waters;

29.3. cause algal blooms in the receiving water;

29.4. pollute groundwater;

29.5. cause visible change in the behaviour of fish or other aquatic organisms in the receiving water;

29.6. cause mortality of fish or other aquatic organisms;

29.7. cause erosion or degradation to the beds and banks of a watercourse; or

29.8. cause adverse impacts on plants or animals.

MONITORING

30. From the Commencement Date of this licence, the licensee must implement and comply with the Monitoring Program specified in Item 10.

31. The licensee must ensure that the Monitoring Program is designed, maintained and implemented in accordance with the following principles:

31.1. the need to monitor loads upstream and downstream, including in-stream decay in loads downstream, of authorised discharge points;

31.2. the need for event-based monitoring, in addition to routine monitoring, including revisiting sampling points as soon as practicable when samples cannot be collected at frequencies set in the Monitoring Program;

31.3. the need for special studies to better described in-stream physical, chemical and biological processes;

31.4. the need to target the possible critical contaminants listed at Item 11;

31.5. the need to select sampling points that provided representative (well mixed) samples;

31.6. the need to collect samples that are representative of discharge conditions, including taking samples from sampling points on the same day as discharge and consecutively from upstream to downstream; and

31.7. the need to adopt a range of biological surveys to assess the health of the system.

32. The licensee must ensure that all samples and field environmental data are collected in accordance with recognised Australian Standards and guidelines (such as AS/NZS 5667.1 1998, ANZG (2018), as updated from time to time).

33. For the parameters that require analysis at a laboratory, the licensee must ensure that all samples are analysed at a laboratory with current NATA accreditation or equivalent.

34. The licensee must ensure any samples collected in accordance with the Monitoring Program or in connection with the Licensed Action or this licence, are obtained by, or under the supervision of a qualified sampler.

35. The licensee must ensure that, for each sample collected in accordance with the Monitoring Program or the Licensed Action, the following information must be recorded and retained:

35.1. the date on which the sample was collected;

35.2. the time at which the sample was collected;

35.3. the location at which the sample was collected;

35.4. the name of the person who collected the sample;

35.5. the chain of custody forms relating to the sample;

35.6. the field measurements (if any) and analytical results (if any) relating to the sample; and

35.7. laboratory quality assurance and quality control documentation.

36. The licensee must for all land based monitoring points specified in the Monitoring Program:

36.1. install and maintain appropriate identification signage so that they are reasonably identifiable at all times; and

36.2. maintain safe access and egress, as is reasonably practicable.

37. The licensee must ensure that any proposed revisions to the Monitoring Program (other than typographical changes or revisions to formatting or referencing) are:

37.1. reviewed by a Qualified Person, who must produce a written report about their review;

37.2. submitted to the Administering Agency with justification for revisions; and

37.3. submitted to the Administering Agency, in both hard copy and electronic form (with a complete copy of the Qualified Person's written review), 20 business days prior to the proposed implementation date.

NOTIFICATION AND REPORTING

38. The licensee must keep records of all exceedances of trigger values of parameters specified in Item 7, including those that are not notifiable incidents listed at Item 12, and provide a copy on request of the Administering Agency.

39. The Licensee must keep records of all contraventions with this licence. These records must be adequate to enable the licensee to comply with the non-compliance notification conditions of this licence.

40. *This standard condition has been removed*

41. The licensee must notify the Administering Agency of any notifiable incident listed at Item 12 or non-compliance with this licence, by emailing environmentalregulation@nt.gov.au, as soon as practicable after (and in any case within 24 hours after) first becoming aware of the non-compliance.

42. The licensee must include in the notification of the notifiable incident at Item 12 or non-compliance, the following information:

42.1. when the incident or non-compliance was detected and by whom;

42.2. the date and time of the incident or non-compliance;

42.3. whether discharge was occurring at the time of the incident or non-compliance and the source of the discharge;

42.4. whether non-compliant discharge is still occurring; and

42.5. a date (within 10 business days of the incident or non-compliance) when an investigation report will be submitted to the Administering Agency.

43. Within 10 business days of notifying the Administering Agency of any notifiable incident at Item 12 or non-compliance, the licensee must provide the Administering Agency an investigation report that includes:

43.1. when the incident or non-compliance was detected and by whom;

43.2. the date and time of the incident or non-compliance;

43.3. whether discharge was occurring at the time of the incident or non-compliance and the source of the discharge;

43.4. the actual and potential causes and contributing factors to the incident or non-compliance;

43.5. monitoring data of the discharge, and upstream and downstream water of the authorised discharge point, collected for the date the incident or non-compliance was detected and three sampling rounds prior;

43.6. available flow rates to demonstrate any influence streams and rivers may have had on the exceedance of trigger values;

43.7. rainfall recorded at the site prior to the exceedance of trigger values and incident or non-compliance;

43.8. the risk of environmental harm arising from the incident or non-compliance;

43.9. the action(s) that have or will be undertaken to mitigate any environmental harm arising from the incident or non-compliance;

43.10. corrective actions that have or will be undertaken to ensure the incident or non-compliance does not reoccur; and

43.11. if no action was taken, why no action was taken.

44. The licensee must submit a completed Annual Return, by emailing environmentalregulation@nt.gov.au, within 10 business days after each Anniversary Date of this licence, which report relates to the preceding 12 month period. The report must

44.1. be in the approved form; and

44.2. contain details of all notifiable incidents and non-compliances with this licence during the reporting period.

45. The licensee must complete and provide to the Administering Agency an annual report of data and information obtained through the implementation and performance of the Monitoring Program (the Monitoring Report), as prescribed by this licence, within 10 business days after each Anniversary Date of this licence.

46. The licensee must ensure that each Monitoring Report:

46.1. is prepared in accordance with the requirements of the Administering Agency 'Guideline for Reporting on Environmental Monitoring' (or any other guideline as adopted by the Administering Agency from time to time);

46.2. includes a tabulation of all monitoring data required as a condition of this licence (data must be provided electronically in Microsoft® Excel® format);

46.3. includes a tabulation of monthly and annual contaminant loads discharged from the authorised discharge point listed at Item 5. Contaminant loads must be calculated for total metals, total metalloids, total nutrients and other parameters (excluding field parameters) listed in Appendix 3. The calculations must be based on the daily discharge volume and the concentration of contaminant present in the discharge on that day. On the days when a sample was not taken then the concentration of the contaminant must be estimated using Linear Interpolation methodology;

46.4. includes long term trend analysis of monitoring data to demonstrate any environmental impact associated with the Licensed Action over a minimum period of three years (where the data is available

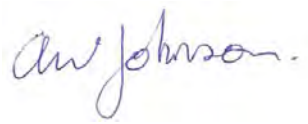
46.5. includes the actions taken and results of investigation for all incidents when a trigger value was exceeded as specified in condition 27; and

46.6. includes an assessment of environmental impact from the Licensed Action.

47. A copy of the documents listed at Item 13 will be placed on the Register.

END OF LICENCE CONDITIONS

This licence is not valid unless signed below:



ANDREW JOHNSON
Controller of Water Resources

Date: 9 February 2024

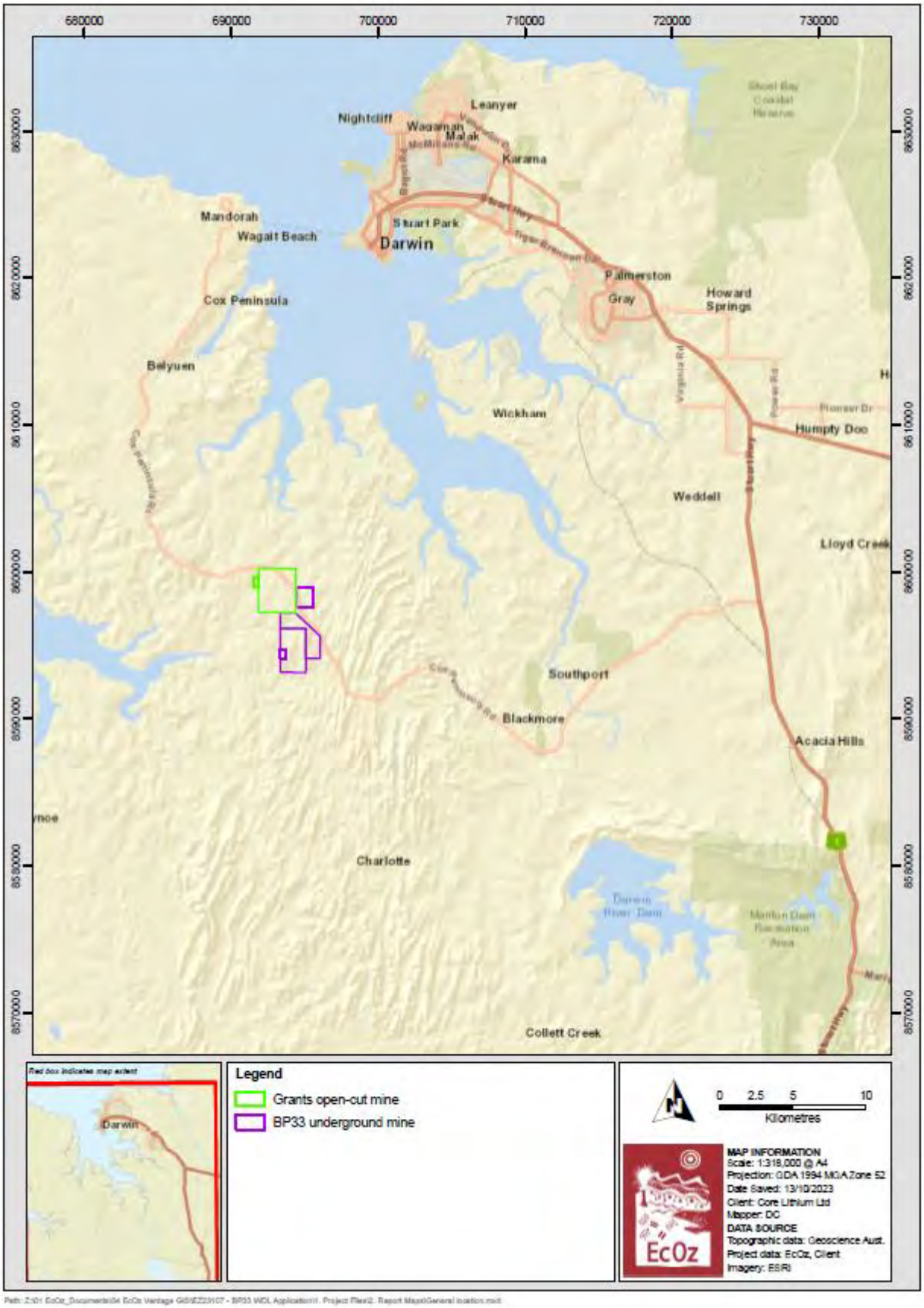
DEFINITIONS

In this licence, unless a contrary intention appears:

Term	Definition
24-hour emergency contact	the phone number of a person who can be contacted at any time and be capable of responding to and providing information about any incident associated with the Licensed Action.
Administering Agency	means the NT Government Department with responsibility for administering the Water Act.
Anniversary Date	annual anniversary of the Commencement Date.
Annual Return	an Administering Agency prescribed format for demonstrating and reporting compliance with the conditions of this licence.
ANZG (2018)	Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia. Available at http://www.waterquality.gov.au/anz-guidelines.
business days	a day not Saturday, Sunday or a public holiday, in Darwin, Northern Territory.
Consultation and Communication Plan	a written plan documenting proposed consultation and communications for the Licensed Action before, during and after the Licensed Action which includes a strategy for communicating with members of the public who are likely to have a real interest in, or be affected by, the Licensed Action.
contact details	includes the 24 hour emergency contact, and name, position title and phone number of a representative of the Licensee who can be contacted about the licence and Licensed Action.
discharge	releasing or allowing a liquid, gas or other substance to flow out from where it has been confined.
Dry season	means 1 May to 31 October.
Emergency Response Plan	a written plan documenting the Licensee's procedures for responding to emergencies caused by, resulting from or associated with the Licensed Action and that may cause environmental harm.
Licensed Action	the Licensed Action as described on the covering page of this licence.
Linear Interpolation	a method to construct new data points within the range of known data points. *y = y1 + ((x – x1) * ((y2 – y1) / (x2 – x1)))* y is the unknown concentration between known concentrations y1 and y2 y1 is the first known concentration y2 is the second known concentration x is the day of the unknown concentration y x1 is the day of the first known concentration y1 x2 is the day of the second known concentration y2
litter	litter, garbage, rubbish, refuse or waste matter, and includes the body of a dead animal.
NATA	National Association of Testing Authorities, Australia.
plant and equipment	all material items used in association with the Licensed Action, including (but not limited to) storage vessels and containers, pipe work and hosing, vehicles (including vessels), tools, and measuring equipment.

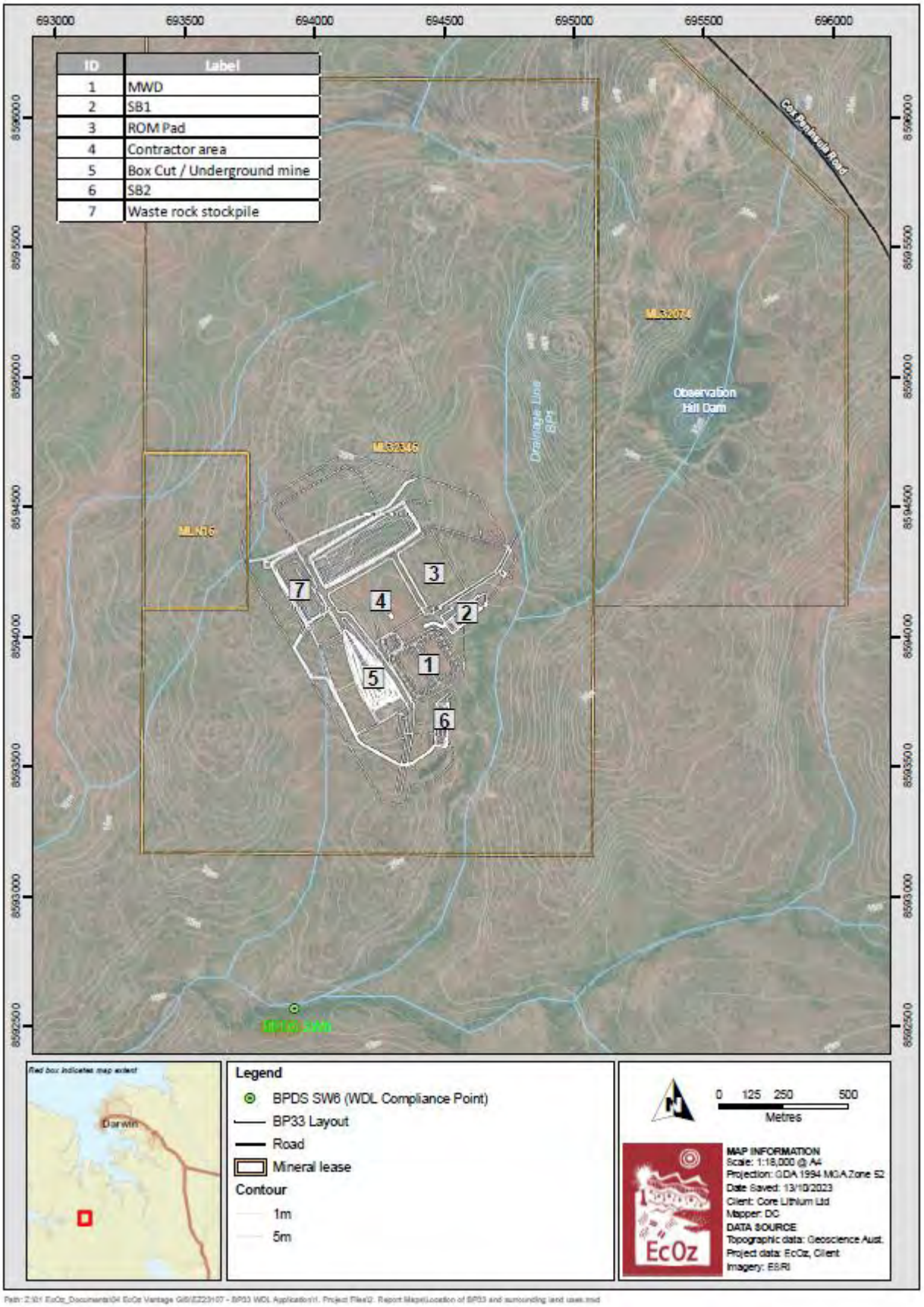
Term	Definition
pollution	has the same meaning as *pollute* as defined in section 4 of the Water Act.
public entrance	access to the licensed premises that is utilised by the public.
qualified sampler	a person who has training and experience in obtaining samples from the relevant environmental medium.
Register	the register available at the website of the Northern Territory Environment Protection Authority (NT EPA).
wastewater	water that contains a waste.
Water Act	*Water Act 1992* (NT).
Wet season	means 1 November to 30 April.

APPENDIX 1: Location of Finniss Lithium Project



APPENDIX 2: Compliance Point, Discharge Point, and Surface Water Monitoring Points

APPENDIX 3 : BP33 Underground Mine Infrastructure and layout



APPENDIX 4: Discharge Trigger Values/SSTV

			Sampling Point	**Compliance Point**
			Site Code	**BPDS SW6**
			Latitude	**-12.7253773**
			Longitude	**130.7860708**
PARAMETER	**Abbrev.**	**Units**	**Analysis**	**Trigger Values[1]**
pH	pH	pH	In situ	5.4 [2] – 6.7 [3]
Electrical Conductivity	EC	µS/cm		250
Turbidity	NTU	NTU		14 [3]
Dissolved Oxygen	DO	mg/L		50-100
Total Nitrogen	TN	µg/L	Unfiltered	300 [3]
Total Phosphorus	TP			20 [3]
Aluminium	Al	µg/L	Filtered (0.45 µm)	70 [3]
Arsenic	As			13
Cadmium	Cd			0.2
Chromium (CrVI)	Cr			1
Cobalt	Co			1.4
Copper	Cu			1.4
Iron	Fe			380 [3]
Lead	Pb			3.4
Lithium	Li			430 [4]
Nickel	Ni			11
Zinc	Zn			8

[1] ANGZ (2018) 95% species protection, freshwater, unless otherwise specified.
[2] 20th percentile of background data for surface water quality.
[3] 80th percentile of background data for surface water quality.
[4] Ecotoxicological Assessment – see Grant's Water Management Plan (WRM, 2023).

APPENDIX 5: Surface Water Monitoring Program

Parameter/Site			Operational			Upstream			Downstream				
			MWD Discharge [1]	SB1	SB2	BPUS SW4	BPUS SW5	BPUS SW7	BPUS SW1	BPDS SW2	BPDS SW3	BPDS SW6 Compliance	BPDS SW8
GPS Coordinates (latitude and longitude)			-12.7128115 130.7912214	-12.71146623 130.7920958	-12.71558608 130.7914748	-12.70776534 130.7936642	-12.71102426 130.796696	-12.72547491 130.7902228	-12.71243714 130.7925837	-12.7212 130.791	-12.716872 130.780576	-12.72537727 130.7860708	-12.72054092 130.7865124
Parameter	**Abbrev**	**Unit**	**Frequency**										
Field													
Flow	-	kL/day	C*	N/A	N/A	W	W	W	W	W	W	C	W
Water level	-	M	P, D	N/A	N/A	W	W	W	W	W	W	C	W
pH	-	Unit	P, D	WD	WD	W	W	W	W	W	W	D	W
Electrical Conductivity	EC	µS/cm	P, D	WD	WD	W	W	W	W	W	W	D	W
Turbidity	-	NTU	P, D	D	D	W	W	W	W	W	W	D	W
Temperature	-	C	P, D	WD	WD	W	W	W	W	W	W	D	W
Oxidation Reduction Potential	ORP	mV	P, D	WD	WD	W	W	W	W	W	W	D	W
Dissolved Oxygen	DO	% sat	P, D	WD	WD	W	W	W	W	W	W	D	W
Nutrients (unfiltered excluding FRP) and chlorophyll-a													
Ammonia	NH_4^+	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Oxides of Nitrogen	NOx	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Nitrate	NO_3	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Total Nitrogen	TN	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W

Parameter/Site			Operational			Upstream			Downstream				
			MWD Discharge [1]	SB1	SB2	BPUS SW4	BPUS SW5	BPUS SW7	BPUS SW1	BPDS SW2	BPDS SW3	BPDS SW6 Compliance	BPDS SW8
Total Phosphorus	TP	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Filterable Reactive Phosphate	FRP	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Chlorophyll-a	Chl-a	µg/L	-	N/A	N/A	W	W	W	W	W	W	W	W
Metals and Metalloids – total and filtered (0.45 µm)													
Aluminium	Al	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Arsenic	As	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Cobalt	Co	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Copper	Cu	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Iron	Fe	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Lead	Pb	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Lithium	Li	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Nickel	Ni	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Zinc	Zn	µg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Full elemental scan		µg/L	A	A	A	A	A	A	A	A	A	A	A
Other – filtered (0.45 µm) excluding TSS													
Sulphate	SO_4	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Chloride	Cl	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Calcium	Ca	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Magnesium	Mg	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Potassium	K	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Sodium	Na	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Carbonate	CO_3^{2-}	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Bicarbonate	HCO_3	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W

WASTE DISCHARGE LICENCE (WDL253)

Parameter/Site			Operational			Upstream			Downstream				
			MWD Discharge [1]	SB1	SB2	BPUS SW4	BPUS SW5	BPUS SW7	BPUS SW1	BPDS SW2	BPDS SW3	BPDS SW6 Compliance	BPDS SW8
Total Dissolved Solids	TDS	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W
Total Suspended Solids	TSS	mg/L	P, WD	WD	WD	W	W	W	W	W	W	W	W

P = prior to discharge.

C = continuous

D = within 24 hours of commencement of discharge and daily during discharge. Weekly when no discharge is occurring.

WD = weekly during discharge (from sediment basins or MWD respectively)

W = within 24 h of discharge from MWD and weekly during discharge and for 2 weeks post discharge. Otherwise monthly when water is present, regardless of flow.

A = annually, at end of wet season on recessional flows.

[1] The sampling point in the MWD will be located close to BP DP1 to ensure it is representative of discharge water quality.

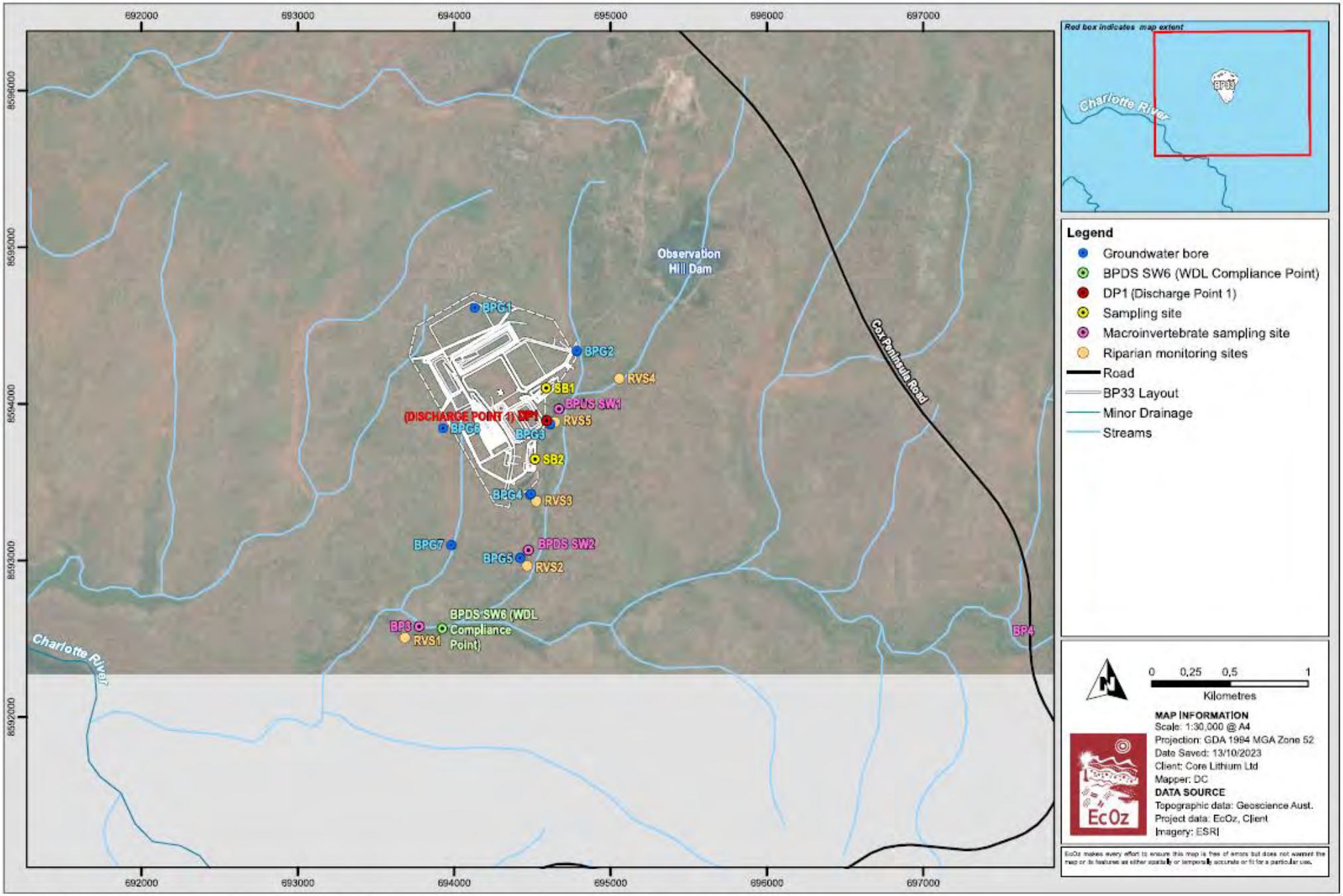
* Continuous flow monitoring must be representative of discharge flows at BP DP1

APPENDIX 6: Macroinvertebrate and Sediment Monitoring Program

Site			BP4	BPUS SW1	BPDS SW2	BP3	GDS SW5	UC1	UC2
GPS Coordinates (latitude and longitude)			**-12.7255462 130.8216379**	**-12.71243714 130.7925837**	**-12.7212 130.791**	**-12.7253908 130.7847151**	**-12.6518245 130.7804192**	**-12.6495807 130.7820973**	**-12.6567103 130.7783543**
Macroinvertebrate Sampling			A	A	A	A	A	A	A
Sediments									
Metals and metalloids - <63 µm sediment fraction analysed									
Aluminium	Al	mg/kg	A	A	A	A	A	A	A
Arsenic	As	mg/kg	A	A	A	A	A	A	A
Cadmium	Cd	mg/kg	A	A	A	A	A	A	A
Chromium	Cr	mg/kg	A	A	A	A	A	A	A
Cobalt	Co	mg/kg	A	A	A	A	A	A	A
Copper	Cu	mg/kg	A	A	A	A	A	A	A
Iron	Fe	mg/kg	A	A	A	A	A	A	A
Lead	Pb	mg/kg	A	A	A	A	A	A	A
Lithium	Li	mg/kg	A	A	A	A	A	A	A
Mercury	Hg	mg/kg	A	A	A	A	A	A	A
Nickel	Ni	mg/kg	A	A	A	A	A	A	A
Zinc	Zn	mg/kg	A	A	A	A	A	A	A
Nutrients									
Total Nitrogen	TN	µg/L	A	A	A	A	A	A	A
Total Phosphorus	TP	µg/L	A	A	A	A	A	A	A
Other									
Particle Size Distribution			A	A	A	A	A	A	A
Total Organic Carbon	Mg/L		A	A	A	A	A	A	A
Moisture Content	%		A	A	A	A	A	A	A

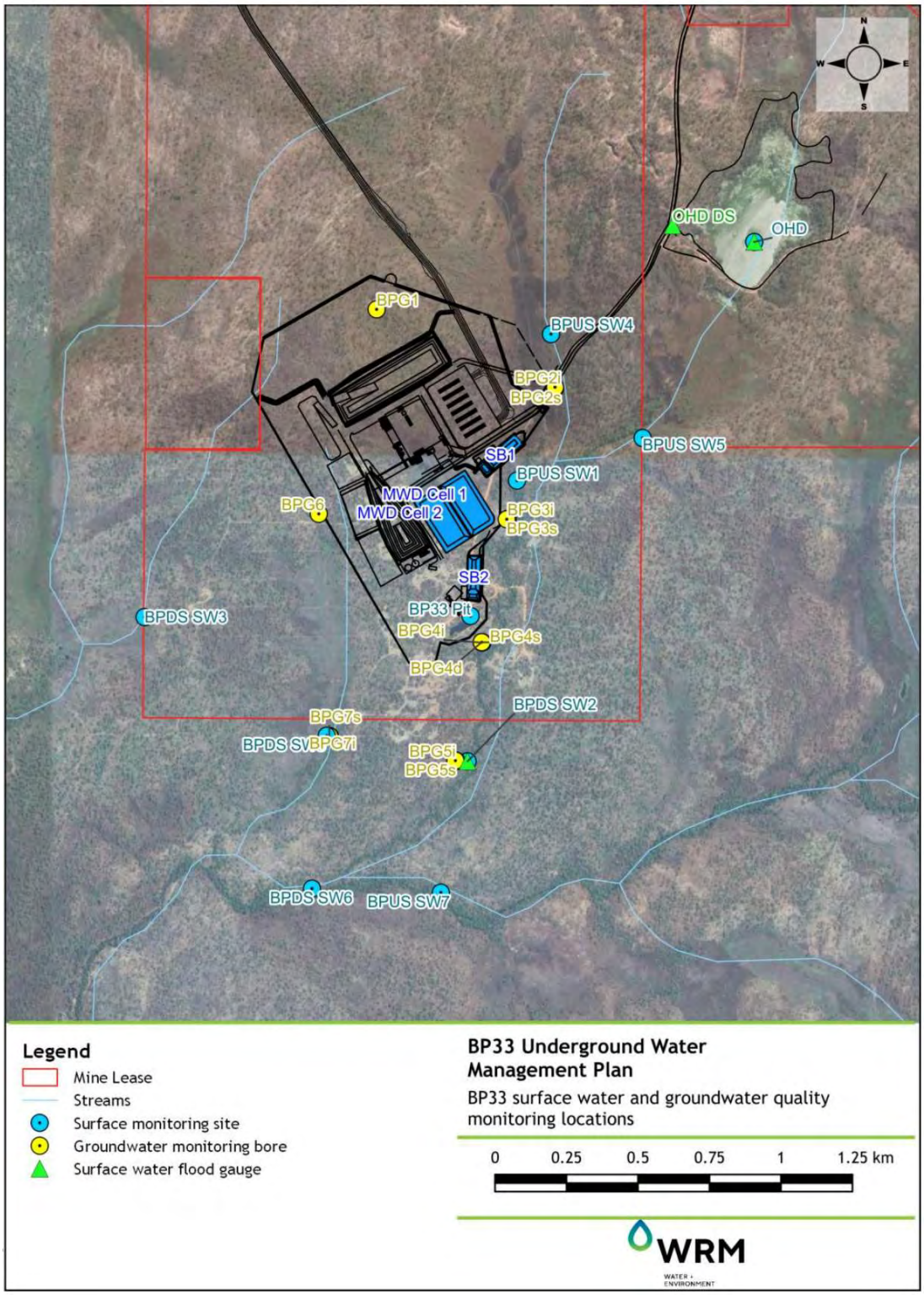
A = annually, at end of wet season on recessional flows. Sediment and biological sampling to be undertaken concurrently.

WASTE DISCHARGE LICENCE (WDL253)



ATTACHMENT B

WDL 253 Surface Water Monitoring Sites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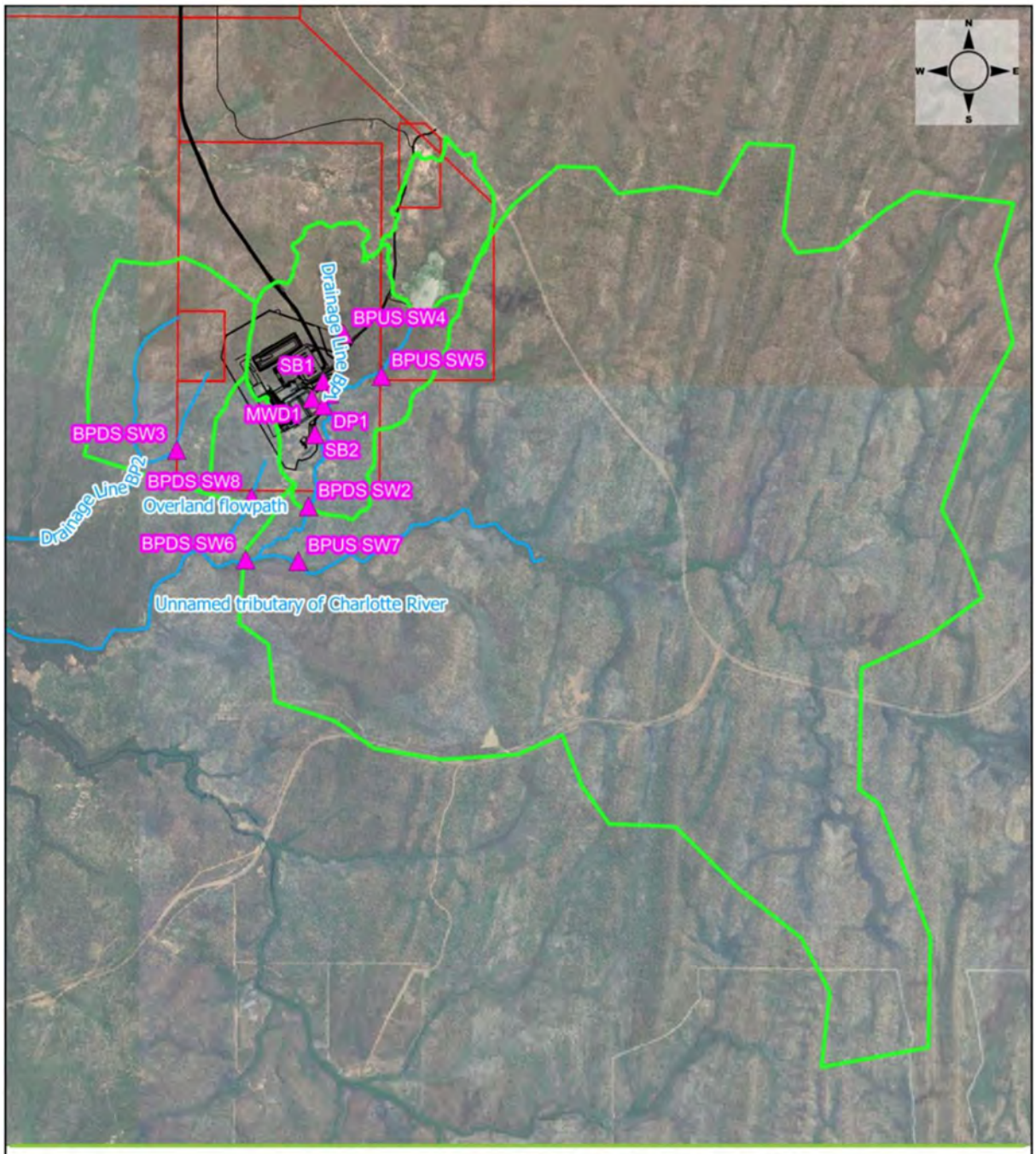
OHD DS
OHD
BPG1
BPUS SW4
BPG2i
BPG2s
BPUS SW5
SB1
BPUS SW1
MWD Cell 1
MWD Cell 2
BPG6
BPG3i
BPG3s
SB2
BP33 Pit
BPDS SW3
BPG4i
BPG4s
BPG4d
BPDS SW2
BPG7s
BPDS SW
BPG7i
BPG5i
BPG5s
BPDS SW6
BPUS SW7
Legend
Mine Lease
Streams
Surface monitoring site
Groundwater monitoring bore
Surface water flood gauge
BP33 Underground Water Management Plan
BP33 surface water and groundwater quality monitoring locations
0
0.25
0.5
0.75
1
1.25 km
WRM
WATER + ENVIRONMENT



Legend

- Mine Lease boundary
- Drainage Lines
- Drainage Line Catchments (pre-mine)
- SW monitoring location

BP33 Underground Water Management Plan

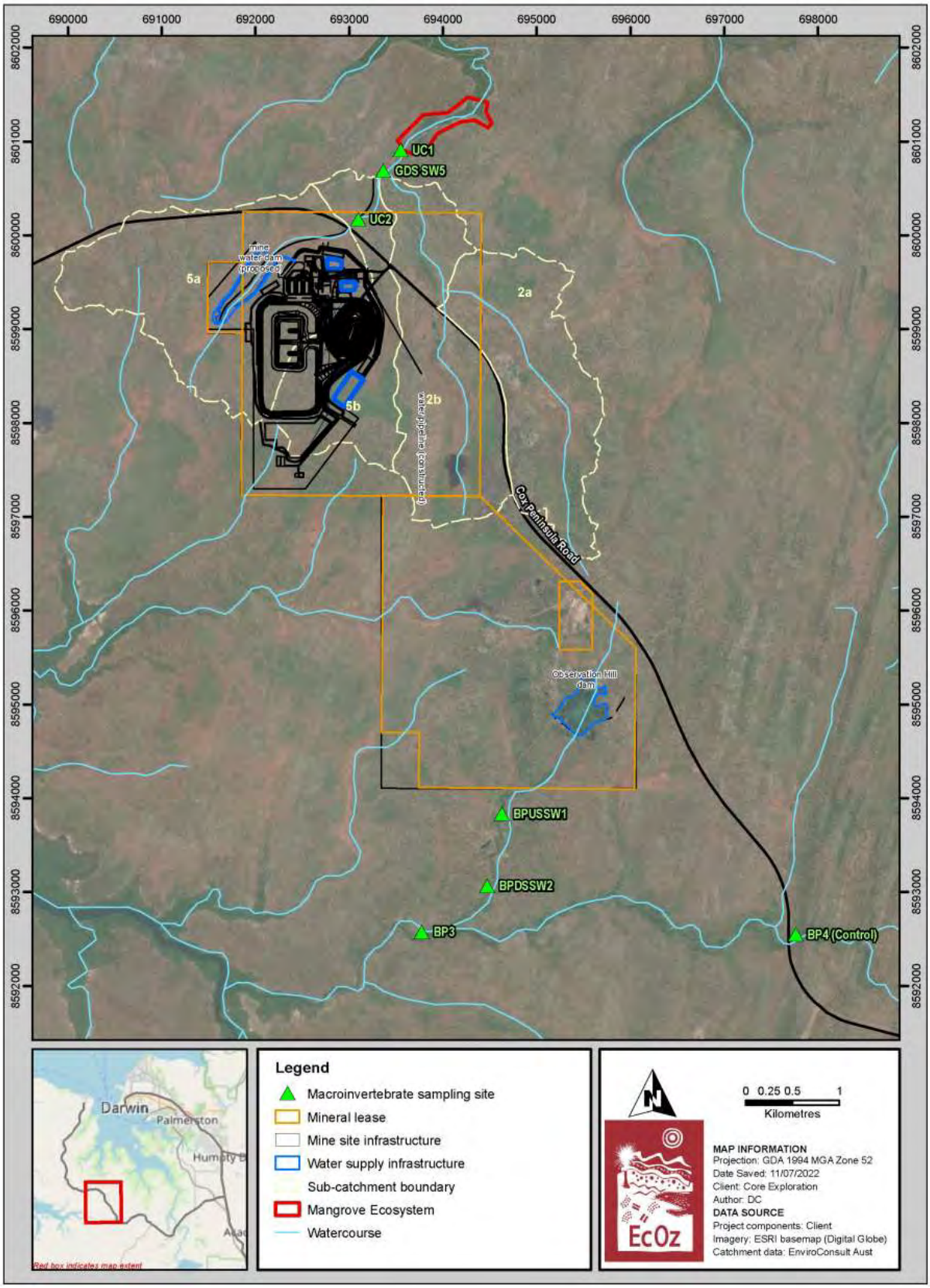
Local drainage

0 0.5 1 1.5 2 km

WRM WATER + ENVIRONMENT

ATTACHMENT C

Macroinvertebrate Sampling Locations


690000
691000
692000
693000
694000
695000
696000
697000
698000
8602000
8601000
8600000
8599000
8598000
8597000
8596000
8595000
8594000
8593000
8592000
UC1
GDS SW5
UC2
mine water dam (proposed)
5a
5b
2a
2b
water pipeline (constructed)
Cox Peninsula Road
Observation Hill dam
BPUSSW1
BPDSSW2
BP3
BP4 (Control)
Darwin
Palmerston
Humpty B
Red box indicates map extent
Legend
Macroinvertebrate sampling site
Mineral lease
Mine site infrastructure
Water supply infrastructure
Sub-catchment boundary
Mangrove Ecosystem
Watercourse
N
0 0.25 0.5 1
Kilometres
EcOz
MAP INFORMATION
Projection: GDA 1994 MGA Zone 52
Date Saved: 11/07/2022
Client: Core Exploration
Author: DC
DATA SOURCE
Project components: Client
Imagery: ESRI basemap (Digital Globe)
Catchment data: EnviroConsult Aust

ATTACHMENT D

Box Cut Water Monitoring Data

Table 1 - Box Cut Field Parameters (pH, Turbidity and EC) as measured in MWD1 (East)

	MWD1 (Box cut dewatering reported to MWD1)		
Date	pH	Turbidity (NTU)	EC (uS/cm)
31/12/2023	8.2	1366	84.6
1/01/2024	7.9	282	79.3
2/01/2024	8.3	1244	78.3
3/01/2024	7.8	1759	69.2
4/01/2024	8.2	1890	61.1
5/01/2024	6.6	367	86.0
6/01/2024	4.5	42	102.8
7/01/2024	4.2	36	121.1
8/01/2024	5.8	12	82.2
9/01/2024			
10/01/2024	6.6	1578	53.4
11/01/2024	7.3	1003	52.6
12/01/2024	6.6	148	52.3
13/01/2024	7.3	1013	39.5
14/01/2024	6.8	2254	38.0
15/01/2024	7.2	2521	34.1
16/01/2024	7.1	2933	34.0
17/01/2024	7.2	2271	33.3
18/01/2024	7.5	2299	33.5
19/01/2024	7.7	2011	13.2
20/01/2024	7.1	1880	32.8
21/01/2024	7.0	1520	33.2
22/01/2024	7.2	1762	30.7
23/01/2024	7.1	1537	65.1
24/01/2024	6.3	848	22.3
25/01/2024	6.3	1454	19.1
26/01/2024	7.2	1340	20.0
27/01/2024	7.2	1479	15.7
28/01/2024	7.1	1200	13.2
29/01/2024	7.2	871	13.7
30/01/2024	7.2	934	12.0
31/01/2024	7.8	778	12.6
1/02/2024	5.6	50	21.7
2/02/2024	6.5	113	18.3
3/02/2024	6.5	292	17.0
4/02/2024	7.0	158	16.6
5/02/2024			
6/02/2024	7.0	95	14.6
7/02/2024	6.4	91	14.9
8/02/2024	8.4	94	18.8
9/02/2024			
10/02/2024	7.3	143	14.9
11/02/2024	6.3	170	13.8
12/02/2024	5.6	375	10.8
13/02/2024	6.4	2374	6.8
14/02/2024	7.1	997	4.9
15/02/2024	7.3	668	4.9
16/02/2024	7.2	846	5.3
17/02/2024	7.4	784	5.8
18/02/2024	7.6	945	5.7
19/02/2024	6.7	885	6.0
20/02/2024	7.4	906	6.5
21/02/2024	6.7	557	6.9
22/02/2024	7.3	628	7.0
23/02/2024	7.2	646	7.0
24/02/2024	6.7	637	7.0
25/02/2024	7.1	679	7.6
26/02/2024	6.6	526	8.1
27/02/2024			
28/02/2024			
29/02/2024			
1/03/2024	6.6	542	7.6
2/03/2024	6.6	561	7.4
3/03/2024			
4/03/2024	6.4	933	8.5
5/03/2024	6.4	660	8.5
6/03/2024	6.6	751	8.7
7/03/2024			
8/03/2024	7.1	1657	7.1
9/03/2024	7.1	753	6.4
10/03/2024	6.3	1727	6.1
11/03/2024	7.3	974	3.4
12/03/2024	6.6	1353	4.9
13/03/2024	5.9	1513	4.2
14/03/2024	6.4	909	3.9
15/03/2024	6.8	906	4.2
16/03/2024	6.7	1328	4.5
17/03/2024	6.7	1464	4.2
Min	4.2	11.9	3.4
Median	6.9	1004.6	25.4
Max	8.4	2933.0	121.1

Table 2 - Box Cut Laboratory Monitoring Results

				Inorganics																								
				Total Phosphorus as P (Organic Phosphate as P)	Sulfate as SO4 - Turbidimetric (filtered)	Nitrite + Nitrate as N	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Carbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Ammonia as N	Anions Total	Cations Total	Chloride	Dissolved Oxygen (Lab)	Electrical Conductivity (Lab)	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total)	pH (Lab)	Reactive Phosphorus as P (Orthophosphate as P)	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	Sodium (filtered)	Total Dissolved Solids (Calc.)	Total Dissolved Solids (Lab)	Total Suspended Solids (Lab)	Turbidity (Lab)
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	mg/L	-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU
EQL				0.01	1	0.01	1	1	1	1	0.01	0.01	0.01	1	0.1	1	0.1	0.01	0.01	0.1	0.01	0.001	0.001	1	1	10	5	0.1
WDL253 SSTV's				0.02												250				0.3	5.4-6.7							14
Field ID	**Location Code**	**Date**	**Description**																									
BC Sump	**BC SUMP**	**13 Dec 2023**	**Sample taken from box cut**	0.25	2	0.11	35	<1	<1	35	0.02	0.91	0.66	6			<0.2	0.10	0.01	<0.2			0.065	4				
TURKEYS NEST	**TN**	**09 Jan 2024**	**Sample taken from Box Cut discharge to Turkey's Nest and representative of Box Cut water quality.**	0.02	34	0.14	6	<1	<1	6	0.02	0.86	0.89	1	8.9	107	0.1	0.14	<0.01	0.2	5.95	<0.01	0.010	4		90	22	41.5
MWD East	**BP33 MWD 1**	**15 Jan 2024**	**Sample taken from MWD1 (East) and representative of Box Cut water quality.**	0.57	4	0.10	6	<1	<1	6	<0.01	0.26	0.16	2	9.3	35	0.5	0.10	<0.01	0.6	6.56	<0.01	0.004	2	23		908	2,050
BP33 Box Cut	**Box Cut**	**09 Oct 2024**	**Sample taken directly from Box Cut.**	0.01	<1	<0.01	34	<1	<1	34	0.04	0.88	0.95	7	8.6	92	0.3	<0.01	<0.01	0.3	7.19	<0.01	0.018	6		89	<5	2.0

Table 2 - Continued

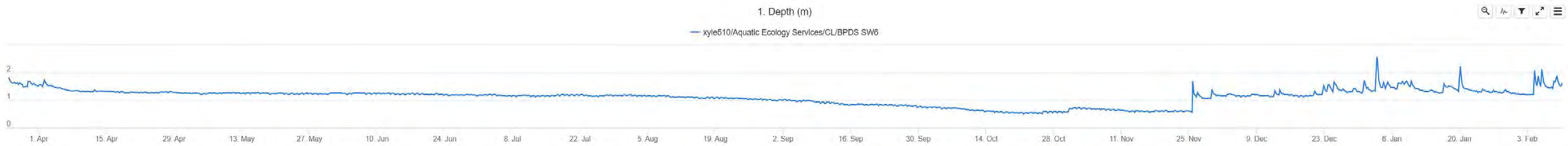
		Metals																										
		Aluminium	Aluminium (filtered)	Arsenic	Arsenic (filtered)	Cadmium	Cadmium (filtered)	Calcium (filtered)	Chromium (hexavalent) (filtered)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Copper	Copper (filtered)	Iron	Iron (filtered)	Lead	Lead (filtered)	Lithium	Lithium (filtered)	Magnesium (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Potassium (filtered)	Zinc	Zinc (filtered)
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL		0.01	0.01	0.001	0.001	0.0001	0.0001	1	0.001	0.001	0.001	0.001	0.001	0.05	0.05	0.001	0.001	0.001	0.001	1	0.0001	0.0001	0.001	0.001	1	0.005	0.005
WDL253 SSTV's			0.07		0.013		0.0002		0.001				0.0014		0.38		0.0034		0.43					0.011			0.008
Field ID	**Location Code**	**Date**	**Description**																									
BC Sump	**BC SUMP**	**13 Dec 2023**	**Sample taken from box cut**	1.69	0.03	0.012	0.010	<0.0001	<0.0001	7	<0.01	0.007	0.005	0.002	<0.001	2.20	<0.05	0.002	<0.001	0.048	0.029	1	<0.0001	<0.0001	0.002	<0.001	2	0.013	<0.005
TURKEYS NEST	**TN**	**09 Jan 2024**	**Sample taken from Box Cut discharge to Turkey's Nest and representative of Box Cut water quality.**	0.94	0.07	0.002	<0.001	<0.0001	<0.0001	9		0.001	<0.001	<0.001	<0.001	0.71	<0.05	<0.001	<0.001	0.013	0.009	2	<0.0001	<0.0001	<0.001	<0.001	4	<0.005	<0.005
MWD East	**BP33 MWD 1**	**15 Jan 2024**	**Sample taken from MWD1 (East) and representative of Box Cut water quality.**	10.1	<0.01	0.011	<0.001	<0.0001	<0.0001	1		0.015	<0.001	0.009	<0.001	16.1	<0.05	0.011	<0.001	0.028	0.004	<1	<0.0001	<0.0001	0.008	<0.001	1	0.037	<0.005
BP33 Box Cut	**Box Cut**	**09 Oct 2024**	**Sample taken directly from Box Cut.**	0.04	<0.01	0.005	0.004	<0.0001	<0.0001	9		<0.001	<0.001	<0.001	<0.001	0.07	<0.05	<0.001	<0.001	0.057	0.058	2	<0.0001	<0.0001	0.001	<0.001	3	0.008	0.006

ATTACHMENT E

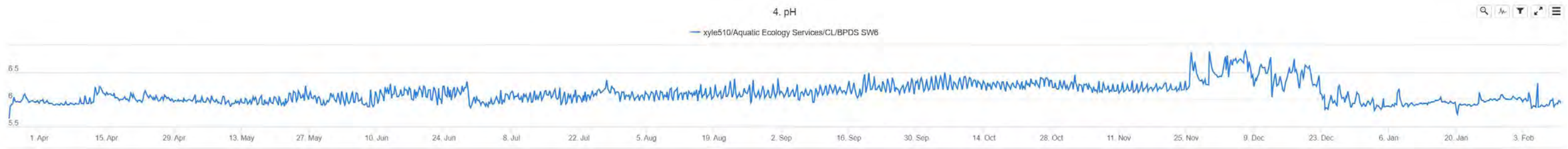
Surface Water Monitoring Data

SW6 (Compliance Point) Continuous Water Level, pH, EC and Temperature Data

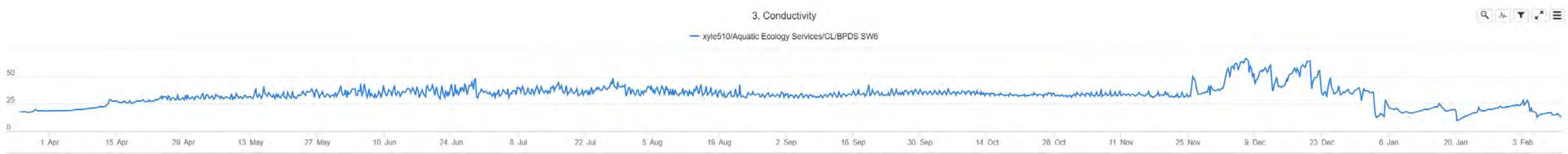
Graph - SW6 Water Level (Depth (m))



Graph - SW6 pH



Graph - SW6 Electrical Conductivity (uS/cm)



Graph - SW6 Temperature (°C)

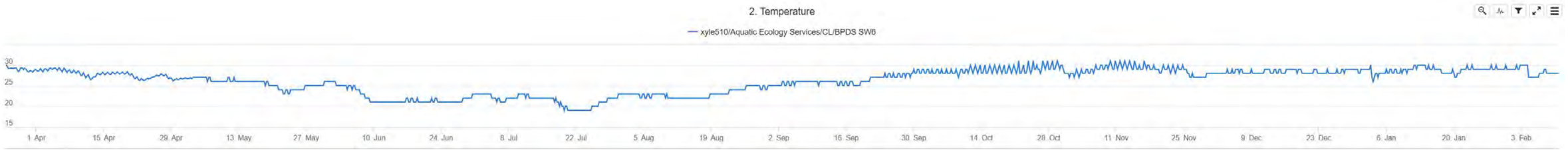


Table 3 - BP33 Surface Water Monitoring Data (SW1, SW2, Sw3, SW4, SW5, Sediment Basin 1 and 2)

			Field							Inorganics																										Biological
			Temperature (Field)	Total Dissolved Solids (Field)	Redox Potential (Field)	DO % Saturation (Field)	Electrical Conductivity (Field)	pH (Field)	Turbidity (Field)	Total Phosphorus as P (Organic Phosphate as P)	Sulfate as SO4 - Turbidimetric (filtered)	Nitrite + Nitrate as N	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Carbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Ammonia as N	Anions Total	Cations Total	Chloride	Dissolved Oxygen (Lab)	Electrical Conductivity (Lab)	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total)	pH (Lab)	Reactive Phosphorus as P (Orthophosphate as P)	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	Salinity	Sodium (filtered)	Total Dissolved Solids (Lab)	Hardness as CaCO3 (filtered)	Total Suspended Solids (Lab)	Turbidity (Lab)	Chlorophyll a
			°C	mg/L	mV	%	µS/cm	-	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	mg/L	-	mg/L	mg/L	ppt	mg/L	mg/L	mg/L	mg/L	NTU	mg/L
WDL253 SSTV's						50-100	250	5.4-6.7	14	0.02												250				0.3									14	
Field ID	Class	Date																																			
BPUS SW1	Downstream	23 Jan 2024	28.4	1.9	183.22		30.61	6.17	549.48	0.11	2	0.04	8	<1	<1	8	<0.01	0.31	0.23	4	7.6	35	0.2	0.04	<0.01	0.2	6.3	<0.01	0.004		3	150		119	476	
BPUS SW1	Downstream	22 Feb 2024								0.01	<1	<0.01	3	<1	<1	3	0.27	0.14	0.13	3	8.6	18	0.5	<0.01	<0.01	0.5	6.09	<0.01	0.006		3	30		<5	6.1	
BPUS SW1	Downstream	30 Jan 2025								0.02	<1	<0.01	5	<1	<1	5	0.19	0.18	0.13	3	7.3	24	0.4	<0.01	<0.01	0.4	6.21	0.004			3	23		10	25.6	
BPUS SW1	Downstream	30 Jan 2025																										<0.01			2	21		<5	5.2	
BPDS SW2	Downstream	23 Jan 2024	28.9	2	247.42		32.06	6.2	718.43	0.12	2	0.04	8	<1	<1	8	0.02	0.31	0.23	4	9.2	36	0.3	0.04	<0.01	0.3	6.34	<0.01	0.003		3	129		185	616	
BPDS SW2	Downstream	22 Feb 2024								0.01	<1	<0.01	3	<1	<1	3	0.02	0.17	0.13	4	9	20	0.2	<0.01	<0.01	0.2	6.15	0.01	0.007		3	34		<5	8.4	
BPDS SW3	Downstream	24 Jan 2024								<0.01	<1	<0.01	1	<1	<1	1	<0.01	0.13	0.13	4		20	0.3	<0.01	<0.01	0.3	5.98	<0.01			3	26	<1	52		
BPUS SW4	Upstream	24 Jan 2024								<0.01	<1	<0.01	2	<1	<1	2	0.04	0.21	0.17	6		28	0.4	<0.01	<0.01	0.4	6.1	<0.01			4	38	<1	106		
BPUS SW4	Upstream	30 Jan 2025								0.06	<1	0.05	5	<1	<1	5	0.1	0.1	0.09	<1	8.4	15	0.5	0.05	<0.01	0.6	6.55	0.004								
BPUS SW4	Upstream	30 Jan 2025																										<0.01			3	23		23	10	
BPUS SW5	Upstream	22 Feb 2024								0.01	<1	<0.01	3	<1	<1	3	0.07	0.14	0.13	3	8.5	18	0.2	<0.01	<0.01	0.2	5.96	<0.01	0.005		3	31		<5	2.7	
BPUS SW5	Upstream	30 Jan 2025																										<0.01								
BPUS SW5	Upstream	30 Jan 2025								0.11	<1	<0.01	2	<1	<1	2	<0.01	0.12	0.09	3	8.2	16	0.4	<0.01	<0.01	0.4	6.18	0.002			3	26		<5	5.9	
BP33 SED1	Operational	13 Feb 2024	25.31	14.66	172.05	99.25	22.55	7.08	4,448.9	0.77	2	0.08	8	<1	<1	8	0.09	0.26	0.53	2	9	32	1.3	0.08	<0.01	1.4	6.74	<0.01	<0.001		2	72		1,140	2,140	
BP33 SED1	Operational	14 Feb 2024	31.61	13.18	167.45	105.17	20.28	7.27	2,517.7																												
BP33 SED1	Operational	15 Feb 2024	25.8	12.9	144.7	98	19.9	7.4	1,390																												
BP33 SED1	Operational	16 Feb 2024	30.5	13.5	143.2	105.4	20.8	7.5	1,142.9																												
BP33 SED1	Operational	17 Feb 2024	30.9	14.9	98.6	100.5	22.9	7.3	1,002.5																												
BP33 SED1	Operational	18 Feb 2024	31	15.4	91.9	98.8	23.6	7.3	902.4																												
BP33 SED1	Operational	19 Feb 2024	30.9	14.2	135.2	106.3	21.8	7.1	1,096.6																												
BP33 SED1	Operational	20 Feb 2024	32.9	13.7	110.5	104.4	21.1	7.4	965.2																												
BP33 SED1	Operational	21 Feb 2024	32	14	136.3	108.6	21.5	7.1	575.1																												
BP33 SED1	Operational	22 Feb 2024	29.8	13.6	187.3	103.1	20.9	6.9	643.9																												
BP33 SED1	Operational	23 Feb 2024	30.7	14.4	174.9	98.9	22.2	7.3	708																												
BP33 SED1	Operational	25 Feb 2024	29.7	15.3	174.8	100.3	23.5	7	642.8																												
BP33 SED1	Operational	26 Feb 2024	27.2	15.5	204.7	92.8	23.8	7.2	1,130																												
BP33 SED1	Operational	01 Mar 2024	30.3	16.7	180.2	101.1	26.1	7.6	676.7																												
BP33 SED1	Operational	02 Mar 2024	29.4	17.7	202.5	96.6	27.2	7.4	521.8																												
BP33 SED1	Operational	05 Mar 2024	29	24.3	176.4	99.8	37.4	7.7	1,232.8																												
BP33 SED1	Operational	06 Mar 2024	29.1	24.1	181.8	94	37.1	7.6	1,077.2																												
BP33 SED1	Operational	08 Mar 2024	30	20.1	173.5	97.7	30.9	7.8	2,103.6																												
BP33 SED1	Operational	09 Mar 2024	33.8	20.9	129.6	105.4	32.2	7.4	938																												
BP33 SED1	Operational	10 Mar 2024	33.5	21.1	191.4	101.6	32.5	7.2	2,050.8																												
BP33 SED1	Operational	11 Mar 2024	27.1	16.6	206.1	94.2	25.5	6.7	2,259.5																												
BP33 SED1	Operational	12 Mar 2024	26.5	15.1	222.2	100.4	23.2	7.3	1,176.3	<0.10	1	0.1	10	<1	<1	10	0.03	0.28	0.19	2	8.9	29	<1.0	0.1	<0.01	<1.0	6.36	<0.01	0.004		1	99		240	648	
BP33 SED1	Operational	13 Mar 2024	30.8	10.7	195.1	100.2	16.4	7	2,576.3																												
BP33 SED1	Operational	14 Mar 2024	27.6	10.6	234	99.1	16.3	6.9	1,416																												
BP33 SED1	Operational	16 Mar 2024	28.6	13.2	240.6	97.6	20.3	6.7	2,200.8																												
BP33 SED1	Operational	17 Mar 2024	28.8	14.2	267.9	97.4	21.9	7	1,491.1																												
BP33 SED1	Operational	07 Jan 2025					36	7.08	1183																												
BP33 SED1	Operational	08 Jan 2025					33	6.9	1388																												
BP33 SED1	Operational	12 Jan 2025					34	7.2	586																												
BP33 SED1	Operational	13 Jan 2025					33	7.4	565																												
BP33 SED1	Operational	15 Jan 2025					33.84	7.44	496																												
BP33 SED1	Operational	17 Jan 2025					33.44	7.23	833																												
BP33 SED1	Operational	18 Jan 2025						7.3	564.4																												
BP33 SED1	Operational	19 Jan 2025					28.2	7.1	468.4																												
BP33 SED2	Operational	13 Feb 2024	25.97	11.01	141.56	98.42	16.94	7.3	902.8	0.57	1	0.08	7	<1	<1	7	<0.01	0.22	0.14	2	9	23	<1.0	0.08	<0.01	<1.0	6.7	<0.01	0.002		1	100		137	432	
BP33 SED2	Operational	14 Feb 2024	30.88	10.83	139.68	107.12	16.66	7.56	509.7																												
BP33 SED2	Operational	15 Feb 2024	27	11.67	101.6	98.18	17.9	7	642.7																												
BP33 SED2	Operational	16 Feb 2024	30.9	10.6	107.3	104.4	16.3	7.7	625																												
BP33 SED2	Operational	17 Feb 2024	30.9	12	140.2	100.8	39.9	7.4	704.3																												
BP33 SED2	Operational	18 Feb 2024	29.7	12.3	114	97.9	18.9	7.4	803.8																												
BP33 SED2	Operational	19 Feb 2024	29.8	13.4	133.4	98.7	20.7	7.3	669.9																												
BP33 SED2	Operational	20 Feb 2024	30.4	14.5	137.1	99.9	22.3	7.4	775.1																												
BP33 SED2	Operational	21 Feb 2024	32.5	12	133	103.8	18.5	7.7	540																												
BP33 SED2	Operational	22 Feb 2024	32.5	12.4	146.2	104.5	19.1	7.4	515.8																												
BP33 SED2	Operational	23 Feb 2024	31.2	14.7	159.7	100.3	22.6	7.5	518.6																												
BP33 SED2	Operational	25 Feb 2024	29.6	19.6	183	94.5	30.1	7.2	471.5																												
BP33 SED2	Operational	26 Feb 2024	29.9	12.7	144.1	97	45.8	7.3	1,124.3																												
BP33 SED2	Operational	28 Feb 2024	32.8	23.7	112.1	104.1	36.5	8	457.7																												
BP33 SED2	Operational	01 Mar 2024	30.2	28.3	145.8	99.5	43.6	7.7	177.2																												
BP33 SED2	Operational	02 Mar 2024	29.9	37.4	237.1	100.2	57.6	6.2	63.3																												
BP33 SED2	Operational	04 Mar 2024	30.1	35.4	172.8	103.3	54.5	7.8	17.2																												
BP33 SED2	Operational	05 Mar 2024	30.1	33.3	170.2	95.8	51.2	7.1	280																												
BP33 SED2	Operational	06 Mar 2024	29.4	26.5	170.7	100	40.8	7.4	222.3																												
BP33 SED2	Operational	08 Mar 2024	30	30.7	166.7	104.3	47.2	7.6	272.8																												
BP33 SED2	Operational	09 Mar 2024	34.2	27.8	147.2	120.8	42.8	8.2	228.5																												
BP33 SED2	Operational	10 Mar 2024	32.7	29.2	142.2	111.3	44.9	8.2	307.8																												
BP33 SED2	Operational	11 Mar 2024	28.5	23.8	206.5	95.5	36.6	7.1	720.4																												
BP33 SED2	Operational	12 Mar 2024	28.2	21.8	205.2	96.2	33.6	7.2	509.3	<0.10	2	0.1	14	<1	<1	14	0.11	0.4	0.31	3	9	42	<1.0	0.1	<0.01	<1.0	6.53	0.02	0.006		2	102		58	271	
BP33 SED2	Operational	13 Mar 2024	34.2	13	199	104.4	20	7.1	614.6																												
BP33 SED2	Operational	14 Mar 2024	28.1	15.8	207.2	94.8	24.3	7.2	713.5																												
BP33 SED2	Operational	15 Mar 2024	27.2	13.9	238.5	96.9	21.4	7.1	614.9																												
BP33 SED2	Operational	16 Mar 2024	29.2	14.9	225.1	100	22.9	7.1	768.9																												
BP33 SED2	Operational	17 Mar 2024	29.2	2.3	184.6	99.2	3.5	7.2	760.4																												
BP33 SED2	Operational	07 Jan 2025					30	7.02	510																												
BP33 SED2	Operational	08 Jan 2025					28	6.97	576																												
BP33 SED2	Operational	12 Jan 2025					28	7.59	299																												
BP33 SED2	Operational	13 Jan 2025					28	7.5	304																												
BP33 SED2	Operational	15 Jan 2025					28.3	7.6	330																												
BP33 SED2	Operational	17 Jan 2025					28.1	7.4	282.9																												

Table 3 - Continued

			Metals																																			
			Aluminium	Aluminium (filtered)	Antimony	Antimony (filtered)	Arsenic	Arsenic (filtered)	Barium	Barium (filtered)	Beryllium	Beryllium (filtered)	Bismuth	Bismuth (filtered)	Boron	Boron (filtered)	Cadmium	Cadmium (filtered)	Calcium	Calcium (filtered)	Cesium	Cesium (filtered)	Chromium (hexavalent)	Chromium (hexavalent) (filtered)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Cobalt	Cobalt (filtered)	Copper	Copper (filtered)	Iron	Iron (filtered)	Lead	Lead (filtered)	Lithium	Lithium (filtered)
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WDL253 SSTV's				0.07				0.013										0.0002						0.001				0.0014		0.0014		0.38		0.0034		430
Field ID	**Class**	**Date**																																				
BPUS SW1	**Downstream**	**23 Jan 2024**	3.06	0.05			0.006	0.003									<0.0001	<0.0001		2					0.003	<0.001			0.003	<0.001	5.20	0.16	0.003	<0.001	0.011	0.002
BPUS SW1	**Downstream**	**22 Feb 2024**	0.29	0.02			0.002	<0.001									<0.0001	<0.0001		<1					<0.001	<0.001			<0.001	<0.001	0.96	0.13	<0.001	<0.001	0.004	0.005
BPUS SW1	**Downstream**	**30 Jan 2025**	0.32	0.01			0.004	0.002									<0.0001	<0.0001		<1					<0.001	<0.001			<0.001	<0.001	1.6	0.11	<0.001	<0.001	0.004	0.004
BPUS SW1	**Downstream**	**30 Jan 2025**																																				
BPDS SW2	**Downstream**	**23 Jan 2024**	3.56	0.05			0.006	0.002									<0.0001	<0.0001		2					0.004	<0.001			0.003	<0.001	5.73	0.10	0.004	<0.001	0.012	<0.001
BPDS SW2	**Downstream**	**22 Feb 2024**	0.29	0.02			0.004	<0.001									<0.0001	<0.0001		<1					<0.001	<0.001			<0.001	<0.001	1.42	0.19	<0.001	<0.001	0.004	0.005
BPDS SW3	**Downstream**	**24 Jan 2024**	1.67	0.01	<0.001	<0.001	0.005	<0.001	0.112	0.007	0.003	<0.001	<0.001	<0.001	<0.05	<0.05	<0.0001	<0.0001	<1	<1	4	<1			0.002	<0.001	0.004	<0.001	0.001	<0.001	16.4	<0.05	0.003	<0.001	0.004	<0.001
BPUS SW4	**Upstream**	**24 Jan 2024**	0.2	0.03	<0.001	<0.001	0.001	<0.001	0.024	0.01	<0.001	<0.001	<0.001	<0.001	<0.05	<0.05	<0.0001	<0.0001	<1	<1	<1	<1			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.32	0.15	<0.001	<0.001	0.016	0.012
BPUS SW4	**Upstream**	**30 Jan 2025**		0.1	<0.01			0.001	0.001									<0.0001	<0.0001			<1				<0.001	<0.001			<0.001	<0.001	0.69	0.12	<0.001	<0.001	<0.001
BPUS SW4	**Upstream**	**30 Jan 2025**																																				
BPUS SW5	**Upstream**	**22 Feb 2024**	0.2	0.02			0.002	<0.001									<0.0001	<0.0001		<1					<0.001	<0.001			<0.001	<0.001	0.69	0.11	<0.001	<0.001	0.004	0.004
BPUS SW5	**Upstream**	**30 Jan 2025**	0.19	0.02			0.003	0.002									<0.0001	<0.0001		<1					<0.001	<0.001			<0.001	<0.001	1.23	0.15	<0.001	<0.001	0.005	0.006
BPUS SW5	**Upstream**	**30 Jan 2025**																																				
BP33 SED1	**Operational**	**13 Feb 2024**	6.24	1.42			0.005	<0.001									<0.0001	<0.0001		5					0.008	<0.001			0.004	0.003	8.16	0.96	0.004	0.006	0.012	0.004
BP33 SED1	**Operational**	**14 Feb 2024**																																				
BP33 SED1	**Operational**	**15 Feb 2024**																																				
BP33 SED1	**Operational**	**16 Feb 2024**																																				
BP33 SED1	**Operational**	**17 Feb 2024**																																				
BP33 SED1	**Operational**	**18 Feb 2024**																																				
BP33 SED1	**Operational**	**19 Feb 2024**																																				
BP33 SED1	**Operational**	**20 Feb 2024**																																				
BP33 SED1	**Operational**	**21 Feb 2024**																																				
BP33 SED1	**Operational**	**22 Feb 2024**																																				
BP33 SED1	**Operational**	**23 Feb 2024**																																				
BP33 SED1	**Operational**	**25 Feb 2024**																																				
BP33 SED1	**Operational**	**26 Feb 2024**																																				
BP33 SED1	**Operational**	**01 Mar 2024**																																				
BP33 SED1	**Operational**	**02 Mar 2024**																																				
BP33 SED1	**Operational**	**05 Mar 2024**																																				
BP33 SED1	**Operational**	**06 Mar 2024**																																				
BP33 SED1	**Operational**	**08 Mar 2024**																																				
BP33 SED1	**Operational**	**09 Mar 2024**																																				
BP33 SED1	**Operational**	**10 Mar 2024**																																				
BP33 SED1	**Operational**	**11 Mar 2024**																																				
BP33 SED1	**Operational**	**12 Mar 2024**	0.99	<0.01			0.004	<0.001									0.0006	<0.0001		3					0.003	<0.001			0.002	<0.001	0.74	<0.05	0.004	<0.001	0.003	<0.001
BP33 SED1	**Operational**	**13 Mar 2024**																																				
BP33 SED1	**Operational**	**14 Mar 2024**																																				
BP33 SED1	**Operational**	**16 Mar 2024**																																				
BP33 SED1	**Operational**	**17 Mar 2024**																																				
BP33 SED1	**Operational**	**07 Jan 2025**																																				
BP33 SED1	**Operational**	**08 Jan 2025**																																				
BP33 SED1	**Operational**	**12 Jan 2025**																																				
BP33 SED1	**Operational**	**13 Jan 2025**																																				
BP33 SED1	**Operational**	**15 Jan 2025**																																				
BP33 SED1	**Operational**	**17 Jan 2025**																																				
BP33 SED1	**Operational**	**18 Jan 2025**																																				
BP33 SED1	**Operational**	**19 Jan 2025**																																				
BP33 SED2	**Operational**	**13 Feb 2024**	3.04	0.05			0.004	<0.001									<0.0001	<0.0001		2					0.004	<0.001			<0.001	<0.001	4	0.1	0.002	<0.001	0.005	<0.001
BP33 SED2	**Operational**	**14 Feb 2024**																																				
BP33 SED2	**Operational**	**15 Feb 2024**																																				
BP33 SED2	**Operational**	**16 Feb 2024**																																				
BP33 SED2	**Operational**	**17 Feb 2024**																																				
BP33 SED2	**Operational**	**18 Feb 2024**																																				
BP33 SED2	**Operational**	**19 Feb 2024**																																				
BP33 SED2	**Operational**	**20 Feb 2024**																																				
BP33 SED2	**Operational**	**21 Feb 2024**																																				
BP33 SED2	**Operational**	**22 Feb 2024**																																				
BP33 SED2	**Operational**	**23 Feb 2024**																																				
BP33 SED2	**Operational**	**25 Feb 2024**																																				
BP33 SED2	**Operational**	**26 Feb 2024**																																				
BP33 SED2	**Operational**	**28 Feb 2024**																																				
BP33 SED2	**Operational**	**01 Mar 2024**																																				
BP33 SED2	**Operational**	**02 Mar 2024**																																				
BP33 SED2	**Operational**	**04 Mar 2024**																																				
BP33 SED2	**Operational**	**05 Mar 2024**																																				
BP33 SED2	**Operational**	**06 Mar 2024**																																				
BP33 SED2	**Operational**	**08 Mar 2024**																																				
BP33 SED2	**Operational**	**09 Mar 2024**																																				
BP33 SED2	**Operational**	**10 Mar 2024**																																				
BP33 SED2	**Operational**	**11 Mar 2024**																																				
BP33 SED2	**Operational**	**12 Mar 2024**	2.58	0.07			0.007	0.001									0.0004	<0.0001		4					0.005	<0.001			0.002	<0.001	2.6	0.05	0.003	<0.001	0.019	0.01
BP33 SED2	**Operational**	**13 Mar 2024**																																				
BP33 SED2	**Operational**	**14 Mar 2024**																																				
BP33 SED2	**Operational**	**15 Mar 2024**																																				
BP33 SED2	**Operational**	**16 Mar 2024**																																				
BP33 SED2	**Operational**	**17 Mar 2024**																																				
BP33 SED2	**Operational**	**07 Jan 2025**																																				
BP33 SED2	**Operational**	**08 Jan 2025**																																				
BP33 SED2	**Operational**	**12 Jan 2025**																																				
BP33 SED2	**Operational**	**13 Jan 2025**																																				
BP33 SED2	**Operational**	**15 Jan 2025**																																				
BP33 SED2	**Operational**	**17 Jan 2025**																																				

Table 3 - Continued

			Metals																																	
			Magnesium	Magnesium (filtered)	Manganese	Manganese (filtered)	Mercury	Mercury (filtered)	Molybdenum	Molybdenum (filtered)	Nickel	Nickel (filtered)	Potassium	Potassium (filtered)	Selenium	Selenium (filtered)	Silver	Silver (filtered)	Strontium	Strontium (filtered)	Thallium	Thallium (filtered)	Thorium	Thorium (filtered)	Tin	Tin (filtered)	Titanium	Titanium (filtered)	Uranium	Uranium (filtered)	Vanadium	Vanadium (filtered)	Zinc	Zinc (filtered)
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L
WDL253 SSTV's												0.011																							0.008
Field ID	**Class**	**Date**																																		
BPUS SW1	Downstream	23 Jan 2024		<1			<0.0001	<0.0001			0.002	<0.001		<1																			0.010	<0.005
BPUS SW1	Downstream	22 Feb 2024		<1			<0.0001	<0.0001			<0.001	<0.001		<1																			<0.005	<0.005
BPUS SW1	Downstream	30 Jan 2025		<1			<0.0001	<0.0001			<0.001	<0.001		<1																			0.011	<0.005
BPUS SW1	Downstream	30 Jan 2025																																		
BPDS SW2	Downstream	23 Jan 2024		<1			<0.0001	<0.0001			0.003	<0.001		<1																			0.013	<0.005
BPDS SW2	Downstream	22 Feb 2024		<1			<0.0001	<0.0001			<0.001	<0.001		<1																			<0.005	<0.005
BPDS SW3	Downstream	24 Jan 2024	<1	<1	0.100	0.014	<0.0001	<0.0001	<0.001	<0.001	0.002	<0.001	<1	<1	<0.01	<0.01	<0.001	<0.001	0.008	0.002	<0.001	<0.001	<1	<1	<0.001	<0.001	0.01	<0.01	<1	<1	<0.01	<0.01	0.006	<0.005
BPUS SW4	Upstream	24 Jan 2024	<1	<1	0.06	0.02	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<1	<1	<0.01	<0.01	<0.001	<0.001	0.005	0.003	<0.001	<0.001	<1	<1	<0.001	<0.001	<0.01	<0.01	<1	<1	<0.01	<0.01	<0.005	<0.005
BPUS SW4	Upstream	30 Jan 2025	<0.001		<1			<0.0001	<0.0001			<0.001	<0.001		<1																			<0.005
BPUS SW4	Upstream	30 Jan 2025																																		
BPUS SW5	Upstream	22 Feb 2024		<1			<0.0001	<0.0001			<0.001	<0.001		<1																			<0.005	<0.005
BPUS SW5	Upstream	30 Jan 2025		<1			<0.0001	<0.0001			0.001	<0.001		<1																			0.01	<0.005
BPUS SW5	Upstream	30 Jan 2025																																		
BP33 SED1	Operational	13 Feb 2024		2			<0.0001	<0.0001			0.005	0.002		1																			0.022	0.015
BP33 SED1	Operational	14 Feb 2024																																		
BP33 SED1	Operational	15 Feb 2024																																		
BP33 SED1	Operational	16 Feb 2024																																		
BP33 SED1	Operational	17 Feb 2024																																		
BP33 SED1	Operational	18 Feb 2024																																		
BP33 SED1	Operational	19 Feb 2024																																		
BP33 SED1	Operational	20 Feb 2024																																		
BP33 SED1	Operational	21 Feb 2024																																		
BP33 SED1	Operational	22 Feb 2024																																		
BP33 SED1	Operational	23 Feb 2024																																		
BP33 SED1	Operational	25 Feb 2024																																		
BP33 SED1	Operational	26 Feb 2024																																		
BP33 SED1	Operational	01 Mar 2024																																		
BP33 SED1	Operational	02 Mar 2024																																		
BP33 SED1	Operational	05 Mar 2024																																		
BP33 SED1	Operational	06 Mar 2024																																		
BP33 SED1	Operational	08 Mar 2024																																		
BP33 SED1	Operational	09 Mar 2024																																		
BP33 SED1	Operational	10 Mar 2024																																		
BP33 SED1	Operational	11 Mar 2024																																		
BP33 SED1	Operational	12 Mar 2024		<1			<0.0001	<0.0001			0.003	<0.001		<1																			0.011	<0.005
BP33 SED1	Operational	13 Mar 2024																																		
BP33 SED1	Operational	14 Mar 2024																																		
BP33 SED1	Operational	16 Mar 2024																																		
BP33 SED1	Operational	17 Mar 2024																																		
BP33 SED1	Operational	07 Jan 2025																																		
BP33 SED1	Operational	08 Jan 2025																																		
BP33 SED1	Operational	12 Jan 2025																																		
BP33 SED1	Operational	13 Jan 2025																																		
BP33 SED1	Operational	15 Jan 2025																																		
BP33 SED1	Operational	17 Jan 2025																																		
BP33 SED1	Operational	18 Jan 2025																																		
BP33 SED1	Operational	19 Jan 2025																																		
BP33 SED2	Operational	13 Feb 2024		<1			<0.0001	<0.0001			0.002	<0.001		<1																			0.006	<0.005
BP33 SED2	Operational	14 Feb 2024																																		
BP33 SED2	Operational	15 Feb 2024																																		
BP33 SED2	Operational	16 Feb 2024																																		
BP33 SED2	Operational	17 Feb 2024																																		
BP33 SED2	Operational	18 Feb 2024																																		
BP33 SED2	Operational	19 Feb 2024																																		
BP33 SED2	Operational	20 Feb 2024																																		
BP33 SED2	Operational	21 Feb 2024																																		
BP33 SED2	Operational	22 Feb 2024																																		
BP33 SED2	Operational	23 Feb 2024																																		
BP33 SED2	Operational	25 Feb 2024																																		
BP33 SED2	Operational	26 Feb 2024																																		
BP33 SED2	Operational	28 Feb 2024																																		
BP33 SED2	Operational	01 Mar 2024																																		
BP33 SED2	Operational	02 Mar 2024																																		
BP33 SED2	Operational	04 Mar 2024																																		
BP33 SED2	Operational	05 Mar 2024																																		
BP33 SED2	Operational	06 Mar 2024																																		
BP33 SED2	Operational	08 Mar 2024																																		
BP33 SED2	Operational	09 Mar 2024																																		
BP33 SED2	Operational	10 Mar 2024																																		
BP33 SED2	Operational	11 Mar 2024																																		
BP33 SED2	Operational	12 Mar 2024		<1			<0.0001	<0.0001			0.003	<0.001		1																			0.008	<0.005
BP33 SED2	Operational	13 Mar 2024																																		
BP33 SED2	Operational	14 Mar 2024																																		
BP33 SED2	Operational	15 Mar 2024																																		
BP33 SED2	Operational	16 Mar 2024																																		
BP33 SED2	Operational	17 Mar 2024																																		
BP33 SED2	Operational	07 Jan 2025																																		
BP33 SED2	Operational	08 Jan 2025																																		
BP33 SED2	Operational	12 Jan 2025																																		
BP33 SED2	Operational	13 Jan 2025																																		
BP33 SED2	Operational	15 Jan 2025																																		
BP33 SED2	Operational	17 Jan 2025																																		

Note(s):

SW3 and SW8 are in the upper catchment of their respective drainage lines and seldom host flow or water to undertake sampling.
SW6 and SW7 were not sampled as access was not possible due wet, boggy ground conditions.

ATTACHMENT F

Macroinvertebrate and Sediment Monitoring Report

Core Lithium

BP33 Biological and Sediment Baseline Monitoring 2024

Final Report

Aquatic Ecology Services

This report has been prepared for Lithium Developments as a technical document. The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. As a result, not all relevant site features and conditions may have been identified in this report.

Rainfall data was obtained from Lithium Developments, Aquatic Ecology Services has made the assumption that all data has been validated and is correct, and that standard protocols were followed during sampling.

Version	Prepared by	Reviewed by	Review Date
Draft 1.0	T Steele	C Pietsch	10/07/2024
Draft 1.1	T Steele	P. Lander	14/02/2025
Final 2.0	T Steele		

Table of Contents

Figures

Tables

1. Background

1.1 Project Description

The Finniss Lithium Project is the flagship mining project for Core Lithium Ltd (Core Lithium), located on the Cox Peninsula approximately 25km from Darwin. Core Lithium has received environmental approval for two mines: the Grants open cut mine and the BP33 underground mine (BP33). The BP33 site is located approximately 7.5 km by road, southeast of Grants and is situated on mineral titles ML32346 and ML32074. Mining has not commenced at BP33, but works began in 2023 at the site, including a box cut and sediment basins, and further works are currently on hold.

1.2 Catchment

The BP33 site is located in the Bynoe Harbour catchment. The catchment consists of several low order streams that are predominately unnamed. To the south, unnamed tributaries flow to the Charlotte River, which then drains west to Bynoe Harbour. The freshwater section of the catchment is short, and the BP33 mine site is located at the headwaters of the catchment. An existing water body (Observation Hill Dam) is currently utilised as a raw water source for the nearby Grants mine. A historical mining pit is located on the BP33 site.

1.3 Monitoring Program

In 2017, GHD conducted aquatic ecology surveys as part of the approvals process for the Finnis Lithium Project. This was the first aquatic ecology survey to be completed in the area. The surveys included collection of data on fish, macroinvertebrate and *in situ* water quality. The sampling design for monitoring in 2022 and 2023 adopted one of the sampling locations from 2017 monitoring, with additional sites included that represent upstream and downstream sites relative to proposed mining and infrastructure at BP33.

A WDL was granted for BP33 in early 2024 (WDL253), but there was no active discharge of Mine Affected Wastewater from the site in the 2023-2024 wet season. Baseline monitoring has been conducted at the site since 2022, and given that no active discharge occurred in 2024, this sampling event is also considered as baseline data collection.

1.4 Scope

Aquatic Ecology Services was engaged by Lithium Developments to complete sample processing, data analysis and reporting for the biological and sediment monitoring component of the macroinvertebrate monitoring program. This report details the outcome of macroinvertebrate sampling completed in the early dry season, 2024.

2. Study Design

2.1 Sampling sites and timing

Four sites were visited during macroinvertebrate and sediment sampling in 2024 (Table 1). This included three downstream sites in the Charlotte River (Bynoe Harbour) catchment and one Reference site located upstream of all proposed mining activity. Sites BPUS SW1 and BPDS SW2 are existing surface water monitoring points at the BP33 site. Site BP3 was renamed to align with other site sampling nomenclature to BPDS SW6. Sampling was undertaken in early May.

Table 1 – Sampling sites for the BP33 Project Area. All coordinates in Zone 52L

Site Code	Site type	Description	Easting	Northing
BP4	Upstream	East Charlotte River at Cox Peninsula Road	697786	8592522
BPDS SW1	Upstream	Unnamed Creek upstream of historical BP Pit	694639	8593821
BPDS SW2	Downstream	Unnamed Creek downstream of historical BP Pit	694473	8593044
BPDS SW6	Downstream	East Charlotte River downstream of Unnamed Creek, previously BP3	693776	8592567

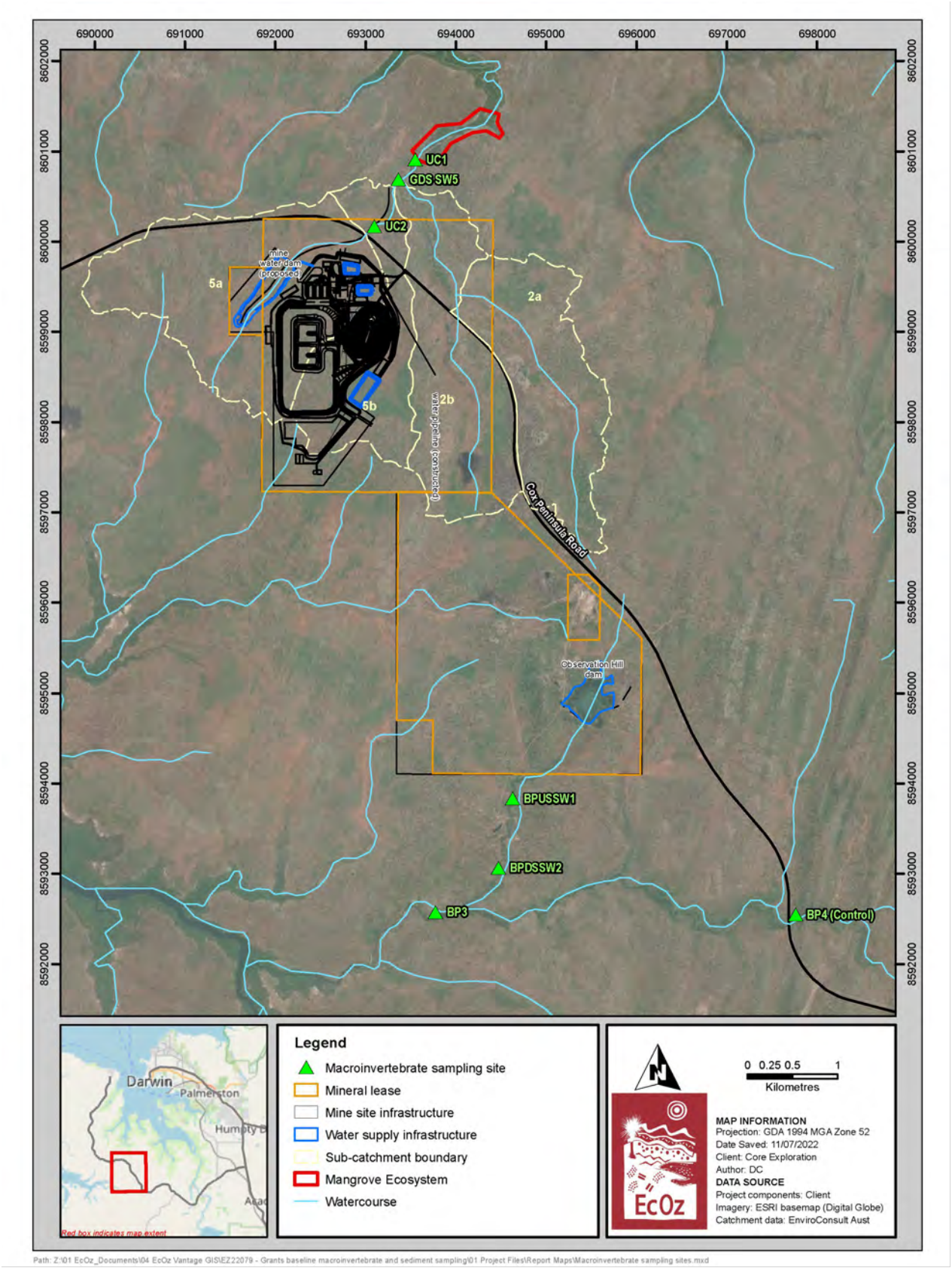


Figure 1 – Macroinvertebrate sampling site locations

3. Methods

3.1 Habitat assessment

At each site, descriptions of habitat characteristics were recorded following the criteria listed in the Northern Territory AUSRIVAS "Darwin-Daly Region Model" field sheets (Lamche, 2007). Habitat assessments were undertaken in consideration of the whole reach sampled, including:

- Site description
- Water quality
- Instream physical characteristics (flow velocity and depth, instream habitat characteristics, bank height, riparian zone width)
- Riparian vegetation characteristics (types, % cover, exotic species, erosion, land use)
- Water quality observations (clarity, odour, oils, foam/scum, plumes etc.)
- Sketches of the site, including a cross - section of the reach.

The information recorded was used to assist interpretation of biological data. Data recorded is also used in conjunction with the biological community information as the basis of the overall health assessment.

Photos were taken of upstream and downstream portions of the reach sampled, as well as bank habitat and other key habitat features. This further characterises the habitat conditions at each site, serving as a pictorial record of site conditions that can be tracked over time using photos taken from the same photo points.

3.2 Water and sediment quality

3.2.1 In situ water quality

The physico-chemical parameters of the water at each site were measured using a calibrated multi-parameter water quality meter. The following parameters were recorded:

- Water temperature (°C)
- Dissolved oxygen (DO) concentrations (mg/L and % saturation)
- pH
- Electrical conductivity (EC) (µS/cm)
- Turbidity.

The results were compared to site specific guideline values (SSGVs) provided in the BP33 Underground Mine - Water Management Plan.

3.2.2 Sediment grab sampling

Sediment sampling methods utilised at each site were in accordance with those outlined in Simpson and Batley (2016) and involved:

- The collection of a composite sample of sediment grabs from random areas of the substrate and sieved to 2mm
- Placing sediments into a laboratory-supplied container, labelled with site and sample details
- Keeping samples in chilled eskies for onward delivery to a NATA accredited laboratory for testing.

Total and acid-extractible metals were analysed for the parameters shown in Table 2.

Table 2 – Testing parameters for sediments collected at BP33

Lab Analyses	Analytes
Total recoverable metals	Aluminium, arsenic, cadmium, chromium, copper, iron, lead, lithium, mercury, nickel, zinc
Other parameters	Particle size distribution (PSD), total organic carbon (TOC), moisture content

Water quality results were compared against SSGVs and sediments against the toxicant default guidelines values (DGVs) for sediment quality (ANZECC & ARMCANZ 2000). The sediment DGVs indicate the concentrations below which there is a low risk of unacceptable effects occurring, and should be used, with other lines of evidence, to protect aquatic ecosystems. In contrast, the 'upper' guideline values (GV-High), provide an indication of concentrations at which you might already expect to observe toxicity-related adverse effects.

3.3 Macroinvertebrates

3.3.1 Field sampling

Macroinvertebrate sampling and field processing was completed by EcOz, and followed procedures outlined in the Northern Territory AUSRIVAS Manual for the Darwin-Daly Region (Lamche, 2007). Sampling involved one field team member scraping submerged root matter associated with the lower bank to agitate and remove macroinvertebrates into the water column, while the other field team member swept a dip net through the water column downstream of the edge habitat, to collect the dislodged animals. Areas of riffle or fast flowing habitat, Pandanus roots and severe bank undercuts were avoided when collecting edge habitat samples.

Once collected, the samples were washed through 10mm and 250µm mesh sieves. The course mesh sieve was examined for large, conspicuous taxa, and these were placed in the labelled sample container. The sample collected in the fine mesh sieve was also placed in the same labelled sample container and filled with 70% ethanol. All samples were sent to the macroinvertebrate laboratory for further processing and identification.

3.3.2 Laboratory processing

As per AUSRIVAS laboratory processing procedures, samples were washed through a series of sieves (10mm, 500µm and 250µm mesh sizes). Any large, conspicuous taxa found in the 10 mm mesh sieve were placed in a separate vial for identification. The contents of the 500µm mesh sieve were retained for macroinvertebrate identification and enumeration, while the 250µm fraction was retained as sample residue for quality assurance purposes. The contents of the 500µm mesh fraction was poured into a Marchant sub-sampler (Marchant, 1989) and extractions made randomly from cells (aliquots) in this apparatus. These extractions were placed under a microscope and the taxa identified and counted. This process continued until either all aliquots were examined, or a total of 200 individuals had been counted and identified. The number of aliquots required to be processed to obtain a minimum 200 individual sub-sample was recorded in order to be able to calculate relative abundance. A Leica stereo-dissection microscope was used to examine specimens. Taxa from the course mesh sieve were identified and added to the overall

Taxa were identified to family level where possible, with the exception of key taxa identified in Lamche (2007), requiring identification to order level (e.g., Conchostraca, Oligochaeta etc.). Quality assurance processes were followed as per Lamche (2007). Five percent of samples were sent to an external laboratory and checked for correct identification by an AUSRIVAS accredited Senior Taxonomist.

3.4 Data analysis

A number of indices can be used to assess and/or quantify the influence of anthropogenic activities on macroinvertebrate communities. Responses to contaminants or changes in flow can result in anything from changes in abundance and diversity, through to changes in community composition through the loss or reduction of sensitive taxa. Macroinvertebrate community indices were calculated for each sample at each

site. A summary of the univariate macroinvertebrate indices assessed as part of this study are provided below:

- Relative abundance – Total number of individual taxa collected at a site. This information is calculated based on processing requirements in the laboratory (% of sample processed).
- Taxa richness (Family) – Total number of taxa present at the site used as a measure of diversity of families (used for long-term data analysis).
- PET richness – total number of families from orders Plecoptera, Ephemeroptera and Trichoptera. PET taxa are generally more sensitive to disturbance.
- SIGNAL-2 – a biotic index that allocates a value to each macroinvertebrate family based on their sensitivity to pollution. The metric is calculated by averaging the index of all families collected. Lamche (2007) cautions against the use of the SIGNAL-2 index for assessing the status of Northern Territory macroinvertebrate communities. This measure is however, considered appropriate for this study as the number of pollution-sensitive versus pollution-tolerant families does provide some insight to the level of stress that the macroinvertebrate community is experiencing.
- To further interrogate SIGNAL-2 results, the tolerant taxa index was calculated from SIGNAL grade numbers. Taxa with SIGNAL grade numbers of 3 or less are designated as tolerant (Marshall et al. 2001), and the number of these tolerant taxa are compared to the overall taxa count and expressed as a percentage. This approach allows for a more nuanced assessment of any impacts associated with active discharge from BP33 in the future and provides background data on the overall tolerance of taxa in the catchments.

Prior to 2021, biological monitoring programs commonly utilised the NT AUSRIVAS Darwin-Daly Early (dry season) Family level Edge habitat model. New guidance on the use of these models in the NT to understand impacts of point source pollution have been published (ANZG, 2021). The updated guidance states that the models are not useful in understanding aquatic ecosystem health outside of the large rivers where macroinvertebrates have been collected, and therefore the use of AUSRIVAS modelling has not been undertaken on the data collected in 2024.

In addition to univariate analysis of metrics, an assessment of differences in the macroinvertebrate community composition was undertaken. Sample data was fourth-root transformed prior to multivariate analysis and was completed using PRIMER Version 7.0.21.

Non-metric Multidimensional Scaling (NMDS) ordination provides a representation of the relative similarity of entities (i.e., samples) based on their attributes (i.e., macroinvertebrate community composition) within a reduced dimensional space. The more similar sites are to each other, the closer they are located in the NMDS ordination space. In this study, a NMDS plot was used for data to display the similarity between site types (Reference and Downstream). A similarity matrix for all pairs of samples based on the Bray-Curtis similarity coefficient was calculated. Stress, which is a measure of the distortion produced by compressing multi-dimensional data into a reduced set of dimensions, was used to gauge how reliable the patterns presented in two-dimensional NMDS plots are. Stress levels above 0.20 indicate a poor representation of

inter-sample similarity and, as such, the NMDS results with stress values of this order require interpretation with caution (Clarke *et al.* 2014).

4. Results

4.1 Site Conditions

Rainfall recorded on site is presented in Figure 2 and compared with totals for each month from the 2023-2024 wet season. A total of 3085.6 mm of rain was recorded in the 2023/2024 wet season, as opposed to the 1354.3 that fell in 2022-2023. The majority of rain fell in January with the following two months also recording more than twice the rainfall recorded in 2023. Despite a WDL being in place, active discharge to the unnamed tributary were not undertaken. Passive discharge did occur however, from constructed sediment basins (Garry Law, Core Lithium *pers comm.*).

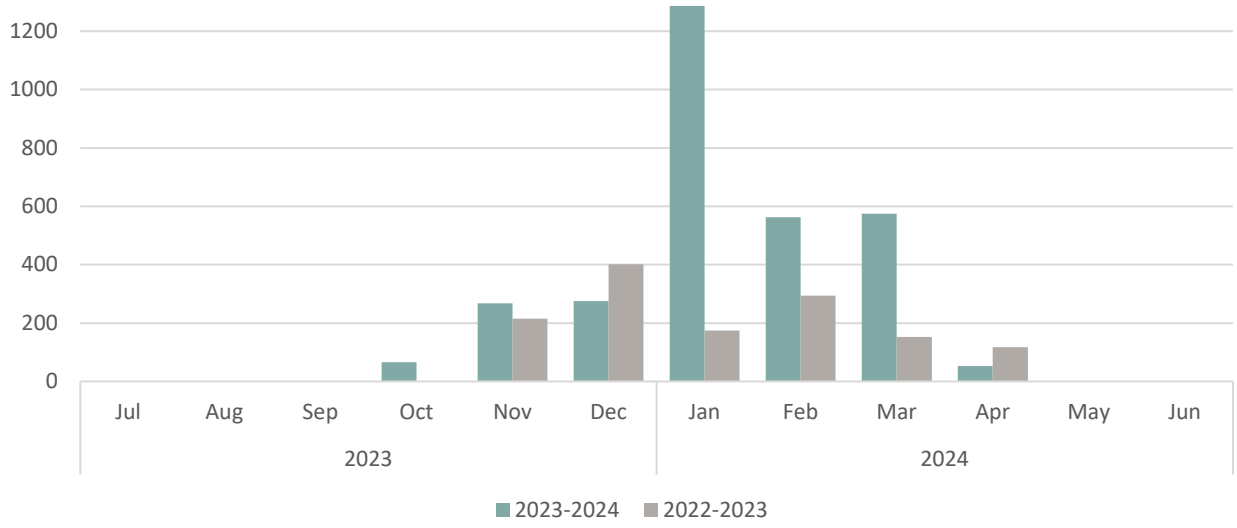


Figure 2 – Monthly Rainfall recorded at Grants July 2023-June 2024 compared with previous years rainfall

4.2 Habitat characteristics

Habitat characteristics of each site are detailed below in Table 3. All sites surrounding BP33 were flowing at the time of sampling.

Table 3 – BP33 site descriptions, May 2024

Site description	Site photo
BP4 – Reference The site is located on an unnamed creek upstream of Cox Peninsula Road. The riparian zone was intact and consisted of paperbarks and pandanus, with little understorey. The riparian zone provided high shading, exposed roots and detritus in the creek bed. Sediments were made up of sand and silt, and some algae was present. Floating macrophytes and submerged were observed in deeper pools.	
BPUS SW1 – Downstream The site is located upstream of sediment basin overflow and downstream of Observation Hill Dam. The site consisted of runs connecting deeper pools. High shading was created by a dense riparian zone. The substrate was a mix of sand and silt and contained a dense cover of detritus. Submerged macrophytes were present in the pool (*Vallisneria sp.*), and sedimentation was observed.	
BPDS SW2 – Downstream The site was characterised by flowing pool habitat. The riparian zone was a mix of small native trees and pandanus, and the pool was fringed by grasses and herbs. The narrow pool was heavily shaded and contained a thick layer of detritus over a substrate of silt with a small fraction of sand. Trailing vegetation and exposed roots were common along banks.	
BPDS SW6 – Downstream The site was located close to the confluence of an unnamed creek and the Charlotte River and was wider than those upstream. The site was characterised by pool habitat that was flowing. Overhanging native riparian vegetation provided shade, detritus and large woody debris to the pool. Exposed and trailing roots were found throughout the pool, mainly from pandanus. The substrate was majority silt with some sand.	

4.3 Water quality

In situ water quality data collected at sampling sites is presented in Table 4. The following observations can be made about water parameters at sites associated with BP33:

- Water temperatures were similar at all sites.
- Dissolved oxygen was recorded within the SSGV range at all sites.
- Conductivity was below the SSGV at all sites, and water was considered fresh.
- pH values were within the guideline range at all sites but varied spatially.
- Turbidity results at all sites were below the SSGV, except BPUD SW1, which was slightly higher.

Table 4 - In situ water quality results from BP33 sites visited in May 2024. Exceedances highlighted in grey

Site Code	Time	Temp (°C)	DO (%)	EC (µS/cm)	pH	Turbidity (NTU)
SSGV		-	66-83	250	5.4-6.7	17
BP4	11:15	25.76	61.9	23	7.56	7.10
BPUS SW1	9:00	25.44	71.93	53.78	5.91	21.63
BPDS SW2	12:03	26.63	66.63	29.29	6.45	5.92
BPDS SW6	11:00	29.96	77.64	25.30	5.80	3.77

4.4 Sediment quality

Sediment quality results for samples collected at BP33 sites are presented in Figure 3 and Table 5. The following observations are made based on the results:

- There was a greater amount of fine material present upstream at BP4 and upstream on the unnamed creek. Other sites were dominated by coarser sediment between 75µm and 2mm.
- The majority of metal concentrations were low at all sites, and there was no spatial trend across sites based on position in the catchment.
- There were no exceedances of the DGV for any metal, but arsenic was elevated at sites BPUS SW1 and BPDS SW2.

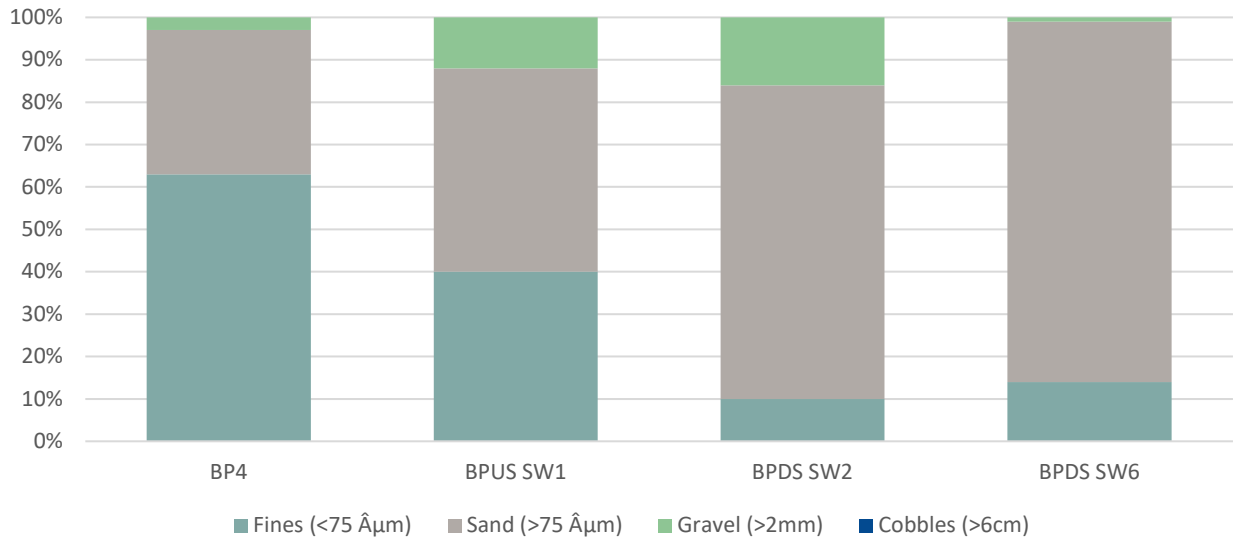


Figure 3 - Particle size distribution of sediment samples collected at BP33

Table 5 - Sediment quality results for samples collected at BP33. All results are mg/kg

Analyte	LOR	BP4	BPUS SW1	BPDS SW2	BPDS SW6	DGV	DGV-high
Aluminium	50	4560	6130	5390	2710	-	-
Arsenic	1	<1.00	18.4	14.8	2.15	20	70
Cadmium	0.1	<0.1	<0.1	<0.1	<0.1	1.5	10
Chromium	1	3.3	14	12.1	5.8	80	370
Copper	1	5.5	6.4	7.3	4.2	65	270
Iron	50	3280	31300	12600	2640	-	-
Lead	1	7	12.7	12	8.2	50	220
Lithium	0.1	2.3	9.6	8.9	4.2	-	-
Mercury	0.01	0.02	0.02	0.02	0.02	0.15	1.00
Nickel	1	3.3	2.7	3.9	2	21	52
Zinc	1	7.4	7.5	12.8	7.4	200	410

4.5 Macroinvertebrates

4.5.1 Metrics

Macroinvertebrate sampling was completed in May 2024, representing the third round of baseline sampling at BP33. Raw data is attached in Appendix B and QA results in Appendix C.

The following section summarises the findings of results from sites sampled associated to the BP33 site in 2024 and in a historical context of baseline monitoring:

- A greater number of individuals were present in all samples collected in 2024 (Figure 4). The highest relative abundances were recorded at the Reference site (BP4), with slightly less found downstream at BP3. Relative abundance results were lowest downstream on the unnamed tributary.
- The taxa richness of samples collected in 2024 were similar to 2023, except BPDS SW2, which was more diverse than other sites (Figure 5).
- PET richness results (Figure 6) show similar number of taxa were found at BPDS SW2 and BPDS SW6, with a lower number of taxa found at sites upstream at BPUS SW1. There was little variability between samples at each site. The number of PET taxa has been falling at BPUS SW1 each year since sampling began.
- In a similar trend to other metrics, SIGNAL-2 scores were similar to previous results, except for BPUS SW1 (Figure 7). There were markedly less sensitive taxa found at the upstream site, but all results demonstrated a pollution tolerant macroinvertebrate community.
- The proportion of tolerant taxa (Figure 8) varied between sites and were far higher in 2024 compare with other years of sampling. The highest proportion of tolerant taxa were found at BPUS SW1, which tracks with other metrics related to pollution sensitivity of the macroinvertebrates collected at the site.

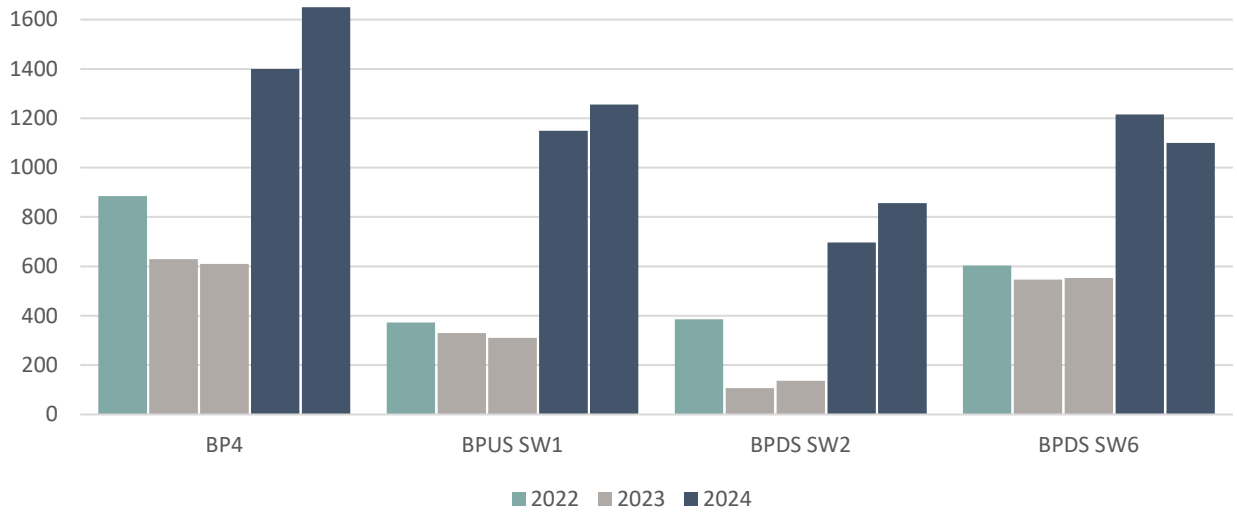


Figure 4 – Relative abundance of samples collected at BP33, 2022-2024

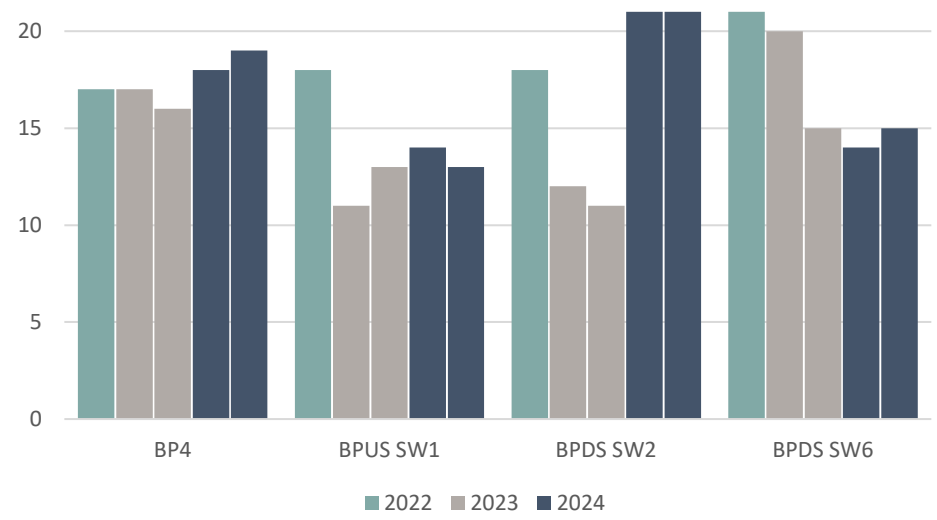


Figure 5 – Taxa richness of samples collected at BP33, 2022-2024

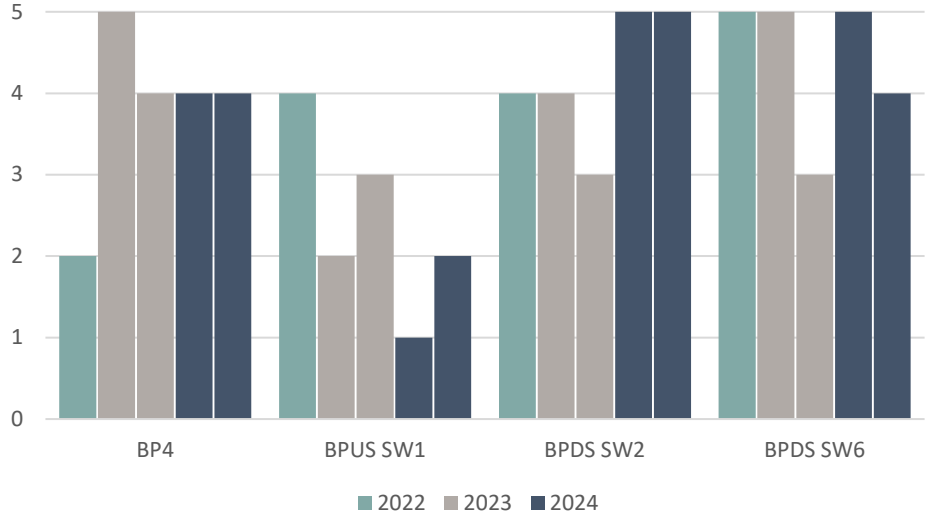


Figure 6 – PET richness of samples collected at BP33, 2022-2024

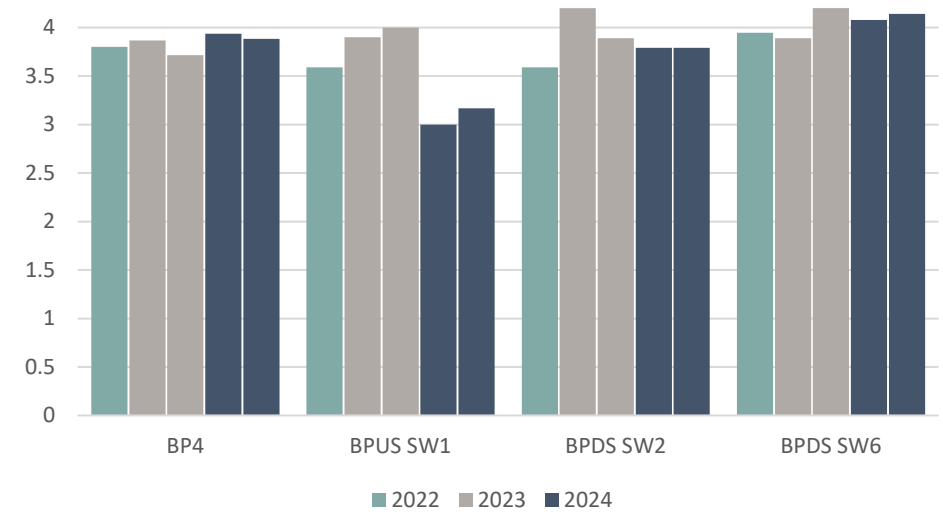


Figure 7 – SIGNAL-2 scores for samples collected at BP33, 2022-2024

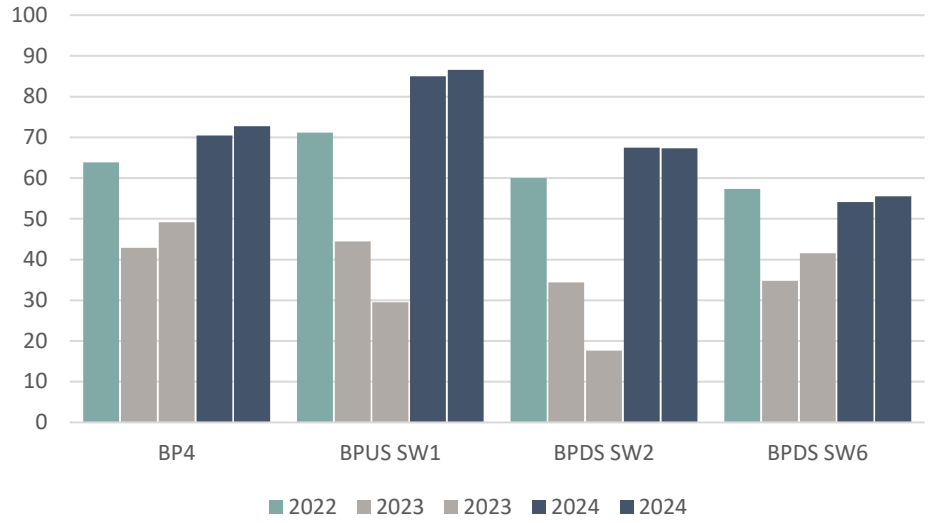


Figure 8 – Percentage of tolerant taxa collected at BP33, 2022-2024

4.5.2 Macroinvertebrate community composition

Approximately 9,367 individuals were collected at four sites at BP33, comprising of 29 families from 10 orders. The proportion of each macroinvertebrate order in each sample is presented in Figure 9. Samples were dominated by true flies (Diptera), freshwater shrimp and prawns (Decapoda) and mayflies (Ephemeroptera). The upstream site BPUS SW1 contained a high proportion of beetles (Coleoptera) and true flies.

The community composition of samples is further explored in Figure 10. All sites had a minimum of 40% similarity to each other, and there was the greatest similarity between samples collected at each site. When viewing community composition data from all years of baseline sampling (Figure 11), there was a high amount of variability between years and sites in a given year.

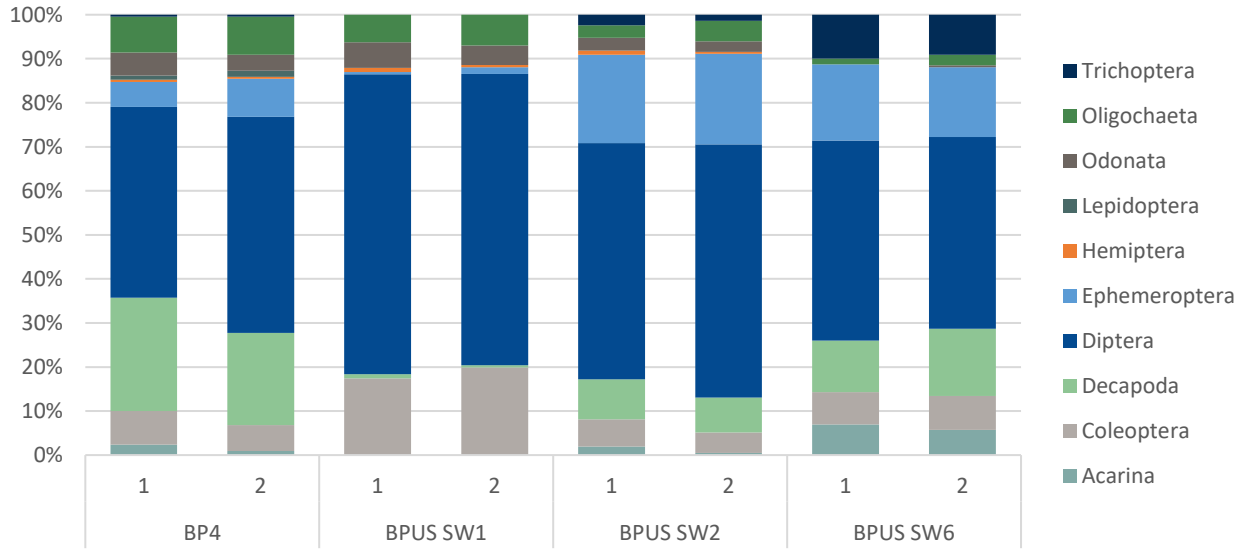


Figure 9 – Proportional abundance of macroinvertebrate orders collected in 2024

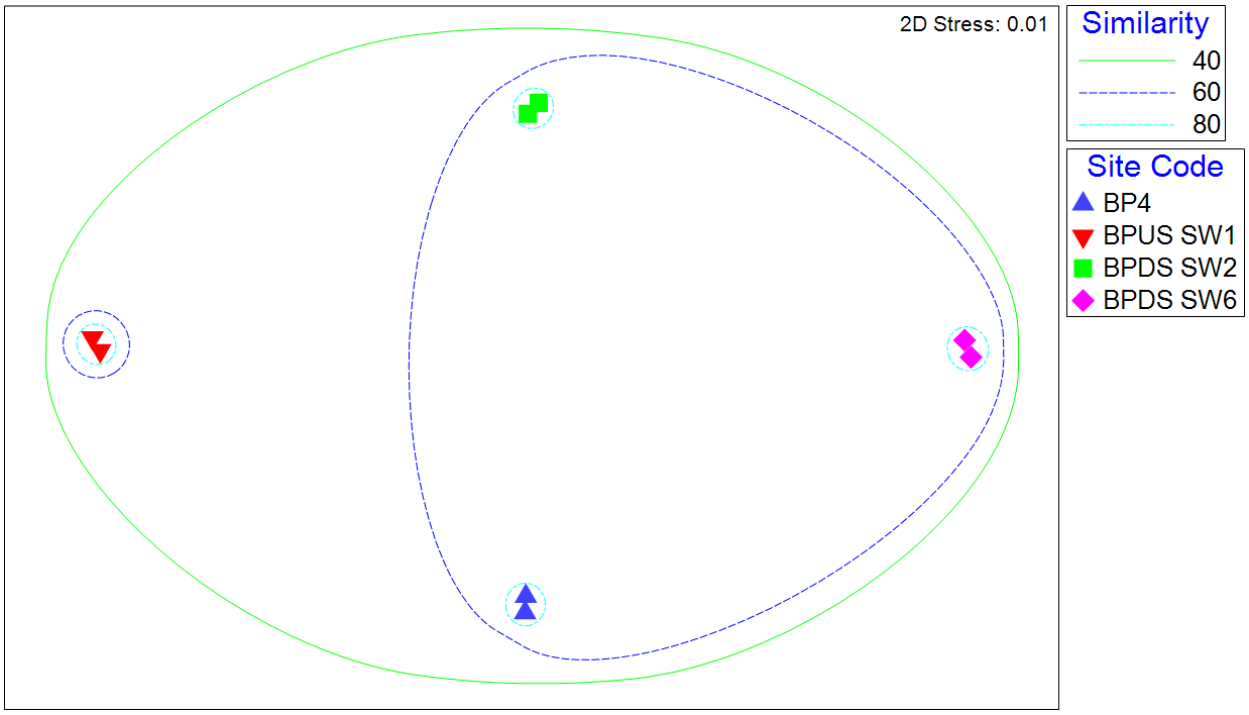


Figure 10 - NMDS plot showing variation in community composition between BP33 sites

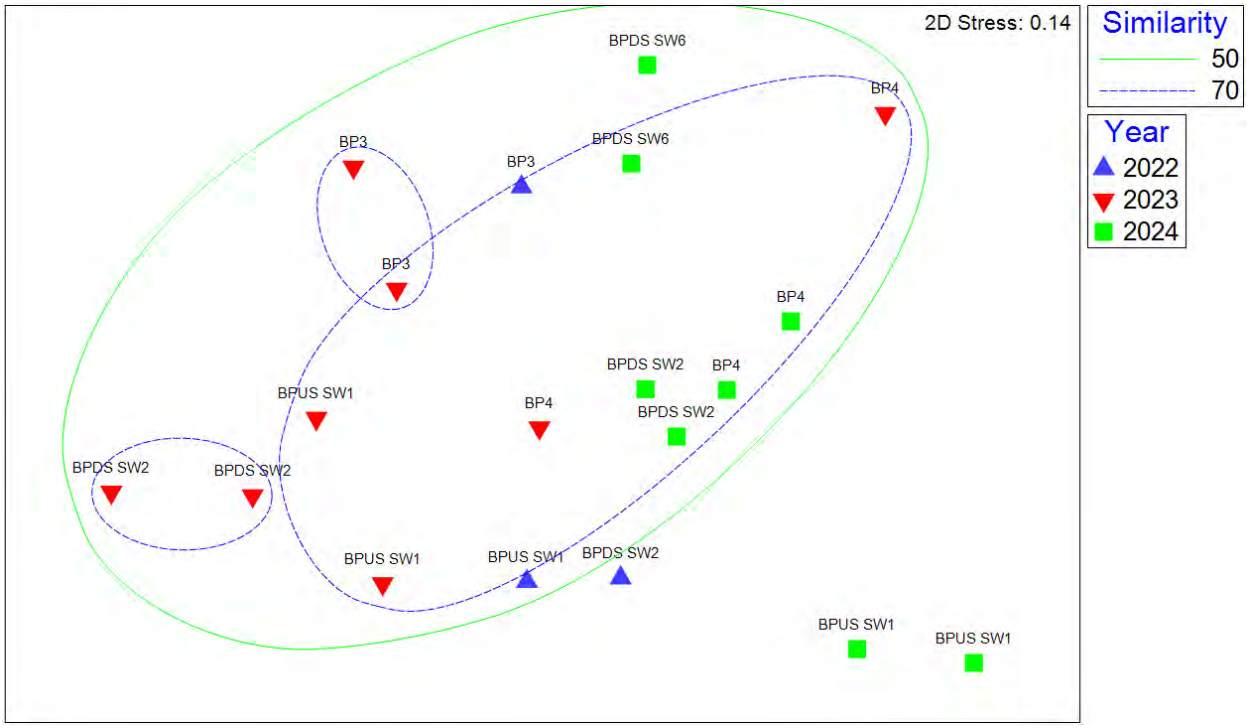


Figure 11 – NMDS plot demonstrating similarities in the macroinvertebrate community between years of sampling at BP33

4.6 Discussion

In 2024, sediment and biological sampling was conducted at the same sites sampled in both 2022 and 2023, representing the third round of baseline monitoring for the project area. The sampling design for this monitoring program cannot strictly follow the before, after, control impact (BACI) design, due to the location of prior mining infrastructure at the headwaters of the catchment. Despite this, the study has utilised the most practical sampling locations and continued the process of baseline data collection.

Sediment results close to BP33 reflect the naturally mineralised area, with a number of metals being present at low levels, including elevated concentrations of arsenic at tributary sites BPUS SW1 and BPDS SW2. Localised surface disturbance had occurred in 2023, and the high rainfall in the 2023-2024 wet season is likely to have resulted in mobilisation and deposition of sediment containing arsenic to the creek, through transport from sediment basins. There were no exceedances for any metal in sediments in 2024, and so the elevated results are at this stage considered background prevailing conditions, and will be considered for historical context when mining activities begin at BP33. There was some sedimentation observed at BPUS SW1, which is located upstream of sediment basin discharge, which may indicate pluming and sedimentation just upstream of the discharge point. This site should be revised further upstream to avoid this impact in the future, and results from this year should be viewed with caution when used in a baseline context.

Although all sites saw a significant increase in abundance of macroinvertebrates collected in 2024, other metrics did not conform to the same trend. Primarily, there was a decrease in ecosystem health at site BPUS SW1. This is likely due to sedimentation at the site. The impact of sediment basin discharge is spatially limited, as the site downstream on the tributary (BPDS SW2) showed either improved or similarity in metrics to previous sampling. Differences in community composition between years are likely related to position in the catchment and habitat variation. As annual wet season rainfall variability is a known climate feature in the NT, the capture of data under different baseline conditions will be helpful for interpretation of results when mining operations commence.

4.7 Recommendations

Impacts associated with the short distance between the upstream site BPUS SW1 and the discharge point for sediment basins, it is recommended that the site is moved upstream to avoid future baseline data for the upstream site being impacted by passive discharges.

5. References

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Appendix A. Sediment quality data

Parameter		LOR	BPDS SW1	BPDS SW1	BPDS SW1	BP4	BP4	BP4	BPDS SW2	BPDS SW2	BPDS SW2	BP3	BP3	BP3
			1	2	3	1	2	3	1	2	3	1	2	3
Fines (<75 µm)	%	1	17	30	45	81	62	73	9	17	19	15	29	15
Sand (>75 µm)	%	1	82	69	53	18	38	26	88	79	80	85	58	85
Gravel (>2mm)	%	1	1	1	2	1	<1	1	3	4	1	<1	13	<1
Cobbles (>6cm)	%	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulfate as SO_4	mg/kg	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Chloride	mg/kg	10	<10	30	20	20	20	20	<10	<10	<10	20	10	<10
Calcium	mg/kg	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Magnesium	mg/kg	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Sodium	mg/kg	10	<10	20	20	10	10	10	<10	<10	<10	10	<10	<10
Potassium	mg/kg	10	<10	20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aluminium	mg/kg	50	4010	6220	4170	3910	2660	3930	6130	4070	4510	3030	3120	4740
Iron	mg/kg	50	7640	22900	5000	3040	2220	2170	18300	12000	14600	3850	12400	12200
Arsenic	mg/kg	1	8.88	31.5	3.91	<1.00	<1.00	<1.00	25.1	14.3	20.8	3.09	9.8	9.03
Cadmium	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	mg/kg	1	9.2	9.8	6.8	4.5	3	4.4	12.5	10.9	10.3	5.2	5.8	7.6
Copper	mg/kg	1	6.2	8.2	5.9	14.7	7.4	8.8	9.2	7.7	5.2	5.2	5.5	6.8
Lead	mg/kg	1	14.4	12.7	9.3	7.7	5.4	8	14.8	12.1	11.7	7.8	9.1	13.2
Nickel	mg/kg	1	2.3	6.2	2.4	2.6	2.8	3	2.7	2.3	2.7	1.5	<1.0	2.1
Zinc	mg/kg	1	5.8	13.2	5.3	6.5	7	7.6	7.3	6.9	7.7	7.1	4.5	9.1
Lithium	mg/kg	0.1	8.2	8.5	7.9	3.6	3.7	4.1	10.1	5.9	8.5	3.6	3.4	3.9
Mercury	mg/kg	0.01	0.02	0.02	0.01	0.03	0.02	0.03	0.01	0.01	0.02	0.02	0.01	0.03
Total Organic Carbon	%	0.02	2.02	5.16	7.14	4.22	2.94	3.22	0.29	0.99	1.14	2.09	1.01	0.56

Appendix B. Raw Macroinvertebrate Data

Order	Family/Sub-family	BP4	BP4	BPUS SW1	BPUS SW1	BPDS SW2	BPDS SW2	BPDS SW6	BPDS SW6
Replicate		1	2	1	2	1	2	1	2
Acarina	Acarina	33	15	0	0	13	4	84	63
Coleoptera	Dytiscidae	40	15	106	181	37	20	32	26
Coleoptera	Elmidae	0	0	0	0	0	0	58	47
Coleoptera	Hydraenidae	13	23	11	6	0	4	0	0
Coleoptera	Hydrochidae	53	54	61	50	3	8	0	11
Coleoptera	Hydrophilidae	0	8	22	13	3	8	0	0
Decapoda	Atyidae	333	338	0	0	50	48	121	142
Decapoda	Palaemonidae	27	15	11	6	13	20	21	26
Diptera	Ceratopogonidae	27	8	0	0	7	8	0	0
Diptera	Chironominae	467	731	567	569	203	348	384	363
Diptera	Culicidae	0	0	44	63	20	8	0	0
Diptera	Empididae	0	0	6	0	0	4	0	0
Diptera	Orthocladiinae	0	0	0	0	7	4	47	37
Diptera	Tanypodinae	113	92	167	200	137	120	121	79
Ephemeroptera	Baetidae	13	31	6	13	77	80	0	0
Ephemeroptera	Caenidae	67	115	0	6	47	80	195	163
Ephemeroptera	Leptophlebiidae	0	0	0	0	17	16	16	11
Hemiptera	Gerridae	0	8	11	6	3	4	0	0
Hemiptera	Mesoveliidae	7	0	0	0	0	0	0	0
Hemiptera	Veliidae	0	0	0	0	3	0	0	0

Order	Family/Sub-family	BP4	BP4	BPUS SW1	BPUS SW1	BPDS SW2	BPDS SW2	BPDS SW6	BPDS SW6
Lepidoptera	Crambidae	13	23	0	0	0	0	0	0
Odonata	Coenagrionidae	0	0	61	56	17	20	0	0
Odonata	Corduliidae	13	8	0	0	3	0	0	5
Odonata	Libellulidae	13	15	0	0	0	0	0	0
Odonata	Zygoptera	47	38	6	0	0	0	0	0
Oligochaeta	Oligochaeta	113	146	72	88	20	40	16	26
Trichoptera	Calamoceratidae	7	0	0	0	0	0	0	0
Trichoptera	Ecnomidae	0	0	0	0	7	4	5	5
Trichoptera	Hydroptilidae	0	0	0	0	0	0	5	0
Trichoptera	Leptoceridae	0	8	0	0	10	8	111	95

Appendix C. Macroinvertebrate QA

Aquatic Ecology Services

Macroinvertebrate Identification
Quality Assurance Certificate

Site Code: BP4
Replicate: 1 of 2
Habitat: Edge
Identification Date: 10/06/2024
Identifier: T Steele
Identification Level: Family
QA Date: 22/06/2024
Senior Taxonomist: S Jones
Percentage Correct: 100%
QA Result: Pass

Taxonomy	Original Count	QA Count	Comment
Acarina	1	1	
Dytiscidae	1	1	
Hydraenidae	2	1	
Hydrochidae	4	4	
Hydrophilidae	1	1	
Atyidae	23	23	
Palaemonidae	1	1	
Ceratopogonidae	1	1	
Chironominae	49	48	
Tanypodinae	6	6	
Baetidae	2	2	
Caenidae	8	8	
Gerridae	1	1	
Crambidae	2	2	
Corduliidae	1	1	
Libellulidae	1	1	
Zygoptera	3	3	
Oligochaeta	10	10	
Leptoceridae	1	1	

Good science at a fair price